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71 FORGET
THE PHANTOM
MENACE, THIS YEAR'S
BIG ATTRACTION
IS UNDOUBTEDLY
APPLE'S ZIPPY G4
POWER MACS AND
STUNNING 22-INCH
CINEMA DISPLAY.
SIT BACK, AND ENJOY!

November 1999



read me first **Simon Jary, editor-in-chief**

Emperor Steve Jobs pulls on the tights as Quartz, Consul Phil Schiller dons a leotard as Carbon, and Senator Avie Tevanian plays the joker as Cocoa. Thumbs-up all round.

Built on the core of the open-source Darwin, Mac OS X will re-vitalize our experience of the Mac. Multitasking, multiprocessing (page 22), memory protection, and easier file access are some of the treats (tried-&-tested at NeXT) on offer. Mac OS X will even be able to run most of your favourite Mac applications without too much tweaking or too many upgrade costs.

But everyone is bound to call it "Mac OS X", missing the Latin "ten" translation by a mile. While this will slow down some of the marketing hype – first rule of brand-awareness being get the bloody name right – it shouldn't affect our transition to this thoroughly modern operating system.

Where Apple runs into its very own Year 2000 problem is in the crucial months after OS X's launch. An operating system as sophisticated and different as OS X isn't going to come without a mighty legion of bugs and incompatibilities. Printer drivers are a sure bet to fail on you; the Quartz imaging model designed for NeXT by Pixar isn't guaranteed to love every piece of old, third-party Mac software.

Don't fiddle while your Mac burns – resist the temptation to switch all your Macs to OS X right from day 1, and test before you finalize the transition. Remember that even the scars from the 680x0-to-PowerPC processor changeover, and from the System 7-to-Mac OS 8 movement, healed fast.

These transition tribulations aren't the basis for the Year 2000 bug that I predict will strike Apple next year. Apple will quickly release updates to correct the worst problems as they surface. And there's the snag... What, by Jupiter, will Apple call these updates?

It was easy with Mac OS 8 and all the systems before then. That's why we're moving from Mac OS 8.6 to OS 9. Some people are still happily using 8.1 or 8.5. It did get stupid a few years back with System 7.5.3 followed by 7.5.5 in the UK – 7.5.4 was US only, or something equally silly. But generally, everyone knows their place in the chronological OS line-up.

Next year, when Apple updates Mac OS X, will the company's imperial marketers stay Roman? Will we be upgrading to Mac OS X.1 and then to X.11? Could it get to X.VIII? Apple is most likely to mix up its alphabets with OS X.1 and X.2, and revert to Arabic with OS 11 rather than OS XI. And then there's OS 9.5... As the lion said to the Christian, it's gonna get messy. **MW**

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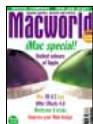
The Mac community's got no Y2K worries, right? Don't be so sure.



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More winners, more great prizes

The following are the winners from Macworld's great line-up of August competitions.

AM Micro competition: Mr D Glover, Essex; Miss L Wooten, Hants; Mr R Picton, Durham; Mr A Cheese, Bristol; Mr A Armstead, Newton Abbott; Mr S Elliott-Hunter, Norfolk; Mr S Edgell, London; Mr P Wilson, Shropshire; Ms E Young, Belfast; Mr D Toach, Leicester; Mr B Shaylor, London; Ms E Coxon, Nottingham; Mr S Michalak, London; and Mr J Sharpe, London.

August Reviews Jackpot winners:

Avid: Amin Redinger, London.

Carmeggedon (courtesy of Softline): Mr Keith Ashby, Hampshire; Mr Alexander Grodd, West Sussex; Mr Michael Minton, Sheffield; Mr Jared Pegler, Gwynedd; and Mr Sudhir Sood, Southampton.

Flash 4: Mr E Barahona, London; Mr Tony Mandi, London; and Mr Paul Vickers, Lincolnshire.

Photoshop 5.5: Mr Phillip Brecht, Manchester; Mr Tony Furniss, Carlisle; Mr Chris Linton, London; Mr Roxley, London; and Mr David Wolfson, East Lothian.

Route 66: Mr Keith Ashby, Basingstoke; Mr Stewart Dunlop, Essex; Mr John Neilson, Northamptonshire; Mr Simon Sykes, Leicestershire; Mr David Welford, Herefordshire.

Sibelius: Mr S Decker, Hertfordshire; Mr Graham Mitchener, London.



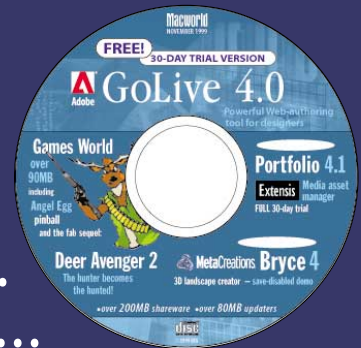
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Macworld

Top gun this month is a 30-day trial of Adobe GoLive 4.0 Web site-creation software, plus all the latest demos, updates, shareware and games. Over to Vic Lennard for the guided tour...



Install Me Before you start working your way through the software on our CD, go to the System Utilities folder and make sure you install the following:

■ **QuickTime 3.0.2**

Many of the demos need this installed. It gives you QuickTime 3.0.2 plus the MPEG, VR, Musical Instruments and PowerPlug add-ons.



■ **Acrobat Reader+Search 4**

Install this version to be able to read many of the on-screen manuals.

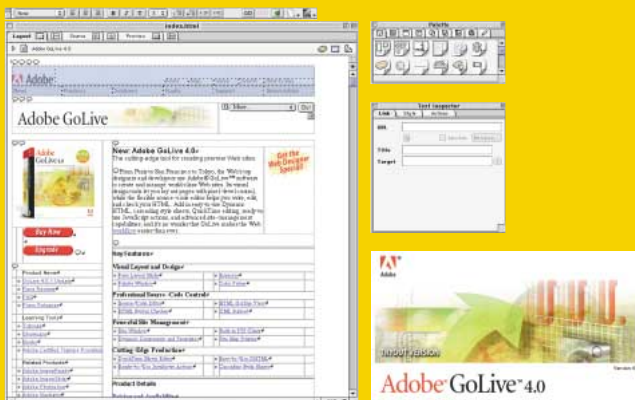
■ **Stuffit Expander and DropStuff**

Versions 4.5 & 5.1.2 are included.

■ **Also included**

A number of useful utilities such as Apple Game Sprockets 1.1.4, InternetConfig 2.0 and Apple Appearance plus essential items such as Apple Disk Copy and Drive Setup.

Adobe GoLive 4.0



GoLive is a powerful Web-authoring environment that is easy to learn and use, satisfies your need for precision and simplifies and automates redundant tasks – but is flexible enough to allow you to code by hand.

GoLive's visual design tools let you lay out pages with pixel-level control, while the flexible source-code editor helps you write, edit, and check your HTML. Add in easy-to-use Dynamic HTML, cascading style sheets, QuickTime editing, ready-to-use JavaScript actions, and advanced site-management capabilities, and it's no wonder that GoLive makes the Web workflow easier than ever.

You will have 30 days to try out Adobe GoLive after installation. Requires a Power Macintosh running Mac OS 8.0 or later.

MetaCreations Bryce 4



Bryce 4 is dedicated to designing, rendering and animating breathtaking natural 3D worlds and abstract 3D sculptures. Bryce is a perfect application for both beginners and advanced users because it is extremely easy to use and it comes loaded with libraries of presets to use in your own work. As you become more proficient, Bryce lets you create your own surface materials, skies and more, while making the creative process every bit as entertaining as the final output.

Start by building your scene using basic objects such as mountains, seas, rocks, balls and blocks, then assign different textures to the objects, adjust the sky and place lights within the scene, then render, and even use the animation controls to create breathtaking movies. Simply edit these shapes to create exactly what you want.

Bryce 4 now includes multiple import and export formats, a new sky lab, and instantly turns free USGS data into 3D models.

The demo is save-disabled and restricted in various ways. Requires a Power Macintosh running Mac OS 7.5.5 or later.

Serious Software

Extensis Portfolio 4.1

Formerly known as Fetch, Extensis Portfolio is considered the media management standard among graphics professionals. Extensis Portfolio 4.1 offers a quick, easy and efficient way to organize, browse, manage and retrieve digital content. For individuals, as well as workgroups, Portfolio greatly speeds up the creative process by letting users locate, access and reuse existing digital files.

Extensis Portfolio 4.1 is a new version of Portfolio, free to owners of Portfolio 4.0. Portfolio 4.1 provides full support for Apple QuickTime 4.0, including formats such as FlashPix, Flash, MP3, and even streaming audio and video. The latest version of the freely-distributable read-only browser is also included.

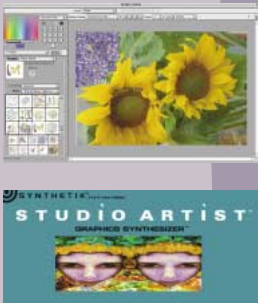
Try the full package for 30 days.



Studio Artist 1.01

Studio Artist is a smart painting, drawing and video processing program with unlimited user-editable natural to out-of-this-world paints, intelligent-assisted painting and drawing, and resolution-independent raster painting with vector editing. It includes auto rotoscoping, morphing and video effects processing, real-time warping, dynamic kaleidoscope and symmetry effects plus unique interactive magic wand region selection and record, edit and playback of paint action sequences.

This limited-functionality demo version does not allow you to save any of your work and will time out after 40 minutes.



Band-in-a-Box Version 8.0

Band-in-a-Box is an auto-accompaniment music program – type in chords to a song, using standard chord symbols, pick a style and press play. A full arrangement is then generated, playing it back through your internal Mac speakers (using QuickTime Musical Instruments) or via an external MIDI system.

This demo allows you to play songs and enter new ones. The following features are disabled in the demo version: save of songs, MIDI files or styles, auto-soloing, melodies and notation.

The demo will expire in December 1999.



Don't miss...

Cool Extras!

The Apple Startup Set 2.0
Make your start-up screen
match your Mac.

PDF-Blit 1.0
Output PDFs from BB-Edit.

Mac ISPs

Abel Internet and FreeUK's
Internet access offers



Welcome to Mac OS
Starting Up...

Also on the CD

APPLE (in the System
Utilities folder):
Apple Memory Guide

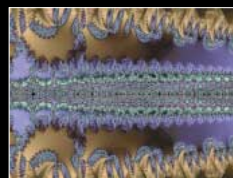
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Over 40 applications
including:
Anarchie 3.6.1
HTML Optimizer 2.6
Mailtron Gateway

EDUCATION
Three programs including:
GrafEq 2.08

FONTS
Three items including:
Alphabet Soup
FontLister



GRAPHICS
Nine items including:
Fractal Explorer 1.5.2
Painting 1.6.3
Rainbow Painter 1.4.0



ICONS
IconMacher 1.4

INFO
Five items including:
1984 OLM Issue 2.5
About This Particular Mac 5.09
Apple Wizards – 9/99
My Mac Magazine #53
plus seven items for developers

MATHS & SCIENCE
Five utilities including:
CalcWorks 1.5.4
McHurricane v3.3.7

SOUND & MUSIC
Eight applications including:
FretPet 2.1.1
OMS 2.3.7
Serial Composer 1.9.1

UTILITIES
Ten categories comprising
almost 70 useful tools for
your Mac including:
Address Book 4.1.10
Drag'nBack 2.9.8
Dumpster 3.4.3
Extension Overload 4.5.1
FinderPatch v1.3.2
MacArmyKnife 1.2
Reunion Planner 4.5
Startup Doubler 2.1
TextSpresso 1.3.2
Window Monkey 1.3

UPDATERS
This month's dedicated
updaters folder includes
95MB of patches to bring
many popular applications
bang up-to-date, including:
Adobe After Effects 4.0
Boris FX 4.0.3
GraphicsConverter 3.7
MacLinkPlus 11.001
Norton AntiVirus (09/99)
SoundJam MP v1.1
Vicomsoft System Menu 1.0.1
Virex (09/99)
Waves 2.7



Other demos include:

Cities of Europe
EtherPeek 3.5.4
Family Tax/Tax Manager
FotoPage 1.3
MailBurst 2.1.2
Pantone HexImage/HexVector
QuickMail Office



Shareware

Many programs on this CD are shareware, which means that if you keep them and use them for more than the allowed time (usually up to 30 days) then you must pay for them. Treat shareware as budget-priced commercial programs – support shareware authors so that they continue to provide high-quality programs for the Mac.

Deer Avenger 2



Welcome to Deer Avenger 2, the sequel to the best-selling parody, Deer Avenger. In Deer Avenger 2, you're still the deer and your mission is to capture three hunters who have run down your favourite doe. You'll find the hunters protected by 28 obnoxious bystanders in three fun locations: a suburban street, a telemarketing office and a roadside bar. Use your wits, your talent and these special features: farts, ducking, and salt power-ups. And remember – all bullets have been replaced with tranquilizer darts (except for the ones aimed at you, so be careful or you'll end up over some fireplace!)

The demo limits you to a single gun option and only the roadside bar location – but it's still tough to complete and a real hoot to play!

Games World

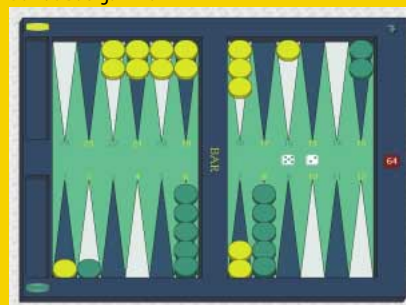
Two other new, hot demos are included. **Angel Egg** is LittleWing's follow-up to the Golden Logres pinball game. This time-limited demo will have you coming back for more, time and time again. **Deathground** is a great strategy game – a bit like the old Risk board game but with mobsters instead of armies, and New York instead of the world. Well worth playing.

This month's Top 10 shareware games will keep you entertained until our next issue. Ambrosia Software's **Cythera** tops the adventure genre while strategists among you will enjoy **Grand Teton**, **MacPuyo 1.2** and **Right! 4.1**. There are the latest versions of **ChessWorks**, **David's Backgammon** and **Mac Football Manager** plus full-on action with **Triple-A 1.6**.



Angel Egg

David's Backgammon



Cythera

Deathground



FAULTY COVER CD-ROM?



If your cover CD doesn't seem to work as it should please check you have read all the instructions on the cover disc pages carefully first. If it still doesn't work then please email Gillian Robertson at gillian_robertson@macworld.co.uk

If your cover disc is broken and you want a replacement CD, please call Kelly Crowley on 0171 831 9252 or send an email to: kelly_crowley@macworld.co.uk

Macworld CD catalogue

Courtesy of Mark Pirri's superb DiskTracker program, Macworld brings you a searchable catalogue of all our CDs from 1997 and '99 – 127,500 files! This will grow month by month to allow you to find any file you want, without wearing out your CD-ROM drive. The latest version of DiskTracker (1.1.4) is also included – don't forget to register if you find our library useful.



Motorola plans G5/G6 future

Chip giant unveils its PowerPC processor road-map, but high-end G4 in short supply



Chip chop
In its forthcoming 64-bit battle with Intel's Itanium processor, Motorola's PowerPC G5 will boast a smaller size, cheaper price and 32-bit backwards compatibility.

Motorola has announced that its strategy for the future of the PowerPC chip will feature "major leaps in microprocessor technology" that will see PowerPC chips running at 2GHz by 2001. In an attack on rival Intel's successor to the Pentium series – Motorola promises "a chip to end all chips".

The PowerPC 7500 (G5) series will feature an extendible architecture, a new data pipeline, and new bus structure. Fully backwards-compatible, it will be available in 32- and 64-bit varieties, and run at speeds of 2GHz and beyond.

Intel, meanwhile, has promised to deliver its 64-bit Itanium processor – previously code-named *Merced* – long before Motorola's announced G5 launch, hinting that the Itanium chip will be available to resellers by mid-2000.

Will Swearingen, Motorola's PowerPC marketing director, claims that the G5 will "more than match Intel's offering on both speed and compatibility".

Intel's Itanium will be unable to run current 32-bit encoded Windows applications, and so will require a built-in emulator on-board. Motorola's G5, though, can run 32-bit Mac applications in full native mode. Itanium is aimed more at the high-end server market, due to its combination of cost and large size.

The G5, meanwhile, is being designed with the desktop firmly in mind. Motorola's plans for the G6 series of PowerPC chips are less clear, but do prove the company's commitment to the RISC processor.

Motorola's plans for the PowerPC series cap the G3 chip at its current top-line speed of 450MHz. The G4, however, is expected to reach the heady heights of 1GHz. Furthermore, Motorola plans to move G4 from the current copper fabrication process to silicon-on-insulator (SOI) technology – boosting speeds by up to 35 per cent, or reduce power consumption by up

to 65 per cent at the same speed. Swearingen did not commit to a shipping date for SOI-process G4 chips, but did admit that Motorola "has had SOI G4s working in the lab for several years".

G4 shortage hurts Apple

Despite a promise from Daniel Artusi, Motorola's general manager of the Networking and Computer Systems Group, that Motorola would "create flagship products and move them into the market rapidly", Apple has been forced to revise its fourth-quarter profits – citing a shortage of Motorola's G4 chips for its systems. Apple interim CEO Steve Jobs said the company received more than 150,000 orders for its Power Mac G4 – but that it was unable to ship them because of the chip shortage. Apple has received only 45 per cent of its initial order from Motorola.

Swearingen acknowledged that Motorola has not been able to ramp-up production of the G4 as quickly as planned, but claimed 500MHz chips would ship "soon". He stressed that there are "no technical barriers to delivering the faster chips".

When he unveiled the new systems at August's Seybold, Jobs said the 450MHz Power Mac G4 would ship in September; with the 500MHz system next, in October. So far, US dealers have reported deliveries of only the entry-level 400MHz G4.

– Jonny Evans, Elizabeth Gannon, and Daniel Drew Turner



New iMacs bring DVD and FireWire

- Transparent casing
- iMovie software
- More, easier RAM
- Refined design



Refined design
The Grape-coloured iMac DV, pictured above, running iMovie, shows Apple's new slot-loading CD/DVD drive – now, there's no more flimsy disc-tray to risk breaking. The new iMacs are an inch shorter, slightly rounder (note the speakers) and very nearly transparent.



As predicted exclusively by *Macworld* last month (October News, page 30), Apple's CEO Steve Jobs has unveiled an all-new family of iMacs and introduced Mac OS 9. The new family of iMacs – "the best consumer desktops on the planet", according to Jobs – includes iMac, iMac DV ("Digital Video") and iMac DV Special Edition (SE). The iMacs are faster, sleeker, quieter, and friendlier, with prices starting at £799 (inc. VAT).

"The day after we shipped the original iMac, we started working on this product," Jobs said.

The iMac design has been refined: it's an inch shorter than the original, with the metal casing around the iMac's CRT removed to make it virtually transparent. "It looks like a bubble," said Jobs.

The old, flimsy CD tray is out, replaced by new slot-load CD-ROM and DVD-ROM drives.

"No more fingerprints on the laser lens, no more toast in your drive," quipped the delighted Apple CEO.

Memory (the base now doubled to 64MB, with an improved 512MB maximum limit) is far easier to install, with simple access via a new button-locked door at the iMac's rear. The side-access panel is also easier to use.

The iMac no longer requires a fan – resulting in a reduction of noise to "half that of competitive products", according to Apple. Amazingly, these are the first fanless Macs since the original model shipped in 1984.

The £799 standard model (with G3 speed increased to 350MHz, and system bus boosted from 66MHz to 100MHz) is available only in Blueberry, while the new 400MHz iMac DV models (£999) come in the usual rainbow colours.

The £1,199 iMac DV Special Edition (above) is available in the same Graphite casing that debuted with the G4 Power Macs (see page 71).

AirPort and hi-fi

The iMac can also now enjoy Apple's AirPort wireless networking (see *Macworld*, September 1999). All the new iMacs feature an 8MB AGP 2x Rage 128 VR 2D/3D high-end graphics accelerator chip, and a new hi-fi audio system designed in collaboration with Harman Kardon. In November, Harman Kardon is introducing the \$99 USB-based iSub – a futuristic, transparent subwoofer, designed to work exclusively on Macs. The Odyssey sound system uses Spatialiser technology to provide "true 3D sound". There are also two headphone jacks in front.

"We've made the iMac beautiful to look at, and now we want to make them beautiful sounding," Jobs said.

Video revolution

Alongside two newly independent USB ports, the DV iMacs include 400Mbps FireWire ports and Apple's new iMovie software, which Apple hopes will attract the growing numbers of home and educational video makers.

Apple expects desktop video to be "the next big thing". iMovie – based on the company's professional Final Cut Pro video-editing tool, originally developed by Macromedia – can transfer video in DV format from any digital camcorder to iMac (and back) via FireWire; perform easy "drag-&-drop" editing to rearrange video clips; add special effects like cross-dissolves; add movie titles and rolling credits; and record voice-overs, as well as soundtracks using CDs, AIFF and MP3 files.

"This is going to be very, very big," said Jobs.

The iMac DV and DV SE feature a DVD-ROM drive, that can play the latest games as well as DVD movies. Each DV model shipped in the US includes a DVD of Disney/Pixar's *A Bug's Life*. Also in the US, buyers who buy a long-term Internet access contract with CompuServe can get a \$400 rebate, bringing the basic iMac's price down to a remarkable \$599.

"I'm in love with the new iMac – it's the finest product Apple has ever created," said Jobs.

"Desktop video and AirPort wireless networking are the next revolutionary features for home and classroom computing."

Apple also announced that Mac OS 9 (£79 inc. VAT) will be available by the end of October – see our exclusive review on page 46. Until OS 9 ships, all iMacs will ship with Mac OS 8.6 – with a £15 p&p update to Mac OS 9 on offer within 90 days.

– Simon Jary

Apple's revamped iMac range

	Previously	Standard	iMac DV	iMac DV SE
Processor	333MHz G3	350MHz G3	400MHz G3	400MHz G3
System bus	66MHz	100MHz	100MHz	100MHz
Memory	32MB	64MB	64MB	128MB
Hard drive	6GB	6GB	10GB	13GB
Internal optical media	CD-ROM	CD-ROM	DVD-ROM	DVD-ROM
Backside cache	512K	1MB	1MB	1MB
Video ports	No	No	1 port	1 port
FireWire	No	No	2 Ports	2 Ports
Price (inc. VAT)	£915	£799	£999	£1,199
Colour	Rainbow *	Blueberry	Rainbow **	Graphite

* Rainbow comprises Blueberry, Grape, Tangerine, Lime, and Strawberry. ** New see-through plastics.

RAM prices 'set to skyrocket'

Taiwan quake sends tremors through RAM market



Xerox's \$950m Tektronix deal

Xerox is to pay \$950 million for Tektronix's Colour Printing and Imaging Division. Xerox will institute a new business unit, adding Tektronix's colour-printing technologies to Xerox's existing black-&-white workgroup printer divisions. Xerox plans to blend its own colour-printer operations with Tektronix's.

Both companies expect the acquisition to help Xerox become Hewlett-Packard's strongest competitor in office colour-printing. Tektronix's Phaser colour laser and solid-ink printers (Designer Edition 840 shown above) racked up close to \$725 million in sales last year. **MW**

The aftershocks of the earthquake in Taiwan are also being felt in the global memory (RAM) market. Prices – already on an upward swing as manufacturers switch their fabrication plants to more profitable products (SRAM and telecoms, for instance) – are now heading towards a period of peak acceleration, maybe up to 350 per cent of today's prices.

Taiwan is responsible for production of 15-20 per cent of the world's DRAM. The devastation wrought by the quake – it claimed 2,000 lives – also extends to manufacturing, which is expected to be disrupted until mid-to-late October, as the island's infrastructure is restored.

Before the event – aware that RAM prices were heading into overdrive – Memory Express's Dennis Ho-Young said: "It's the manufacturers who are increasing prices. They've been delivering RAM at less than cost for a while. Now, they are trying to change that."

As a stark example, Ho-Young quoted a 128MB DIMM costing just £105 two months ago. Today, that RAM chip will cost you £190.

Steve Jackson, general manager at Techworks, agreed: "The price increases were manufacturer-led originally. There have been a lot of mergers and alliances and now there are only four or five players in the world market."

Jackson also spoke of a "lack of understanding between manufacturers and end-users", including resellers, who have been having problems putting prices up. He added: "Consumers expect prices to continue to fall, but manufacturers have been putting them up."

He added: "The situation has been worsened by the resellers being unable to get sufficient memory for their own computer production lines. A company such as Compaq operates at a contract price of \$8 for an 8x8 PC100 chip. On the open market, this has risen to \$20 per chip."

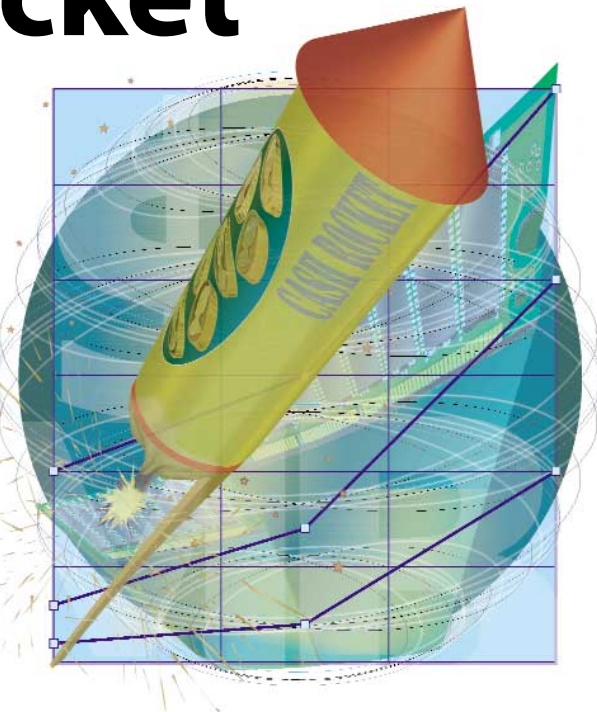
"The price in mid-September was \$14, even before the quake. Last August, prices stood at between \$9 and \$10. This means that all the small beige-computer manufacturers are operating at a sizeable disadvantage."

Dennis Ho-Young said: "We've seen prices increase by up to 50 per cent in three weeks."

Larger retailers saw increases coming some time ago, and have been engaged in selling their stockpiled memory modules. One said: "We saw the rise coming, and prepared ourselves."

Preceding the earthquake in Taiwan, memory vendors in the US spoke of 100 per cent price increases in the two months leading up to September. Stateside RAM vendor Trans International had Power Mac G3 128MB memory modules listed at \$128 in early September; by mid-September, the price had risen to \$225.

GEORGINA WATSON



Following the quake, a fifth of the world's semiconductor manufacturing output has disappeared – just when manufacturers were ramping up production for the peak Christmas market. It is at this time of year that people traditionally buy new systems, or upgrade existing ones.

In terms not just of consumers, but of chip manufacturers and resellers, the quake could not have happened at a worse time.

Jackson, stating that prices are "unsustainable" at 1995-96 levels, says the key now is how resellers will respond to this changing market.

He said: "Resellers might take the opportunity, in order to maintain the supply of low-cost machines, to reduce memory content. It may be that 64MB RAM chips, rather than 128MB ones, will become standard issue in new machines."

"Production lost today won't be felt for another four weeks. Prices will recover, briefly, and then the problem will reassert itself, particularly towards Christmas."

Evidence of the rising value of memory modules is most clearly represented by the two major thefts from memory suppliers in the closing week of September. Both Dane-Elec and GSI suffered losses. The GSI burglary is an ironic tale, as the thieves made off with 500 returned memory modules. GSI suggests that if anyone is sold faulty GSI memory modules they should contact them immediately on 01376 505700. **MW**

Apple Expo, Paris Sacré Bondi bleu!

Showman Jobs on top form

Steve Jobs opened up Apple Expo Paris to rain-soaked cheers and, despite a lack of new product announcements, Jobs again proved to be a sensational Silicon Valley showman. His speech, though, was virtually a repeat performance of his keynotes at July's Macworld Expo NY and August's Seybold 99. Paris was Europe's chance to touch an iBook, glimpse a G4 Power Mac, gaze at Apple's 22-inch Cinema Display and explore the possibilities of the forthcoming Mac OS 9.

Parlez-vous Mac?

There were local announcements too. One highlight was a representative from IBM, who demonstrated the French Macintosh version of Via Voice to rapturous applause. Another was the revelation that Eurosport will join Apple's media partners on QuickTime TV.

Apple's inventory, strategy and products all received a clean bill of health.

To some, the lack of new products was a wasted opportunity. Perhaps – in view of the Taiwan quake and Motorola's inability to ship its G4 chips in sufficient quantity – Apple now feels the same.

Around 100,000 people attended the Expo – a 33 per cent increase on 1998's figures. The exhibition featured more than 220 exhibitors from across the globe, more than 400 brands, and thousands of products, new and old.

The hall was split into four zones: Public; Business; Design; and a Multimedia village.



Holy storage device!

Looking like a Blueberry Batmobile, iomega's new storage solution is half the size of the previous Zip 100 range and can read (and write) Zip 100 disks. The Zip 250MB USB drive should already be available at £149. Zip 250MB media disks cost £15 each.

(Above right) A little bit of Toast

Adaptec's new, improved Toast 4 was also demonstrated at the Paris Expo. The market-leading Mac CD-burning software will be available this autumn for £42 (0800 966 526).



Jobs minds the Gap

In a big-name corporate swap, Steve Jobs – interim CEO of Apple and CEO and chairman of Pixar Animation Studios – has joined clothing retailer Gap's board of directors. Millard "Mickey" Drexler, president and chief executive of Gap, joined Apple's Board in May.

Appointing Jobs to the world of vests, cords and T-shirts, Drexler said: "Steve is one of the most innovative product developers and marketers of our time."

When Drexler took his seat on Apple's Board, Jobs explained: "His [Drexler's] expertise in marketing and retail will be a tremendous resource as Apple continues to grow in the consumer market."

Obsessive Apple watchers recently suggested Drexler joined Apple's board to advise on fashionable colours, after Gap started selling most of its range of casual clothes in a very tangerine shade of orange.

Jobs' Apple and Drexler's Gap are both at the forefront of an innovative style of relaxed-cool advertising – aimed primarily at the 20-35-year-old markets. – Simon Jary

These zones surrounded a huge, central Apple hub, where attendees experimented with working machines from Apple's new product lines.

Highlights of the show included the stand-off between the (very large) Quark booth and the nearby InDesign area.

Jobs is also expected to speak at London's Apple Expo 2000 – to be held at the Wembley Exhibition and Conference Centre from March 30, 2000. – Jonny Evans MW

Apple exec says 'no' to clones

The forthcoming client version of Mac OS X won't be available on third-party systems built around IBM's new CHRP-based PowerPC motherboard spec (see News, October 1999), says Apple vice president of product marketing, Phil Schiller.

CHRP (Common Hardware Reference Platform) is a multi-OS hardware standard created by a consortium, including Apple, IBM and Motorola. Schiller claims that IBM released a PowerPC motherboard design free of charge to third-party developers in order to increase penetration into the Linux market.

While developers will be able to use Darwin – Apple's open-source OS – to develop for CHRP-based systems, Schiller says the client version of Mac OS X will run only on Apple hardware equipped with a G3 or G4 chip. This rules out hopes that third-party Mac clones could return.

Schiller also denied that Apple plans to port Sherlock to Windows: "Sherlock will remain a Mac-only application that we'll use to strengthen the Mac's competitive advantage over other platforms."

– Sebastian Hirsch & Matthew Rothenberg. MW



MP: Multiprocessing Macs back on track

Multiprocessor Macs, a species thought extinct since late 1997, are once again within the realm of technical feasibility. Experts say that, with the release of the G4 chip and revisions to the Mac OS, there are few obstacles to building a Power Mac with two, four – or more – processors.

Although multiprocessing is common in the PC world, two barriers – one hardware, one software – have only recently been removed for Macs.

The PowerPC 750 (G3) processor, which has formed the base of all Power Mac, PowerBook and iMac systems since late 1997, is physically unsuited for a multiprocessing configuration, according to Keith Diefendorff, editor in chief of the *Microprocessor Report* and a former engineer at Apple. One reason, Diefendorff said, is that the G3 implements only three of the four industry-standard “cache coherence states” for Level-1 and Level-2 memory caches. Diefendorff explained that this does not hamper the chip in single-processor configurations, since the three states are all that are needed to manage I/O traffic.

The G3 chip lacks other synchronization features that make multiprocessing just as problematic. Apple could have used software emulation, Diefendorff said, but it would have been “a hassle” and “the result wouldn’t have been that great” due to possible conflicts and processor overhead.

Up G4 it

The recently introduced PowerPC 7400 (G4) processor, on the other hand, is “an excellent multiprocessor chip”, Diefendorff said, because it implements the four required cache-coherence states – and also a fifth state that makes the chip “very multiprocessor efficient”.

This efficiency, he said, is complemented by the G4’s improved bus architecture.

The other element that has hampered multiprocessing is the Mac OS itself, Diefendorff claimed. Until quite recently, he said, the operating system had “no support for pre-emptive multitasking or multi-threading”, which is critical for systems with more than one processor.

Frank Hopper, product manager at Newer Technology, a manufacturer of processor upgrade cards, agreed: “When we discussed it [multiprocessing] with Apple we were told that the OS needed to do some catching up. Until then, the envisioned multiprocessing capabilities won’t be realized.”

Hopper added that, although Mac OS 8.6 has much-improved multi-threading support, it is still far from the optimal OS for multiprocessing. For that, Diefendorff said, the existing Mac OS kernel would need to be upgraded – a task he believes is



possible. This, he said, would enable the “classic” Mac OS to “do multiprocessing nearly as well” as Mac OS X, which, he said, was built for multiprocessing “from the start”.

There have been no Macs with more than a single processor since late-1997, when Power Computing discontinued its PowerTower Pro 250 MP. That model – as well as earlier MP machines from other vendors, including Apple – ran on the G3’s predecessor, the PowerPC 604e chip.

Diefendorff said that “multiprocessing for desktop machines is a hugely good idea”, despite the common perception of multiprocessing as a boon only for servers. Although in the past software such as Adobe Photoshop required some tweaking to become multiprocessor-aware, Diefendorff said that many newly coded applications are written to take some advantage of threading. How well each application supports threading will determine how much better it will run on a multiprocessor system, he said, although for many applications there could be “nearly a full 2x speed boost”. **MW**

– Daniel Drew Turner

G4 plus OS X promise multi-chip Power Macs



MetaCreations to sell KPTX worldwide

MetaCreations’ unpopular practice of selling its powerful KPTX effects package online only in the United States, Canada and Germany is set to change, *Macworld* can reveal exclusively.

MetaCreations now plans to deliver the suite of image-effect Photoshop plug-ins (including KPTGoo, shown above) to consumers online “within the

next quarter”. Subject to arranging secure servers and online transactions in each host country, MetaCreations will set up a network so customers worldwide can access its products.

“These products should be available online within a few weeks, but definitely this quarter,” a MetaCreations spokeswoman revealed. **MW**



**New chip-tech
hypes accelerated
entertainment,
but world waits
for G4 iMac**

Games up Velocity

Steve Jobs declared his passion for computer games at the Apple Expo in Paris, as he showcased the merits of Apple's new "supercomputer": the Power Mac G4. "We love games – they're very important to us," he said.

Jason Jones, co-founder of Bungie software, then went on to demonstrate the impressive Halo – a game Bungie currently have in development.

The reaction to Velocity Engine technology among game developers is positive.

"The G4 looks like it will be a great chip-set," says MacSoft's Brian Nesse. "The folks at IBM/Motorola have spent a lot of time working specifically on the shortcomings of the G3 chip-set. Even without the vector instruction-set and the 128-bit registers, this would be a good upgrade for anyone."

id Software's John Carmack, currently working on Quake 3 Arena, was more cautious: "After Apple gets all its driver-tuning done, it will be interesting to try running timed demos at low resolution to factor the fill-rate out. Apple has a shot at having the best non-geometry accelerated throughput, but it will still be tough to overcome a K7 [AMD's rival to Intel's Pentium III chip] with an extra 100MHz or so."

Logicware founder Bill Heineman explained the benefits: "It means that 3D games can push far more polygons than ever before, resulting in more realistic scenes and displays. When this technology is integrated into QuickTime, it will mean higher quality movies and audio effects."

G4 shortfall

The installed base of Power Mac G4s is currently non-existent, something that Pangea Software's Brian Greenstone – developer of Bugdom and Nanosaur – believes poses obvious problems: "If writing Velocity Engine code is going to take a long time, then it may be hard to justify with



Hello Halo (again)

A tense encounter from Bungie's ground-breaking title Halo, first shown at Macworld Expo, New York.

such a small installed base, especially as the chip isn't on the iMac yet."

Logicware's Heineman concurs: "Unless a cheap G4 upgrade card can be made, G4 support in the short-term is not viable, because the faster speed takes care of our needs."

Mark Adams, of Westlake Interactive – who is currently finishing Aspyr Media's Madden NFL 2000 (above left) – said: "As the technology becomes more prevalent on consumer models, it will have more effect on gamers."

"It takes some work to make a game take full advantage of Altivec/VelocityEngine. Until Apple sells a lot of consumer machines with G4 chips, we won't be able to spend huge amounts of our time-budget on Altivec."

Pressure from Intel and AMD makes the CPU performance of Apple's systems an important strategic issue. It's not the only one. **MW**

– Peter Cohen



Quark's pregnant pause for XPress 5.0

Under pressure from Adobe's recently released InDesign, Quark is busy promoting QuarkXPress 5.0, despite it not being likely to ship this year. Mark Lemmons, Quark's Internet publishing manager, has told Macworld that XPress 5.0 will be available "soon," but refused to name a date.

The upgrade concentrates on Quark's traditional design strengths, and features avenue.quark (see screenshot above) as a free XTension. Avenue.quark, which was included on October Macworld's cover CD, is now being beta-tested, and is also available for download from www.quark.com. The final version is expected in early spring.

Quark also revealed its intention to post

a free Flash extension later this year, allowing users to take Quark content and use it as a basis for Flash sites.

"There are thousands of archived pages of Quark-designed content," said Lemmons. "Avenue enables users to translate documents into XML without disturbing workflow. Our commitment to XML is about freeing-up this archived content, using a standards-based architecture. Web publishing needs persistent standards, just like television."

Quark's plans include a focus on providing new solutions using XML. It has worked with ecommerce organizations on micro-payment and syndication solutions in a bid to solve the problem of making ecommerce work for Web-content providers. This means that traditional

publishers can seamlessly transfer editorial content to the Web – using avenue.quark – at no extra cost and at the touch of a button.

XPress route to Web

"We are trying to provide a baseline for people and open up opportunities for extendible developments. Content is king. The Internet lends itself to being a distributed pool of content."

Lemmons added: "InDesign is the best thing that's ever happened to us; it has made us focus our energy. People made their money with XPress, and now we want them to recognize that it has changed. **MW**

– Jonny Evans

High street Macs: Soon, you could buy different, too

Irish Apple dealer plans huge chain of Mac shops. Apple stays shtoom.

Compu b, an Apple dealer based in the Republic of Ireland, has announced the first global high-street retail franchising operation for Apple products. The franchise package includes a uniform-store outlook, standardized product range, staff training and marketing assistance.

Compu b's range of over 1,000 Apple and compatible products will be available from each store, which will also offer on-line shopping and a build-to-order option.

"We want to see a Compu b store in every high street," said Denis O'Connell, managing director Compu b (www.compub.com).

"A franchise operation for Apple products has never been tried before, and we may do for Apple what McDonalds' did for the Burger."

Announced last month the news attracted over 100 inquiries within 24 hours, 75 per cent from London.

"Take-up of the Compu b franchise has been extraordinary," continued O'Connell. "With three stores in Ireland signed up, we are negotiating for several sites in the UK. We hope to establish our UK flagship franchise in Manchester within two months."

Radio, press and Web advertising campaigns are planned to support franchisees. A centralized call centre will direct enquirers to their local franchises.

Says O'Connell: "We have always had a good relationship with Apple and plan to work with them on this project."

But an Apple UK representative stated that: "Apple's current business plan is to develop our



retail channel, and currently we are working on a number of projects that will come to fruition soon".

About Compu b's plans, he said: "In order to use Apple's name they will have to gain a licence from us first, which they have not yet done."

■ More news of Apple's aggressive marketing comes from Switzerland and Germany. In Switzerland, Apple has agreed a deal through which it will sell products through the country's post offices. The deal begins with 20 locations, but could grow "to as many as 600".

The German arrangement is with Metro AG, in which the retailer will open kiosks in 50 of its electronics stores (Media Markets), selling iMacs and iBooks. **MW**

OS 9's font-management clashes alarm design pros

As Mac OS 9 goes on sale, several third-party developers are still finding compatibility problems between the new operating system and their products. Most say that fixes will be available "very soon".

Reports of incompatibilities between Mac OS 9 and Adobe's popular Adobe Type Manager (ATM) and Adobe Type Reunion (ATR) have alarmed print and design professionals, who rely on the utilities' font-management capabilities.

Adobe's ATM product manager Bur Davis said that "Adobe is working to make sure that ATM and ATR stay compatible" with the Mac OS. Concern over ATM and ATR's compatibility was first addressed in an Adobe-sponsored user-to-user Web forum. In a forum message, an Adobe employee stated that Mac OS 9: "will de-install any version of ATM Light or ATM Deluxe that it detects because all versions of ATM are incompatible with this new OS" and will cause a crash on booting. As a result, the employee wrote, Mac OS 9 users: "will have no ATM on-screen support for PostScript Type 1 fonts, or the ability to correctly print PostScript Type 1 fonts to non-PostScript printers such as ink-jet devices."

DiamondSoft's president Brian Berson said that version 2.0.3 of Font Reserve is "fully compatible" with OS 9.

Other developers have also expressed OS migration concerns. Representatives of Symantec said that Mac OS 9 will pose no challenges for current versions of their software. "The versions that are shipping now – Norton Utilities 5 and Norton AntiVirus 6 – are great," said Rick Gianvecchio, development manager at Symantec. However, he said, "we do have an issue with FileSaver in [Norton Utilities] 4.0.4." Gianvecchio explained that v.4.0.4 contains a "version limiter" that queries the operating system; the application is programmed not to run if the OS version number is greater than 8.x. Norton Utilities users should upgrade before moving to Mac OS 9.

Current versions of StuffIt Deluxe, DropStuff and the freeware StuffIt Expander, all from Aladdin Systems, are incompatible with Mac OS 9, according to company spokeswoman Jennifer Lyng. However, Lyng said, new – and compatible – versions of Expander, DropStuff and the StuffIt engine extension will be included on the Mac OS 9 CD.

A revised StuffIt Deluxe is "in the works," Lyng said, which



will resolve all problems between Mac OS 9 and the utility.

Some developers are pointing fingers at Apple, while sources inside Apple attributed the problem to the developers' programming methods. According to the Adobe forum posting, "Apple plans to announce that it was changes that they made to the OS which caused this problem" and that "late in the development cycle of OS 9, Apple removed an API (application program interface) which ATM depends upon."

However, sources inside Apple said that Adobe, as well as other developers, have been relying on access to the Mac OS's File Control Block (FCB) – the system's method for tracking all open files – and that Apple had made clear to developers its intent to change the structure of the FCB. In fact, sources said, Mac OS System Error 119 was created to flag this incursion.

Apple refused to comment. – **Daniel Drew Turner** **MW**

Attention! Macintosh called up to US Army

Responding to a series of hacker attacks on its Web-site servers, the United States military has switched to using Macs running WebSTAR software to serve the US Army's Web site at www.army.mil. The arrest of a 19-year-old Wisconsin hacker was the latest in a trail of arrests among the hacking community for accessing sensitive areas of the US military's online presence.

Armylink, the public affairs Web site of the US Army, spoke with the Web site administrator for the Army homepage, Christopher Unger. He said the decision to make the switch was to minimize security issues that affected the army's Windows NT servers.

The US Army chose the platform on advice from the World Wide Web Consortium (3WC), which declared: "There is reason to think that WebSTAR is more secure than its Unix and Windows counterparts. Because the Macintosh does not have a command shell, and because it does not allow remote log-ins, it is reasonable to expect that the Mac is inherently more secure than the other platforms. In fact, this expectation has been borne out: no specific security problems are known in either WebStar or its shareware ancestor MacHTTP."

"In early 1996, a consortium of Macintosh Internet software development companies, including StarNine, the developer of WebSTAR, posted a \$10,000 reward to anyone who could read a password-protected Web page on a Mac running WebSTAR software. After 45 days, no one had stepped forward to claim the prize."

Scott Steward, president of StarNine Technologies – manufacturer of WebSTAR – said: "WebSTAR has long been known as the easiest

Web server to administrate, but it's also the most secure anywhere. Besides the Army, the State Department is using WebSTAR for its main site, and there are lots of WebSTAR servers running at government and military departments."

Properly securing a Windows NT server is non-trivial," explained Eric Zelenka, product manager for WebSTAR. "It's a

process that requires the disabling of remote log-in support and the regular, ongoing application of

security patches as they are released from Microsoft. In contrast, WebSTAR running on the Mac OS is inherently secure and ships that way out of the box."

Various uncollaborated reports indicate the US Navy, State Department and other US government agencies, may have made, or might be making, the switch to the Apple platform.

Meanwhile in non-NATO France, French buyers of Apple's new iBook could be in for a nasty surprise if they use the machine's AirPort wireless transmitter for accessing the

Internet. The device uses the same 2.4-GHz waveband reserved by the French military, meaning an iBook

user surfing the Web near an army unit could end up scrambling defence force communications – and thus risk six months in jail.

A clearly irked Rear Admiral Jacques Bizard, head of the National Military Bureau for Frequency Use, told Agence France-Presse: "We're not going to scrap all our communications equipment simply because iBook has suddenly shown up."

MW

– Macworld staff, Adam Engst & Laurence Benhamou



It's war! Uncle Sam recruits the Mac in security drive, as French military fires warning-shot at iBook 'menace'



iBook 'to ship despite Taiwan quake crisis'

The earthquake in Taiwan, and a resulting drop in Apple's share prices, marred the run-up to the iBook launch. But, at the time of going to press, Apple says it is "confident" that the effect on iBook shipments will be minimal. Apple employs several contractors in Taiwan, including AlphaTop and Quanta, to manufacture its iBooks and PowerBooks.

Although Apple was unable to give details about the direct impact on production, Michael Kwatinez, a Wall Street analyst with

CS First Boston, claimed in an Associated Press report that Apple could lose about \$50 million in revenue during its fiscal first quarter due to the quake – revenue that it would get back in the next quarter. While iBooks began to make an appearance in US stores, the UK waited. Apple hadn't set an official release date, and resellers differed as to when they expected shipments.

Apple reseller Mygate is expecting to launch the product on October 23.

"All I've heard are rumours, and as far as we know, there is no change, but I think it may be delayed," said marketing director Maneesh Patel. An Apple spokesperson said the iBook "should be out in October".

Advertising for the iBook is set to go ahead at the end of October, with TV ads featuring big Barry White, and press ads in publications, including *Elle* and *Vogue*.

MW

– Louise Banbury



Law man ponders judgement in Microsoft antitrust trial

The two sides in the Microsoft antitrust case squared off one last time on September 21 to deliver closing arguments before US District Judge Thomas Penfield Jackson. Now, Jackson must decide whether Microsoft is a bullying monopolist that squashed competition and stifled innovation, or a software company struggling to survive, like many others, in a highly competitive industry.

Both sides focused on what has become one of the key contentions in this case: the infamous June 21, 1995 meeting between Netscape and Microsoft officials. At that meeting, the government alleges Microsoft attempted to strike a deal with Netscape that would have divided the Internet-browser

market between the two companies, giving Microsoft control of the market for Windows 95. Netscape, in turn, would agree to confine itself to the browser market for Apple systems and earlier versions of Windows. But Microsoft chief trial counsel John Warden challenged every aspect of the government's characterization of the meeting, accusing Marc Andreessen, Netscape's co-founder, of fabricating notes of the meeting. The case has now been officially submitted to Judge Jackson, who is expected to issue his ruling on the case later this year. After that, both sides will submit written proposals of how they think the judge should tailor his final ruling. **MW**



Apple brand is 7th best known

The Sterling Group has concluded its annual Global Survey of brand recognition. The group interviewed 250 consumers in five different countries in order to establish its conclusions. It spoke to nationals in the US, UK, Germany, Brazil and Japan.

Apple once again has made it into the Top Ten – at number seven – identified by most consumers for its “innovation and design”.

Among the other top brands are: McDonalds; the Body Shop; Nike; Gap; Sony; Coca-Cola; Levi Strauss; Calvin Klein; and Mercedes. **MW**

Mac OS 9.5

Watershed ‘Fortissimo’ to herald future of Apple OS

The forthcoming Mac OS 9 will not be the last “classic” Mac OS development to run on pre-G3 Power Macs. Despite the imminent arrival of the next-generation Mac OS X Client, sources say that Apple has already begun “preliminary work” on a major revision to OS 9 – code-named Fortissimo.

Industry insiders claim that Fortissimo – likely to become Mac OS 9.5 – will ship sometime after the first version of Mac OS X Client.

Nano nano

Fortissimo is said to include changes to the current Mac nanokernel, to improve performance and enhance compatibility with Mac OS X. It may also feature “tweaks” to Carbon, the revised Mac Toolbox APIs that will debut with Mac OS 9. Carbon helps ensure future compatibility between third-party applications and Mac OS X.

Sources said developer feedback will determine the feature-set of the revised Carbon suite.

Meanwhile, Apple is planning to deliver an interim “performance release” of Mac OS 9 that will address a number of performance issues raised by the multi-user capabilities and other new features that will debut with Mac OS 9. According to sources, Mac OS 9 currently boots 5-10 per cent slower than Mac OS 8.6 when those features are activated. Sources said the interim release might ship at January's Macworld Expo in San Francisco. Apple declined to comment.

Mac OS 9 (see Reviews, page 46), due to ship in October for £67, will feature a variety of enhancements – including an upgraded version of Apple's Sherlock Internet-search technology, the ability to set voice-activated passwords and improved multi-user capabilities. **MW**

– **Daniel Drew Turner**

Fujifilm zooms in

Fujifilm has launched a new £400 digital camera, the MX-1700 Zoom, featuring the company's new ground-breaking 3x zoom mechanism. The camera is a smaller, sleeker version of Fujifilm's MX-2700, with its 1.5-million-pixel CCD and aluminium casing.

However, the major improvement is its 38-to-114mm optical zoom-lens, with an eight-element, eight-group lens system. This is electron-beam coated to give sharp, flare-resistant images. The MX-1700 is the first digital camera of its class to incorporate an all-glass aspherical lens – made with a newly-developed glass-injection mould process. This technique allows Fujifilm to manufacture the lens en masse.

The MX-1700 boasts a start-up time of two seconds, and a shutter-release delay and refresh rate of three seconds. The 1.5-million-pixel CCD delivers 1,280-x-1,024 resolution without interpolation, and enhanced colour reproduction is possible with the camera's primary colour RGB filters.

Other features include an automatic flash with



In the frame

The MX-1700 boasts a 38-114mm optical zoom lens.

slow sync mode; a manual mode – for adjusting white-balance and exposure compensation; and automatic playback – with up to 4x digital zoom; and a digital 2x telephoto mode.

The MX-1700 stores images as JPEG files, and offers three compression levels – images are recorded onto SmartMedia removable storage cards. The camera comes bundled with Adobe's PhotoDeluxe version 3 image editing software.

Fujifilm, 0171 586 5900



Morph for your money

PIXELS 3D 3.2 can breathe life into any series of images, such as Rick Schrand's 'Mummy' (above) and Mark Foerster 'Coach'.

PiXELS squares up to 3D task

PiXELS 3D – the 3D modelling and animation software for the Mac – has been updated to Version 3.2 and introduces new features and speed enhancements.

The package is aimed at both professional and novice users, and creates 3D characters, environments and presentations with realistic movements.

Among the professional features in PiXELS 3D 3.2 are the Inverse Kinematics system – that lets users draw bones and joints for fluid and realistic movements – and an Organic Modelling feature for modelling primitive objects like clay.

The MorphMaker feature allows for multi-target morphing – by grabbing points on a face and controlling gestures with sliders. Slider groups can be mixed to create different facial expressions. A new Sculpt tool enhances facial expressions, and creates smooth landscapes and irregular surfaces, while the ShaderMaker interactively creates textures. According to the company, PiXELS 3.2 is 30 per cent faster than the previous version.

PiXELS 3D 3.2 is free to registered users, and sells as a download only for \$99, from www.pixels3d.com.



Cable clutter banished

Zytek has unveiled a solution to desktop cable clutter for iMacs and PowerMac G3s – the ZyPort. The ZyPort keeps cabling from computers, telephones and peripherals tidy and manageable. It costs £5.95 and comes in all five iMac colours.

Zytek, 01582 411 022

Fujitsu's FireWire first

Fujitsu has launched what it claims to be the world's first FireWire 3.5-inch 1.3GB Magneto-Optical (MO) drive. The £343 DynaMO 1300FE is designed to complement Apple's G3 Power Mac. The DynaMO uses 1.3GB removable-storage disks and has internal data-transfer rates of up to 5.9MBps.

It also has read-&-write compatibility with all 128MB, 230MB, 540MB and 640MB ISO-compliant 3.5-inch MO disks.

Fujitsu, 0181 573 4444



21-inch CRT goes USB

LG Electronics has expanded its Studioworks Plus Professional range, with the launch of the SW221U – a 21-inch CRT monitor. The £680 USB-equipped machine has multi-sync compatibility, and VGA-to-advanced SXGA graphics standards. A dot-pitch of 0.28mm and horizontal-scan frequency up to 115KHz enables a top resolution of 1,600-x-1,200 pixels at a refresh rate of 90Hz.

LG Electronics, 01753 500 400



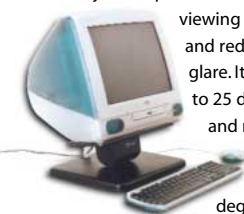
MacTilt works the angles

MacTilt is a pedestal base designed for the iMac. It elevates the iMac to a position suited to the user. The MacTilt adjusts to provide the correct

viewing angle and reduce glare. It tilts up to 25 degrees and rotates by up to 180 degrees.

The MacTilt is priced at £75.

Comrac, 01530 560 880



CDs and books

Guide to Web wonders

The *Internet Cool Guide*, published by Te Neues Publishing, is a guide to the best 1,000 sites on the Web. Each site is given a concise review and rating. Information on content, design, speed and overall coolness is also given. Side-bars give hints on everything from etiquette to cyber-communities, and the book also has a glossary of cyber-jargon and emoticons. The *Internet Cool Guide* is priced at £8.99.

Te Neues Publishing,
0181 898 7774

CDs go back to nature

QA Digital has announced its first series of CDs of royalty-free images. The first three titles – Fruits and Vegetables I and II, and Wild Animals

– each contain 60 illustrations in low, mid and high resolution. They are delivered in JPEG format and clipping paths and masks are provided for easy use and treatment of the objects.

The CDs are available for on-line purchase from the company's Web site, www.qadigital.com

CorelDraw's wow-factor

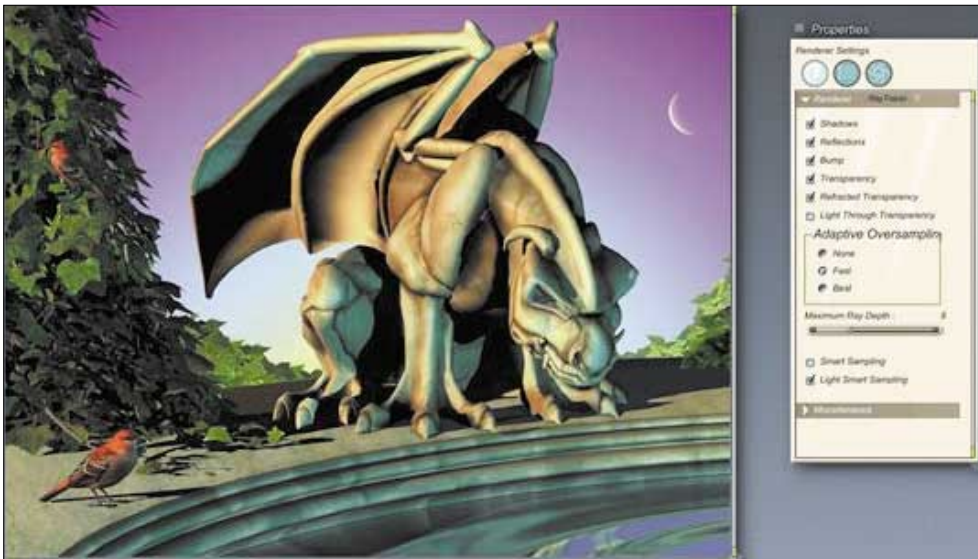
The *CorelDraw WOW! Book*, a new £32 title from Peachpit Press, offers tips and techniques for users of all versions of the software, and is aimed at beginners through to advanced users. Its 238 pages provide basic information on how CorelDraw Tools work; short tips for solving problems; step-by-step techniques and colourful examples of artists' work.

Dorling Kindersley/
Simon & Schuster, 01279 623 936

Rhyme and reason

Sherston Software and the Oxford University Press have joined up to release the £40 second volume of the Oxford Reading Tree Rhyme and Analogy Activity Software. The CD develops the phonic skills of Key Stage 1 pupils.

Sherston Software, 01666 843 200



Monster app

Carrara 1.0's hybrid renderer draws upon the very latest rendering technologies.

Carrara shapes up

MetaCreations introduced Carrara 1.0 – its next-generation 3D-modelling and animation solution for print, video and the Web – at Seybold in San Francisco in July.

Carrara 1.0 contains the most important features found in high-end 3D packages, including hybrid Ray Tracer, advanced shader-editors, multiple modellers, storyboarding, real-time Metaballs, particle systems, 3D light sources, deformers, and physical effects.

The software introduces SmartFlow, a new workflow that MetaCreations calls “a new way to interact with 3D”. Based on a room concept, SmartFlow allows users to “walk” projects through a series of production steps, with each area featuring the tools required to complete the

necessary tasks. Carrara supports the MetaStream format, and the software's Direct 3D and Open GL support allows direct manipulation, texturing and modelling of 3D objects in real-time, using hardware acceleration.

It can also output 3D to the most common file formats used on the Web: VRML, JPEG, GIF, animated GIF, AVI and QuickTime. Included in the package are hundreds of 3D clip-art objects and shaders, camera pre-sets, light source pre-sets and special FX pre-sets.

The API is based on a fully object-oriented and mature source code. The SDK will soon be available on the MetaCreations Web site, containing all the tools to build Carrara plug-ins. **Computers Unlimited, 0181 358 5857**

Motu in USB MIDI move

Mark of the Unicorn (Motu) is shipping FastLane-USB, a two-in, two-out, 32 channel MIDI interface for USB-equipped Macs.

FastLane, priced at £59, is available in five iMac colours, as well as black. It plugs into a standard USB port and connects any MIDI device, such as a synthesizer or sampler, to the G3 Mac or iMac for playback and recording with music software.

Two sets of jacks provide 32 simultaneous MIDI channels of input/output. A MIDI Thru button lets users play

a MIDI sound module from their MIDI keyboard – even when the computer is turned off – without having to re-connect MIDI cables. The Thru button

also provides MIDI splitting from each input to both outputs. Four LEDs indicate MIDI activity. FastLane ships with a USB cable and software drivers, and is compatible with FreeMIDI and OMS – the widely-supported MIDI system extensions for the Mac OS.

Motu, 01767 313 447



Kodak trio led by 'iMac' USB camera

Kodak has introduced a trio of new products – two digital cameras and a digital projector.

The iMac-style DC240i digital camera ships for £425 in a choice of the five iMac colours, and offers the same

features as its parent model, the DC240. These include a USB interface, a 1.3-megapixel sensor, and a 6x

zoom (3x optical as well as 2x numerical). It also features Automatic Focus in single and multi-spot or multi-pattern exposure.

The camera ships with an 8MB CompactFlash card, Adobe Photo Deluxe Business Edition software, Adobe PageMill and Adobe Photo Print.

For the more sophisticated user, Kodak is offering the DC290 Zoom,



priced at £680. Built on the company's DC260/265 platform, the camera has a 2.3 megapixel CCD, 3x optical zoom, increased external memory and enhanced “intelligence”, which allows it to run additional software scripts. In-built albums keep pictures organized, and the camera features JPEG and uncompressed RGB TIFF finished-file formats and video-out.

Third in line is the new portable projector, the DP2000. With a price tag of £4,450, it weighs 4.8 pounds, provides 650 ANSI lumens of brightness, a manual, a 1.25x zoom lens and a 120W lamp with 1,000 hours of working life.

Kodak, 0800 281 487



HP in graphic-arts play



Hewlett-Packard has announced its latest Mac-ready wide-format printer – the DesignJet Color GA. It is part of its bid to make an impact in the graphic-arts market.

The Pantone-certified printer is compatible with Apple's ColorSync, ships with Adobe's new PressReady software, and has built-in PostScript 3. The colour-calibrated output emulates several off-set output standards including SWOP, Euroscale and Japanese. It is also the first ink-jet printer to incorporate Imation's MatchPrint Ink-jet System, a specially developed software RIP and output system.

Imation's MatchPrint Ink-jet System provides graphic-arts professionals with accurate and consistent concept proofs. It comprises Matchprint Color RIP software and Matchprint Commercial or Design Base media. The HP printer, with the Imation enhancement, costs £2,000.

Hewlett-Packard, 01344 360 000

Voyager's fruity range

Voyager has launched the Fruit Machine range of storage sub-systems, available in all iMac and G3 colours. The stackable drives have either a USB or SCSI interface.

The line-up includes hard drives, CD-RW, DVD-RAM and DVD-ROM, DAT and AIT. Prices range from £228 for a USB 10GB disk sub-system, to £3,655 for a 50-130GB ultra2 Wide LVD SCSI AIT-2 Tape drive.

The sub-systems come with all the software and hardware required, allowing users to get up-and-running straight from the box.

The Fruit Machine range coincides with the launch of a dedicated Web site, www.fruitmachine.com **Standard Storage Technology, 0870 2400 471**



pricing update

TGS Amapi 3D 4.1

TGS has cut the price of its Amapi 3D-modelling software, by £98. Amapi 3D 4.1 now costs £167, reduced from £267. The software is a NURBS-modelling solution, popular as a companion to animation and rendering-platforms, such as RayDream Studio, Electric Image and 3DStudio. The main feature of Amapi 3D is its Natural Design Interface, making it possible to work with two hands; one to move the model with arrow keys and the other to use modelling tools with the mouse. **Gomark, 0171 731 7930**

Extensis Mask Pro 2.0

Extensis has announced new pricing for Mask Pro 2.0, a masking tool for Adobe

Photoshop users.

The software now costs £139 for single users – a reduction of £100. Upgrades from Mask Pro 2.0 are available for £69. Mask Pro features colour-matching technology, edge blending, and intelligent edge detection and colour selection, to produce professional-quality results. **Computers Unlimited, 0181 358 5857**

Macromedia bundle

Macromedia is offering a software bundle, comprising Dreamweaver 2 and Fireworks 2 Studio. The Studio bundle costs £299, a saving of £179 on the price of the separate products. Dreamweaver 2 is Macromedia's Web-publishing tool and Fireworks 2 is a Web-graphics production environment package. **Computers Unlimited, 0181 358 5857**

Fujifilm digital cameras

Fujifilm has reduced the price of two cameras in preparation for Christmas. The DX-10, a compact 850,000-pixel XGA camera, has been reduced by £50 to £200. The MX-2700, with 2.3 megapixels and a sleek-silver design, is now £500 – down by £100. **Fujifilm, 0171 586 5900**



Projector lights the way

Davis' new projector, the DL S8, is now shipping, for £2,995. The portable projector has a footprint of 335-x-226mm, weighs 4.5kg and features a 150W bulb with

a lamp life of 2,000

hours. It delivers

800 ANSI lumens and

an SVGA resolution, producing high-clarity images of up to five metres in size. Sporting a built-in 10W speaker, the projector also has a snap-in TV tuner.

Davis, 01344 893 056



XPress plug-in boost

A Lowly Apprentice Production (ALAP) has launched ImagePort – a £79 QuarkXPress Xtension for importing and manipulating Photoshop files.

It gives control over layers, channels and paths in any Photoshop image and eliminates the need to flatten images before importation into XPress.

Xchange International, 0171 637 2966

CTX's flat-screen debut

CTX has added the first flat-screen monitor to its display line-up. The £225 17-inch Pure Flat PR711F is aimed at creative professionals, boasting a maximum resolution of

1,600-x-

1,200

pixels at a refresh

rate of 75Hz.

The horizon

scan range

30-to-95KHz.

CTX Europe, 01923 810800



Kodak pro ink-jet move

Kodak's professional large-format ink-jet printer range has been expanded.

The new 3038 system embraces the latest piezo print-head

technology.

Priced at

£6,000,

it offers

a print resolution

of up to

1,440-x-720 dpi, and

outputs a 36.8-inch print area, with three choices of resolution.

Kodak Professional, 0800 281 487



Wireless Wacom signals new model

Wacom has released a new USB A6-sized tablet with a cordless, battery-free, pressure-sensitive pen and mouse.

The technology uses a low radio-signal to locate the tools on the tablet surface, sending location, pressure and other information to the computer.

Priced at £72, Graphire uses a feature called "absolute positioning", where the direct correlation of the tablet co-ordinates to a monitor

pixel with a high degree of

accuracy – useful

when working

with games

or graphics

applications.

Both mouse

and pen are

inter-

changeable,

and Graphire

automatically

recognises which

input-type is used. Also included is a transparent

overlay for accurate tracing of drawings.

The pen is twice as sensitive as the Wacom

PenPartner UltraPen and features a built-in eraser.

It is possible to set the double switch on the side

of the pen to various keyboard shortcuts.

The mouse is ergonomically designed, with

three programmable buttons, a finger wheel for

fast scrolling and a resolution of 1,000 dpi.

The mouse and pen settings, pressure

sensitivity, and other features, can be altered

through the control panel. The software bundle



Photodisc's latest title, UK Scenes and Landmarks, presents 200 images that have an unmistakably British feel. The two-disk set costs £199.

includes Metacreations' Painter Classic and a series of plug-ins for Photoshop that can be painted on an image with the Graphire.

Computers Unlimited, 0181 358 5857

HexWare has six-appeal

Pantone has introduced HexWare, its £229 Hexachrome colour-management toolkit for designers, pre-press professionals and printers. Hexachrome is Pantone's six-colour printing system that accurately reproduces colours that could not previously be duplicated in print.

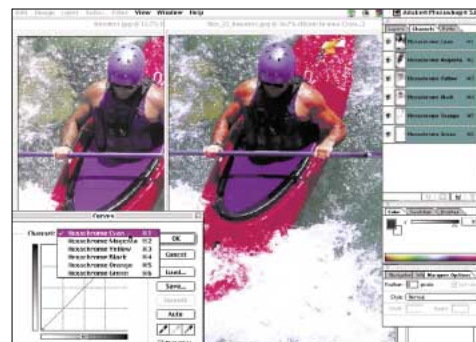
The toolkit includes HexImage for Photoshop and HexVector for Illustrator. With HexVector, artwork can be designed in, or converted to, Hexachrome colours. Six-colour separations

can also be created from scratch. Files are saved as PostScript Level 2 EPS, and can be

directly output to film or plate, or exported into

a page-layout application.

Pantone, 01393 269 666



Shoot the rapids

HexImage generates six-colour separations.



first contact

David Fanning

Y2K headaches are nothing to Apple, compared with keeping Jobs on-board.

Will 'i' stay or go?

People worldwide are anticipating a disastrous New Year due to the Y2K bug. I, however, am safely sealed in my Mac castle and, given the opportunity, will laugh loud as the Microsoft ramparts tumble. However, there's something else bothering me, something that could be as disastrous as Y2K – but for Mac people. The problem is our interim CEO, Steve Jobs. Steve has shaken up Apple, the Mac and, indeed, the computing world. He has single-handedly pulled Apple from the brink of disaster.

He announced a plan to simplify the product range and sort out the OS, once and for all. Since he re-took control, Apple has been in profit and, with the exception of the last quarter, over-achieving at every turn. Since his return, Apple shares have grown from \$12 to more than \$80 at times.

Products have been largely on time and entirely excellent. The world loves the iMac, the pros loved the G3 and will love the G4, road warriors love the latest PowerBook and most people comfortable with their sexuality love the iBook. The missing piece to the Macintosh puzzle is the OS.

OS X Server is already out, but it is still largely a Unix-enthusiasts' Mac OS, and not for your average Joe. OS X Client is what we're all waiting for: the uncrashable, super-fast multi-threaded multi-tasking quantum leap that it promises to be. It will be out early-to-mid-2000 and will give the Mac the most modern, stable and fastest desktop OS in the world.

It will be a big change, but for elders like myself – who weathered the storm between System 6 and System 7, and 680x0 series to Power PC – it shouldn't be too painful.

I can't wait to get my machine on to OS X, even though it may well mean that it needs to be a new machine. It will be an almighty house-clearing exercise and many older Macs will not make the grade. But PC users have had to throw out old models many times to keep up with Windows.

But this is not what's worrying me about 2000. What does, is that Mr Jobs, loveable rogue that he is, will have fulfilled his plan to save Apple and change the world, again. But, what then? Will he peer down at his flock of happy Macintosh users and leave Apple again, his work done. I think he will. It's this, I fear, may spell disaster for Apple.

Many people have run Apple. After Steve's first stint, there was John Sculley, the ex-Pepsi CEO that forced Jobs

out of Apple after Steve had tried to do the same to him. Bill Gates sent Sculley a memo in 1985, suggesting that licensing the Mac OS would be a good idea – almost five years before Windows was released. Sculley disagreed. Gates went on to become the richest man in the world.

Michael Spindler replaced Sculley in 1993. Spindler was responsible for the Copland project, an operating system that would have worked much like today's OS 8.

Unfortunately, development of the updated operating system was a disaster; years of work were wasted and valuable time lost. Microsoft, meantime, was storming ahead with Windows 95 and 98. In a panic, Spindler also licensed the Mac OS, but it was too little, too late, and licencees continued to take business from Apple. It was around this time that the press glued the adjectives "beleaguered" and "troubled" to Apple's name.

Gil Amelio was drafted in to sort the whole mess out. He is remembered as the guy who tried to sell Apple. He then bought NeXT for \$400 million and got Steve Jobs into the bargain. He may have thought that a clever move – and certainly did Apple no end of good. However, Steve soon forced Gil out and replaced him with ...Steve Jobs.

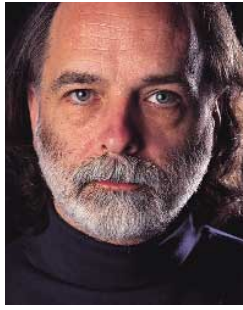
And so tale turned full-circle. But the question now is, who can ever replace Steve? Nobody has the vision, the experience, the chutzpah to take Apple where Steve has taken it. Wall Street would certainly take a dim view of his departure, and share prices would plummet.

Any new recruit will fall into one of two categories: those who can work with Steve – scarce – or those who can't work with Steve – abundant. Working as Apple CEO with Jobs' approval would make the position extremely difficult. Jobs is the master of hands-on management, and it is unlikely to be able to keep his hands to himself. Any pukka CEO will refuse to work like this – and that means no Steve.

The options are depressing. Apple simply isn't the same without him. Every CEO since Jobs has made mistakes – usually big ones. I just hope Steve's big mistake isn't leaving Apple to yet another buffoon.

There is a Third Way: that he stays forever. Yet this begs the question why he continues to remain as interim boss. He may have revived Apple's fortunes by putting the "i" into Apple's products – but will he do the same, by taking the "i" out of his title?

MW



Michael Prochak

The more you seek the truth concerning e-commerce, the more elusive it becomes

E-conomy drive

Some people get into politics because they believe in something. Others get out of politics for precisely the same reason. Point of view is everything, and while, as they say, there are lies, damn lies and statistics, in politics, that usually translates as lies, damn lies, and don't call me big nose.

Meanwhile, out in the baleful backwaters, where fewer people voted in the last European elections than watch an episode of *Coronation Street*, there have been more than the usual rumbles of madness from the government. The word is, we're all going to have to stay up extra-late, studying for some sort of mandatory drug test and, according to Tony Blair, if we're not exploiting the opportunities of e-commerce, we could go bankrupt.

It seems Our Tony is worried about what he calls 'signs of conservatism' within British business, and the possibility that we – in the car park of Europe – are lagging behind America, Canada, Scandinavia, Germany and France.

But in the world of e-commerce, everyone has a big nose, and, although there are plenty of statistics flying about, they usually hold about as much water as a slug in a salt factory. According to a home-grown report called "*e-commerce@its.best.uk*" – prepared by some "*sadb@st.ard*" from a "performance and innovation unit" – by 2002, Britain should have a higher percentage of people with access to the Internet than any other G7 country.

The report also claims that the cost of access should be the lowest – although nobody's bothered to mention this to BT. The weak link in this otherwise cheery scenario is the SMES (Small-to-Medium-Enterprise Sector), which – according to the report – has failed to grasp how the Internet can reduce costs and pose a threat if ignored.

Currently, around ten per cent of UK small businesses have Web sites compared with 25 per cent in the US. Taking a slightly different tact, another recent study from Dataquest suggests that the e-commerce phenomenon expected this holiday season – millennium bug permitting – won't be limited to the United States, and predicts that online spending around the world should hit \$12.2 billion in the fourth quarter. And, with almost a third of these dollars coming from outside the US, this total figure is around three times higher than the amount spent online last year. Contrary to popular belief, it would seem US Net

newbies have been somewhat reluctant to try online shopping, and that it's been the non-Americans who have been more adventurous. In the Asia-Pacific market, for instance, the growth in e-commerce has allowed consumers to save money on goods that would be much more expensive to get at home. However, in the same time-frame as these reports, we were also bombarded with stories of shaken investors nursing huge losses as Freeserve – one of the first Internet companies on the London Stock Exchange – took a nose-dive. As one analyst put it, Internet valuations "have taken a hell of a whacking around the world in the past few months" – and there's little doubt that valuations still have to come down.

Throw in a smattering of anecdotes about 'successful' e-commerce sites, such as Amazon – and a few others that are still running at a huge loss – and you begin to understand why this whole e-conomy thing can not be taken at face value.

So who do you believe? Well, the government wants you to listen to a new e-envoy called Alex Allan, an unusual civil servant who runs his own *Grateful Dead* Web site (www.whitegum.com). From January, Allan and his team will be sifting through the statistics to find out where all-things 'e' really are, and where they might be going – galvanizing business, and addressing issues such as social exclusion. As Labour's chief advocate of a wired economy, the key message is bound to be something like "e's are good" and e-commerce is not something that sits apart from the rest of the economy.

At the moment, we can buy Mac-stuff online from the Apple Store and we can buy books, CDs and a variety of other bits of miscellaneous junk from Internet sites. But how – or, rather, if – e-commerce will change our lives and shopping habits is still anyone's guess. The hype is deafening and trying to decipher the lies and statistics will send you round the bend. The truth is out there ... but at the moment, no one is quite sure where.

Fortunately, as far as I can tell, Alex Allan doesn't have a big nose, and, for me, there's something reassuring about a government e-envoy that also runs a *Grateful Dead* Web site.

After all, as one of the *Dead* songs puts it: "What's the use of calling shots, this cue ain't straight in line. Cue ball's made of Styrofoam and no one's got the time."

MW

We don't need faster chips
– just better software

Desktop critic

DAVID POGUE is the author of *iMac for Dummies* (IDG Books Worldwide, 1998) and the *Great Macintosh Easter Egg Hunt* (Berkely Books 1998). He also wrote *Macs for Dummies*, fifth edition, updated for Mac OS 8, *The Weird Wide Web* (IDG Books Worldwide, 1997) and *The Microcloth Joke Book* (Berkeley, 1997).

Less can be Moore

In a 1965 speech, computer scientist Gordon Moore – who shortly thereafter became a founder of Intel – predicted that personal-computer speeds would double every year. That impressive observation, soon dubbed Moore's Law, surprised millions of people, prepared the PC-buying world for the “whatever you buy today will be obsolete next year” syndrome that dogs us to this day, and became a favourite of journalists everywhere.

Writers trot it out to justify whatever argument they happen to be making – from “Buy the stuff reviewed in our magazine” to “Apple is dead”.

Get it right

But believe it or not, Moore's Law is malarkey. First of all, we didn't even get the quote right. Moore wasn't talking about computer-speed doubling at all; he was talking about the number of transistors on a typical chip, which isn't necessarily related. For that matter, he didn't actually say that the doubling would take place every year; he really said “every 18 to 24 months”. Second, even if we had understood it right, Moore's Law wouldn't be accurate anyway. The first Mac, in 1984, ran at 8MHz; if that speed had doubled every 18 months, we would now be scooting along on 8,192MHz PowerPC chips that would melt right through our desks and straight on down to China.

Instead, the state of the Macintosh art today is a 500MHz PowerPC G4 chip. Now, the following may shock you, so I hope you're sitting down: I think that today's chips are fast enough. I'm not one of these people who scans the Mac rumour Web sites every week looking for news of the G5, G12, or G28 chip; my Mac scrolls, displays graphics, and totals spreadsheets instantaneously. I can't imagine why anyone would want to pay more for a faster chip.

I'm not saying that I think Macs are fast enough – I'm saying that the chips are fast enough. There's a big difference. For example, ten years ago, today's Macs would have been considered unimaginably quick. Remember the Mac IIx, which was ten times slower than today's Power Macs? This very magazine called it “wicked fast”. And yet, consider how many times every day you wind up just sitting there waiting for something to happen: every time you launch a program, turn file sharing on, switch your

AppleTalk connection, dial the Internet, wake up your computer from sleep, or – and this is the big one – start up the computer. These and many other bottlenecks make a mockery of our hopes that faster processors will help us get our work done sooner.

Bright ideas

Fortunately, as the computer industry heads into the year 2000, a few bright minds have begun to discover that software can compensate for such bottlenecks. These clever programmers are making it clear that, to get faster Macs, we don't have to wait – like sitting ducks – for the next generation of PowerPC chips.

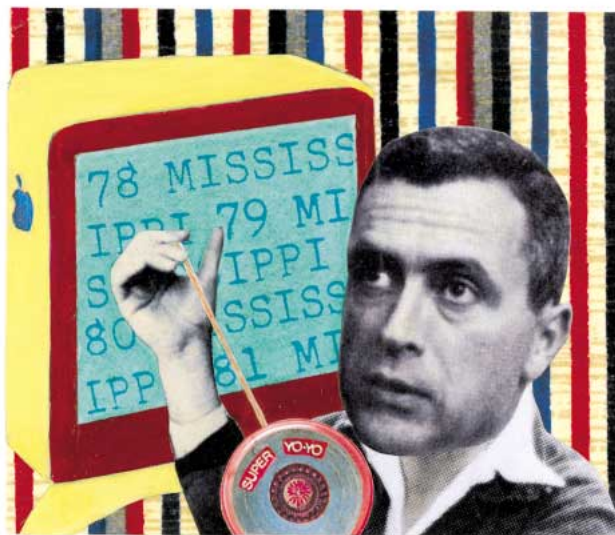
For example, programs like SpeedStartup from Casady & Greene and StartupDoubler (shareware) memorize your

extensions, shaving 30 seconds or more off every start-up. The iBook's new Save And Shut Down command is equally brilliant: according to Apple's pre-release documents, it memorizes the current status of all your open programs. When you turn on the iBook again later, you're taken directly back to whatever you were doing, bypassing the entire start-up and document-opening sequences. Any program – such as Intuit's Quicken and Palm Desktop – that attempts to auto-complete your typing is also a godsend.

Also doing remarkable work in SpeedSmart Software is, of all companies,

Microsoft. Because the company's gigantic applications may never actually run quickly, they compensate by saving us time in other ways. Classic example: a single click on the glorious AutoFill icon on the Internet Explorer tool bar tells the application to fill your name, address, phone number, and other repetitive information into the blanks on any Web page. Similarly, when you save a document, Word proposes naming the file after the first line of the document (“November Meeting Agenda,” for example) instead of “Untitled.” You save ten seconds each time it guesses right.

Only if such not-so-artificial intelligence blossoms in our everyday software – and in the Mac OS – will we ever catch up to the speed gains promised by Moore's so-called Law. Otherwise, we'll continue to suffer from the effect described by Pogue's Law: any extra speed introduced by faster chips is soon offset by increasingly bloated software.



MACWORLD RATING

★★★★★/9.0-10.0 = EXCELLENT

★★★★/7.0-8.9 = VERY GOOD

★★★/5.0-6.9 = GOOD

★★/3.0-4.9 = AVERAGE

★/0-2.9 = POOR

MACWORLD POLICY

At Macworld, we don't think our readers should have to worry about whether ratings are based on a real product or a prototype. Therefore, we simply don't rate products unless they are real, shipping versions – the products we rate and review are the same products you end up buying. All prices exclude VAT, unless stated.

MACWORLD JACKPOT

The Macworld Jackpot gives you the opportunity to win some of the products we review. Simply dial the number indicated on participating reviews. Calls cost 60 pence per minute. Winners are selected by computer the day after the closing date.

Revamped-Mac OS



Mac OS 9

Publisher: Apple (0870 600 6877)

Pros: Improved Internet searches, stability and sci-fi security options.

Cons: No support for pre-PowerPC Macs.

Price: £67

Star Rating: ★★★★★/8.7

The wait for OS 9 has not been a long one – most people are looking ahead to OS X Client for the next big thing. However, the OS 9 upgrade is by no means a minor one. OS 8.6 was really the last OS to complete what was once the Copland project. Offering new features previously unannounced and billed as your Internet co-pilot, OS 9 has Internet goodies – but there are advances in all areas.

One much-demonstrated part of the upgrade is Sherlock 2. When it was first released, it was heralded as a great advance – but at the same time, many people had their ideas on how it could be improved. Those ideas have been put into action, and now there are a variety of choices for different search methods. For instance, if you want to search for a particular book, simply click on the shopping trolley icon. Type in the title, or author, and a search will not only bring up a list of books, but a list sorted by price and availability. This is a pretty impressive feature, but is not without its drawbacks.

First off, the places searched are all US-based – not surprising, as the software we have is the US version. However, there were no differences in the International English version of Sherlock in the past, and I'm not confident that Apple will take the time to make a UK version for Sherlock 2. If it doesn't localize Sherlock 2, we are stuck with US vendors and dollar prices. This is not always a bad thing, but it's not ideal. I suppose it won't take long for UK retailers to catch on and produce Sherlock plug-ins for UK shopping. If they aren't included in the original release, it will probably be down to us to search out the new plug-ins. Other plug-in sets include a



Web detective

There is something in OS 9 to please everybody – for some this will be the major redesign of Sherlock.

search facility for the Apple Web site, and the Apple Tech Info Library – a handy resource for any Mac enthusiast. Also included are News and Reference searches. These are very useful, but more companies need to get on-board before you would consider using Sherlock alone as a reference or news source.

Sherlock 2 is a great tool for finding what you want on the Internet, but it does have some competition. Copernic 99 (see page 61) has just been released, and it's cross-platform. It works in much the same way as Sherlock, but it isn't as advanced as Sherlock 2. For Apple to keep ahead of the game, it needs to update Sherlock often.

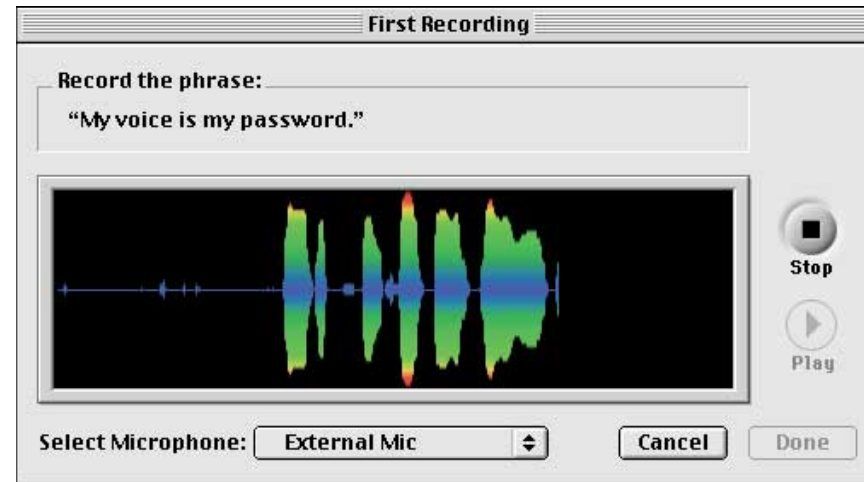
Auto updates

If you're fed up with watching the Internet for updated features for your OS, the new

Software Update control panel will make your life easier. It will also please IT managers, with machines updating themselves unattended. The one unfortunate thing, is that it updates only the OS, not the rest of your software. You can set it to check for new software on a daily basis, and, when it finds some, it will download and install them. There is nothing worse for an IT manager than working on machines with a dynasty of software versions – from QuickTime 1.5 to 4.0 – simultaneously installed. The Software Update feature will mean this is a thing of the past.

Multiple users

Another major new feature is the Multiple Users option. If you ever share your Mac with others, willingly or otherwise, it is



Only if you ask nicely

With OS 9, Voiceprint technology means your voice acts as your password.

difficult to keep your files separate from other users. OS 9 lets you log-in to your Mac for normal personal access. When others want to root around your machine, they can log-in as guests or registered users. Now, they will only see the applications or files you want them to see, and they have no reason to complain about how many you have on your Mac. You can also choose hilarious alert sounds, a hypnotic desktop pattern, a cryptic filing system – or a complete lack of one. When the next person comes to use the machine, it will appear as neat and tidy as a newly scrubbed hard drive. A happy medium for all concerned, and particularly useful for schools and colleges – or offices with nosy neighbours.

Speak and be heard

The new job of logging-in to your Mac – a bit like a PC (yikes) – is brightened slightly by the Voiceprint password. I'm sure that there are legitimate uses for voice passwords, but most people are bound to use this option to impress friends with James Bond-style computing. To set up the password, you must first record yourself saying a particular phrase four times. The default phrase is "My voice is my password", but that just reminds me of Rowan Atkinson's mime declaring "My body is my tool". However, you can change the phrase to whatever you like, as long as it is longer than four or five words. Perhaps "My name is Bond...James Bond", or "Open the pod bay doors, Hal". To be honest, it was

five minutes before I became bored with humiliating myself by addressing my Mac. But it was 100 per cent successful; nobody else could log-on pretending to be me. Unfortunately, I didn't have time to test this further – with sets of twins or Rory Bremner – but it seemed secure enough for most use.

Lock and Keychain

The Keychain will be familiar to users of System 7.x, but it disappeared in OS 8 – due to lack of interest, apparently. In OS 9, it has been updated, and is now more relevant to Internet-savvy users. The idea is that the Keychain holds all your passwords, so that when you log-in to any password-

protected site or server, the Keychain will unlock it. A single password for the Keychain means that you don't have to remember dozens of passwords.

My solution to this problem, up to now, has been to use the same password for everything. Obviously, this is not the most secure way of doing business. Now, I can use one password for the Keychain, and different ones for each server.

There is also new encryption used in OS 9, described as "industrial strength". It is not obvious to the user, but should give hackers a run for their money. This is important, because now you will be able to share files over the Internet, increasing to the vulnerability of your Mac. AppleScript is also now executable over TCP/IP, adding all kinds of remote capabilities for advanced users.

Welcome stability

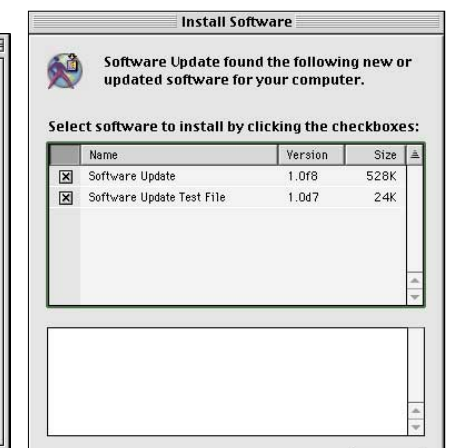
I have not had OS 9 installed for long, but it has reduced my number of crashes noticeably. My relatively new Power Mac G3 has been prone to crashing since I got it. It has been a frustrating time, complicated by the need to constantly install new software. Since installing OS 9, I have crashed only once. I'm not saying that OS 9 will solve all your stability problems, but it has certainly improved mine. Installation was one of the most painless in recent memory: no error messages, no problems at all. I'm still getting used to the capabilities of OS 9, but, so far, it has been plain sailing. I have heard that ATM may have compatibility problems, but then ATM needs revamping with every

Reviews continues page 49



Automatic update

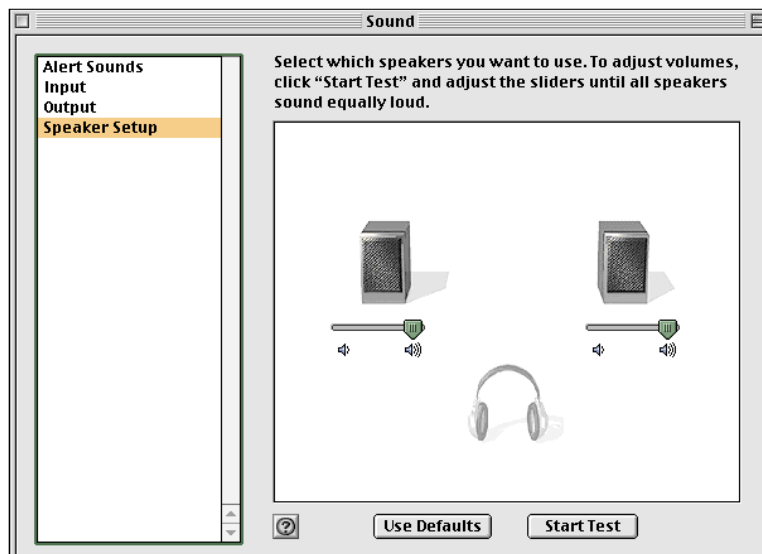
Mac OS 9 will update itself automatically, saving you the hassle of constantly keeping an eye on update sites.



OS version. There is something in OS 9 to please everybody: for some it will be the major redesign of Sherlock, for others, its high-tech security. However, whenever I look at a new OS, I like to see what is new in the Sound control panel. OS 9 doesn't disappoint – with a dozen new sounds. From the intensely irritating baby laugh, to the squeaky toy effect, your alert sounds will be revitalised. This is probably the least important new feature, but no major upgrade is complete without them.

Macworld's buying advice

If you don't own a PowerPC-based Mac it's time to get a new one, OS 9 is leaving 68x0 Macs behind. Also, it might be a good time to invest in some new memory – at least 32MB, but ideally double this amount – more if you want to run Photoshop, or similar memory hogs. **David Fanning**



Balancing act
Mac OS 9's Sound control panel not only features 12 new alerts, but also allows precise control of your Mac's speakers and headphones.

Programming for professionals and novices



RealBasic

Publisher: Real Software

www.realsoftware.com

Distributor: Nova International (0800 731 8927)

Pros: Useful for pros and novices alike.

Cons: Creates large files.

Price: Standard Edition, £76;

Professional Edition, £227.

Star Rating: ★★★★★/8.3

Programming will never be easy, since it forces otherwise sane people to think like computers. Folks with the imagination to do just that, will appreciate Real Software's RealBasic 2.0.2 – a development environment for experienced programmers and novices alike. It often creates large applications, but it also makes creating user interfaces uncommonly easy.

The Basic language has evolved greatly since its invention. Like other modern dialects, RealBasic is object-oriented. This approach lends itself particularly well to building user interfaces (UIs), whose windows and menus are typically labour-intensive to create. Combining the organizational approach of object-oriented programming, with built-in support for the Mac's standard UI elements, RealBasic makes creating an interface as simple as dragging-&-dropping elements from a tool bar into a window.

Once you've built your application's UI, you attach the Basic code to each element within a Mac-like editing environment. Programmers used to keeping source code in lengthy text files may find this process disconcerting at first, but RealBasic's approach makes sense for the non-

professional – and takes only a little getting used to for pros. RealBasic also offers a wealth of Mac-specific features, including support for accessing serial ports, or sending and receiving data via TCP/IP.

If you need database access to Windows, or want to create software that runs under Windows, another £151 gets you RealBasic Professional. RealBasic Professional's database-connectivity tools let you develop front ends to large databases, and also lets you create a Windows version of your application with almost no additional effort.

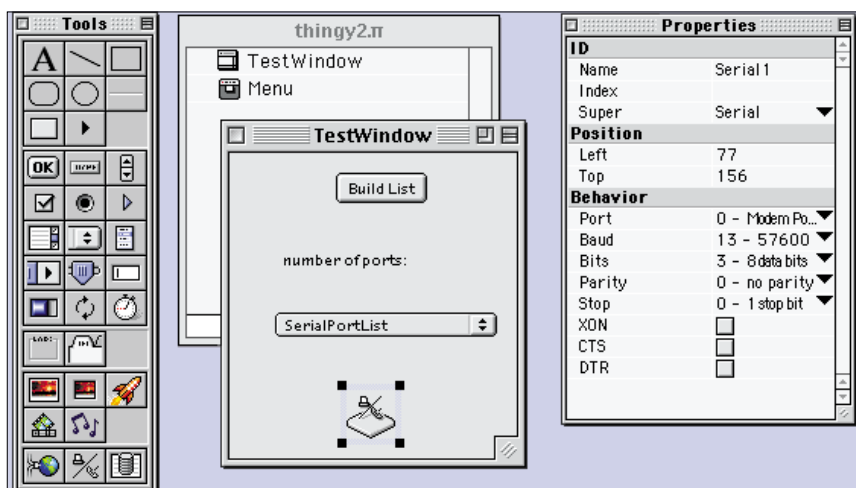
But, despite the program's ease of use, neither version of RealBasic is perfect. For example, there's no interactive way to examine the methods associated with classes, unless they're described in the, admittedly abundant, online documentation. A bigger problem is the size of the final applications RealBasic creates – a simple application for 680x0 machines is around 250K, and the PowerPC-native version of the same application weighs in at 800K – more than three times the size of the 680x0 version. But, hard drives are

growing as quickly as software, so it needn't be a problem.

Macworld's Buying Advice

Experienced programmers, who would rather spend time working on under-the-hood functionality than the UI or database-access glue, will find RealBasic 2.0.2 worth its price. Beginners, and occasional programmers, will find RealBasic useful, for nearly the same reasons as the pros – the program takes on the error-prone task of getting the UI-coding just right, leaving them to concentrate on their software's internals. The best option is to try it for yourself, which you can do at www.novaint.com/real/. **Stephan Somogyi**

Win
...One copy of
RealBasic Standard
with **Macworld Jackpot**.
Ring 0900 1010 254
before November 30,
1999. Calls cost 60
pence per minute.



Drag-&-drop development

Creating user interfaces in RealBasic 2.0.2 is a simple matter of dragging the prefab elements from the tool bar into the window.

Breakthrough painting tools



StudioArtist

Publisher: Synthetik Software
www.synthetik.com

Pros: Huge assortment of brushes; automatic cloning feature creates hand-painted effect.

Cons: Overwhelming number of controls; non-standard interface.

Price: \$295 plus \$40 postage, direct from Synthetik Software.

Star Rating: ★★/6.9

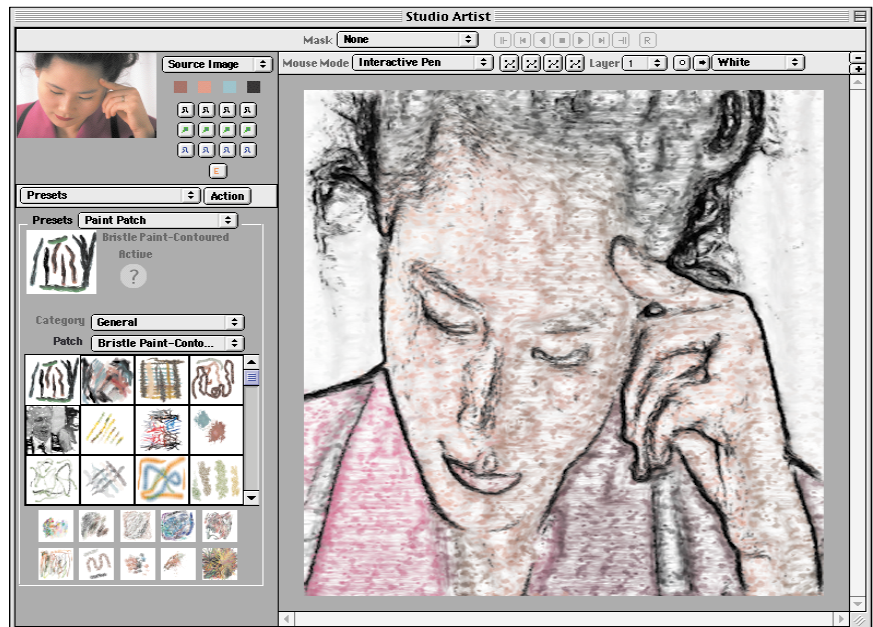
Chalk, pencil, paint – most paint programs try to mimic materials found in the real world. Synthetik Software's StudioArtist 1.0 goes a step further – producing images that combine natural media with amazing digital effects. Harnessing the program's power and range of painting options can be daunting, but the patient artist will reap the reward with creations that would be virtually impossible to achieve with real-world media.

Patching in

Billed as a "graphics synthesizer", StudioArtist is loosely modelled on musical synthesizers. Just as you would select instrument patches on a synthesizer, in this program you select from 600 paint patches, or brush effects, which you can refine and combine to create a nearly endless variety of effects. And the patches are more than simply textured brushes, or variations on a few themes; they can also be procedural. For example, if you select one of the Cubist patches and start painting, your brush will create an array of multi-coloured, straight-line strokes. You can move the brush around to change the lines' direction and rotation, or choose a patch, such as Canvas Liquidifier 1, which smears and distorts the underlying ink.

In the Paint Synthesizer, you can customize existing patches to create new effects. A pop-up menu listing 14 parameter categories lets you control everything – from the shape of a brush path and colour variation, to how the brush interacts with underlying layers and paint. If you have a pressure-sensitive tablet, you can assign brush parameters to the pen's pressure, direction, tilt, and bearing, so a brush's behaviour will vary depending on how you move the pen. New users may find the Paint Synthesizer daunting, but with more than 600 pre-defined patches to choose from, you'll probably never need to create, or customize, a patch.

In general, StudioArtist's interface is usable once you learn it, but you'll have to spend some time with the manual. Unfortunately, the program ships with



Look Mum, no brushes

By applying three or four colour-effects and a few hard-edged pencil-effects, you can create images like this in StudioArtist without applying a single hand-painted stroke.

PDF files rather than a printed manual, so you'll also have to spend some printing out the documentation. And the program uses a rather un-Mac-like alternative to the traditional tool palette, asking you to choose a "mouse mode" – either the normal brush mode; the automatic-drawing mode; the bézier mode; or the region mode, which lets you define areas you'll fill with brushstrokes.

Send in the clones

Like MetaCreations' Painter, StudioArtist can sample colours from a source image to create new images based on existing photographs or paintings. When you click on the Action button, StudioArtist begins cloning your image by making brushstrokes with the selected tool. If you've chosen a picture of a duck as a source image, the shape and colour of the duck will gradually emerge as you paint, but the image is rendered with the paint patch you've selected.

StudioArtist is much more sophisticated in its colour sampling than Painter, or Adobe Photoshop plug-ins such as Xaos Tools' Paint Alchemy. Rather than blindly sampling from photography, StudioArtist does an astonishingly good job of identifying edges and contours in your original image, and brushing along them. And, if you start with a source image, you'll understand the utility of some of the brush effects – they're meant for layering on top of existing paint to build up texture and colour over time. Through a combination of automatic painting and manual brushing in of strokes, you control how much of the underlying image gets cloned, as well as the textures used.

Its painting skills are impressive enough for a first release, but StudioArtist has much

more to offer. When you activate the program's path functions, it stores every stroke separately as a bézier path. Because you can reshape and repaint the paths, you can edit complicated bitmapped effects as you would in a drawing program. And, if you want to enlarge your drawing later, StudioArtist can scale up your paths, and then render each brushstroke to create a larger painting – without a jagged edge in sight.

StudioArtist includes an array of distortion and special-effects filters, and brushes. Although the program lacks support for Photoshop filters, the built-in effects tools are probably all you'll need. StudioArtist does support QuickTime – you can paint on a movie's frames by hand, or have the program paint each frame using a pre-defined effect. Movies that StudioArtist paints tend to resemble video viewed through a filter, however; for better effects, you'll want to posterize, or blur, your original video to remove more detail.

Macworld's buying advice

Plenty of filters and programs try to mimic real-world painting, by manipulating an image to replicate the look of particular textures and media. StudioArtist is the first program to copy the way real painters choose their strokes, letting you apply brushstrokes that follow the shapes and contours of a source image. In addition, StudioArtist's still- and video-painting features are impressive for a first release. The program's non-standard interface can be a little frustrating, and it's a little pricey for non-professionals, but print and video pros – who are looking for new tools – will find it's worth the price, and the learning curve.

Ben Long

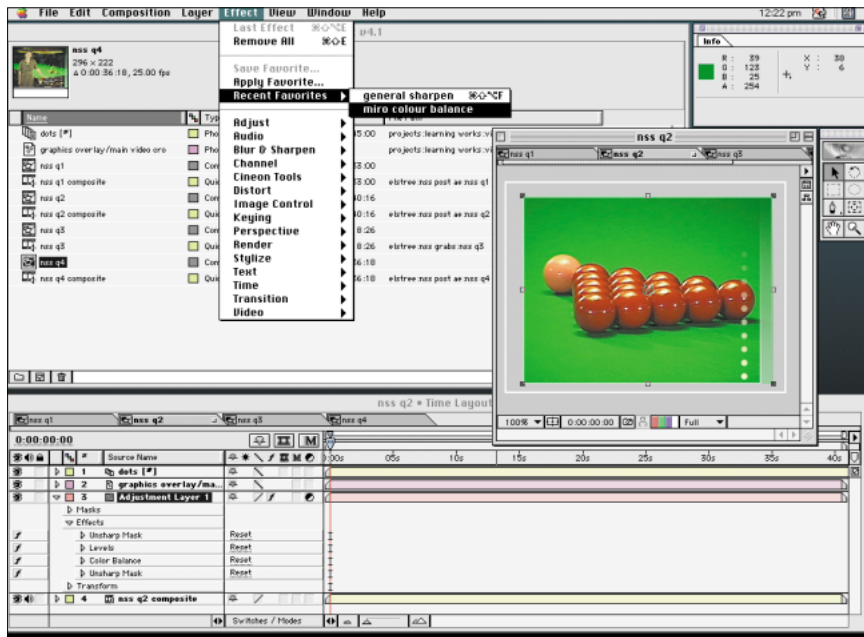
Publisher: Adobe (0181 606 4039)
www.adobe.com

Cons: It's not a free upgrade.

upgrade from versions 3.x, £165.

There's a heap of new features, like Flowchart view. This gives a graphic view of how nested compositions relate to each other, showing source files, layers and effects for all compositions-within-compositions. You can use it to communicate a project to clients or colleagues. Then there's support for higher image-resolutions – up to 30,000-pixels-square, if you've got enough RAM. This enables high-powered machines to work on footage destined for transfer to film stock.

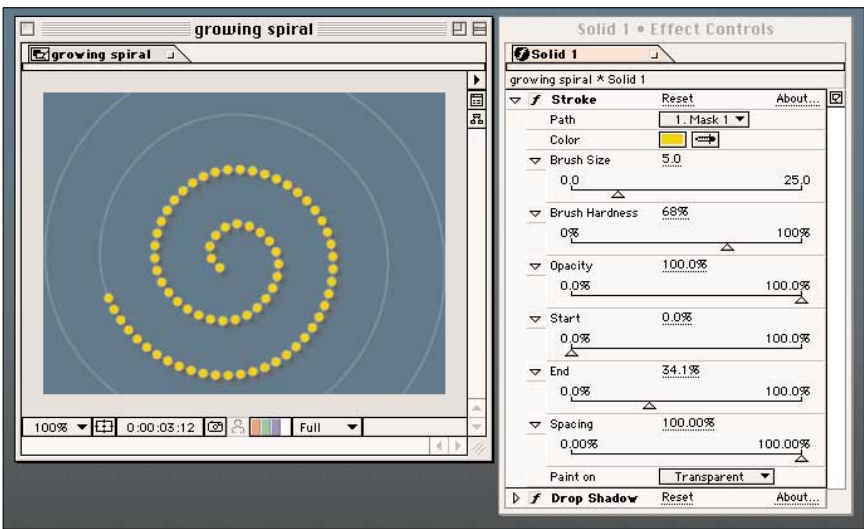
Version 4.1 also includes a few time-savers, and has had a few niggles fixed. Mask rendering is two- to twenty-times faster; you can select and re-order multiple layers in a single operation, and quickly arrange layers in a staggered sequence in the Composition window. You can also set user-definable rules for associating file-types with pixel aspect-ratios and field order. Now you can tell AE that all QuickTime Avid movies import with Upper Field First. Dragging a footage icon from the Project window to the New Composition icon now makes AE take its dimensions, duration and frame-rate parameters from the footage automatically. And at last, there's support for saving favourite effects: to save a favourite, set the parameters, and AE writes it to a cross-platform file that can be shared on a network. Your 20 most recently-used favourites appear in a sub-menu for easy re-application.



After Effects 4.1 stores your 20 most recently used effects, which can then be saved to a cross-platform file and shared across a network.

The screenshot shows a web browser window with the title "growing spiral". The address bar displays the URL "http://www.dailymotion.com/video/x233333". The main content area has a blue background with a spiral of yellow dots. The browser's status bar at the bottom shows "100%" zoom, a timer "0:00:03:12", and a "Full" button.

For just £35, this is a seriously wonderful upgrade. It's a must-buy for all After Effects users. If you are not already an After Effects user, there is even more reason than before to become one. Why not try your luck with our *Macworld* Jackpot?



Fill and stroke effects have been extended, so you can animate words appearing on-screen.



Manufacturer: LinuxPPC
www.linuxppc.org

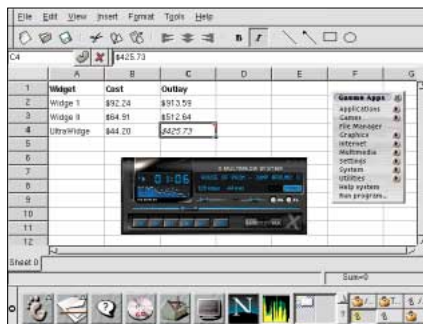
Cons: Poor documentation; complex installation.

Star Rating: ★★ ★/6.5

The packaging is stunningly minimalist: a single CD in a cardboard slipcover, with nary a scrap of paper documentation. The company says a boxed version, complete with printed manual, is “in development”. Inexplicably, the CD itself contains no installation documents – you must download those from LinuxPPC’s Web site. You’ll need those installation docs, too, because the install process is harshly non-intuitive. You first partition your hard drive to separate your Mac OS and Linux worlds. Then you boot-up Linux from the CD, and run a graphical installer to load the application itself. If you do everything correctly, installation takes about one hour. Mac OS and Linux operations are mutually exclusive, but a Bootx utility lets you choose between the two at start-up.

The most common application for Linux is as an Internet or intranet server – the Apache Web server boasts legendary performance and a price that can't be beat. Keep in mind, however, that you get what you pay for, and with the \$32 LinuxPPC you didn't pay for support – at least not by phone. The company offers limited support via email, and a number of mailing lists and newsgroups provide communal support.

LinuxPPC 1999 is a well-executed port of the latest Linux distribution. If you're technically savvy, you'll find Linux a speedy server. But a Macintosh it's not, so don't even think about running a LinuxPPC-equipped machine as a desktop computer. **Mel Beckman**



LinuxPPC 1999 sports a full-featured graphical user-interface and desktop environment.

Competition for 3Com's Palm



Visor

Manufacturer: Handspring

www.handspring.com

Pros: It looks good; it's darned cheap.

Cons: You can't get it the UK yet.

Price: From \$149 (£99)

Star Rating: ★★★★★/8.9

Handspring's Visor is the best personal digital-assistant to emerge since the Palm itself – not much of a surprise, since the team behind the original PalmPilot created this sleek, new shirt-pocket device.

Not only does the Visor mimic the Palm's size and shape, but it's based on the Palm operating system – so, right out of the box, it can run hundreds of Palm applications. On the pre-production unit I tested, I was able to HotSync my contacts, datebook, and other data, using the same IntelliSync software that works with my Palm IIIx.

Where the Visor differs from the Palm,



is that it almost always outdoes its predecessor. The datebook offers three views the Palm doesn't provide – weekly, annual, and appointment list – the calculator adds several advanced functions, and the HotSync cradle's Universal Serial Bus (USB) connection moves data approximately four times faster than the Palm's serial hook-up.

Elegant expansion

The Visor's approach to expandability is impressively elegant: the back of the device

comes off easily, exposing a small bay that accepts plug-in modules about two-thirds the size of a PC Card. By contrast, installing expansion cards on a Palm III or IIIx means fiddling with tiny screws.

Handspring itself will deliver memory, backup, and golf-game modules at product launch; other modules from Handspring and third-party vendors – including a music player, a wireless modem, and a global positioning system unit – will be available through Handspring's Web site later.

Visors will be sold through Handspring's Web site until the end of the year.

Macworld's buying advice

The Visor Solo is an outstanding deal for entry-level users. It costs \$149 (about £99) with 2MB of memory, compared to \$229 (£149) for the basic Palm IIIe, which doesn't accept expansion cards. Another model, the Visor, comes with a USB cradle and 2MB of memory for \$179 (£115). The \$249 (£155) Visor Deluxe has 8MB of memory – like the slightly more expensive Palm IIIx. Its case comes in iMac-inspired, coloured-translucent plastic in addition to the basic charcoal grey. Happy Palm IIIx users have no cause to switch. But owners of earlier models may find Visor Deluxe a very versatile upgrade.

Yardena Arar

Home and business tax calculations



Tax Manager 99 Family Tax 99

Publisher: Tax Office Software (01202 513 666)

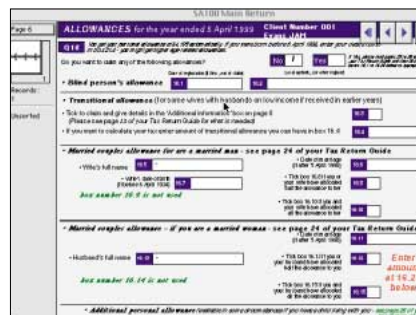
www.taxoffice.co.uk

Pros: Work on forms on-screen; Manager package supports unlimited clients; plenty of background information; yearly updates.

Cons: Ugly interface; need to know tax law.

Price: Family Tax 99, £20; Tax Manager 99, £450

Star Rating: ★★★★★/7.9



Taxed to the limit

After filling in your tax return form, Tax Manager 99 will calculate how much you owe – great.

guide to hand but, certainly for the professional accountant this system offers the facility to fill in a field once, and once only. You create dedicated files for multiple clients, detailing their names and other pertinent information with tax office details. This information is then placed in relevant fields on the various required forms. This facility means you don't have to add the same information to each form – for example, capital gains or employment – a tedious task with complex tax affairs. Once you have filled in your supplementary forms, all relevant information is automatically placed in your SA 100 (tax-return form). Having completed the SA 100, you then hit the Calculate button. A series of pages familiar to anybody who has calculated their own tax pop-up, the software tots up the figures and presto! – you know what you owe the government.

You can double-check the forms and calculations, moving from page to page with a mouse-click. You do have to be fairly clued-up on tax law, but that's no disadvantage. A fully automated system could yield false results, and you wouldn't know it. The form you then submit could cause problems with your Tax Office – and life's too short for that. Ultimately, tax returns are painful, but for domestic users filling in self-assessment forms – or even for a professional accountancy-practice – these packages present the only worthwhile Macintosh-based digital tool for Tax calculation.

Macworld's buying advice

Both packages work well and the resultant calculations are accurate. The software is easy to navigate. There is plenty of space to add notes, and the relevant forms are included. It's got a great deal to offer any accountant, including a yearly update, a help system and a searchable database of Tax Offices. Accountants using Tax Manager 99 will also benefit from the Practice Management, and unlimited clients features – Family Tax is limited to three clients.

Jonny Evans



Win

... One of ten copies of Family Tax 99 with Macworld Jackpot. Ring 0900 1010 250 before November 30, 1999. Calls cost 60 pence per minute.

Easy-to-use Web server



WebStar Server 4.0

Publisher: StarNine

www.starnine.com

Distributor: Gomark (0171 731 7930)

Pros: Web-based mail access; DNS load balancing for both Web and FTP; improved performance.

Cons: Incomplete Web-based administration; weak Web-mail interface.

Price: £304

Star Rating: ★★★★★/8.8

Until now, Web masters wanting an all-Mac Internet presence had to get by with ad hoc collections of server software, from assorted vendors, that don't play together as well as they could. To remedy this situation, StarNine has gone in to bat with a suite of integrated products. WebStar Server Suite 4.0 bundles a faster version of the WebStar Web server; a mail server; and Lasso Publisher, for publishing FileMaker and ODBC-compliant databases. Despite of a few minor errors, using it is the easiest way to get a complete Internet presence on a single Mac.

With advanced features – such as

Web-based administration, IP multi-homing, and more – WebStar was already a capable Web server. New in this release are a reworked data-caching architecture and persistent data-connection plug-ins. The latter lets you take advantage of HTTP 1.1 pipelining. Other tweaks – that, according to StarNine, double WebStar's Web-serving traffic capacity – didn't show quite as much improvement in our tests. StarNine has also added Secure Sockets Layer (SSL) version 3 encryption features, and a remote SSL administration using a Web browser.

Service with a smile

WebStar's Web server still has a built-in FTP server and standard CGI capability. The server is easy to set up with the supplied Mac-administration application, which supports encryption for secure remote-control. Alas, StarNine has not kept WebStar's Web-based management up-to-date; many new functions can't be configured from the Web. StarNine says concern over browser-based-administration security has prevented it from fully supporting browser-based management of all WebStar functions. StarNine intends to improve HTML administration after new encryption standards – such as Transport Layer Security (TLS) – become widely available in browsers.

StarNine has enhanced its load-balancing plug-in, which lets Men and Mice's QuickDNS Pro route new users to

the least-busy server. The plug-in supports FTP load balancing, and improves Web load-balancing by handling traffic to virtual domains, as well as to the domain hosted by a WebStar server.

Also new in this release is WebStar Lasso Publisher, a plug-in module that's a sub-set of Blue World Communications' Lasso Web Data Engine. The plug-in lets you author Web pages that interface to FileMaker Pro, or any ODBC-capable database. You embed Lasso Publisher commands in your HTML documents and Lasso then interprets the commands to retrieve database records for display in the user's browser. By combining Lasso with HTML forms, you can also create new database records. The plug-in can't update or delete existing records, however, and suffers from several other limitations compared to the full Lasso Web Engine.

WebStar's new integrated mail server supports the most popular Internet email protocols – SMTP, IMAP4, POP3, APOP, and MIME – and a limited LDAP function of the mail server lets you store address books, for user referrals. StarNine has paid attention to security, too, giving WebStar Mail comprehensive anti-spam features that prevent unauthorized mail relaying. Allow-deny filters let you control who can access various mail services, and an administration tool allows real-time monitoring of the server's activity log. The monitor function keeps tabs on queued mail, traffic rates, and access violations.

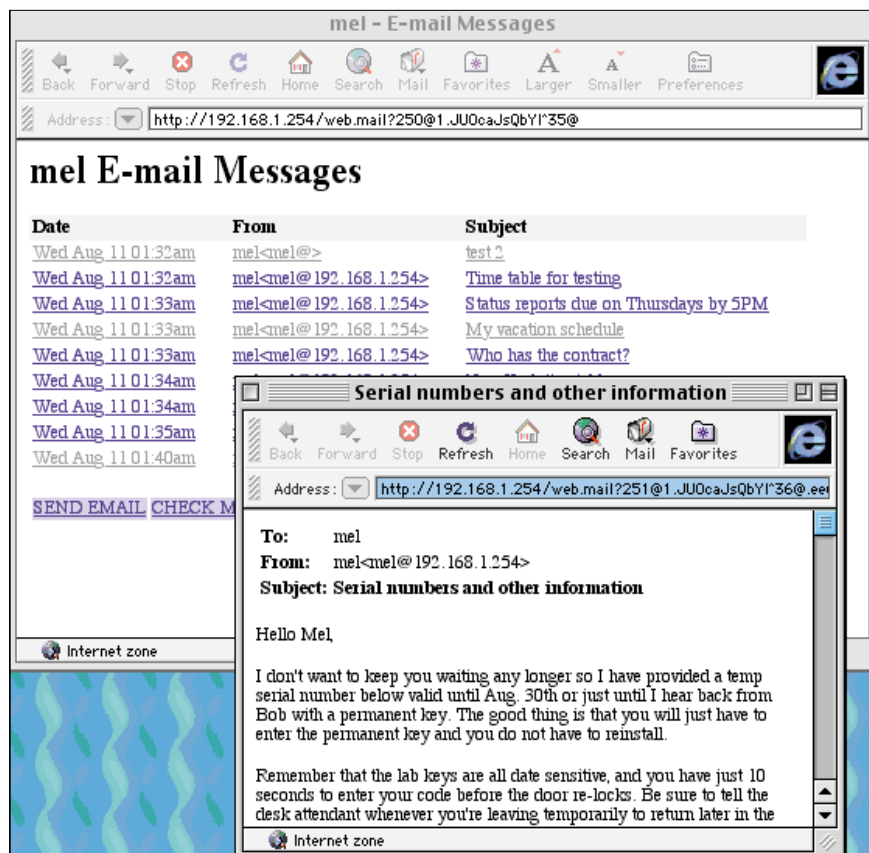
Users can access mail via Internet-capable mail clients, or with any Web browser. They log onto WebStar's mail-access Web page using a special URL. But, users can't store read messages or replies, organize messages into folders, change account settings – such as their password or vacation message, or filter messages. Nor does the suite offer Web access to advanced mail-functions, such as IMAP-stored.

We tested the suite's Web server informally, using the Unix-based WebStone tool, and found WebStar 4.0 easily 50 per cent faster than version 3.0. We did not, however, see the promised 100 per cent improvement in throughput. WebStar still requires considerable tweaking of cache settings to achieve optimal performance, and the Mac OS's TCP/IP protocol stack and non-preemptive multi-tasking architecture still hamper it. You can get better performance using a server such as Tenon Intersystems' WebTen, or LinuxPPC's Apache server (see the review of LinuxPPC 1999 on page 53), but WebStar is still fast enough for most routine Web-hosting applications.

Macworld's buying advice

WebStar is still the easiest Mac Web server to set up, use, and administer, and the new mail-server component removes one more headache. WebStar Server Suite 4.0 is no speed demon, but most Web administrators will find the bundle's convenience well worth the performance hit.

Mel Beckman



Surfer Mail

WebStar Server Suite 4.0's built-in mail server lets users access mailboxes either via a Web browser, a traditional POP3 or IMAP email clients.

Web-browsing tool



Copernic 99 Plus 2.0

Publisher: Copernic Technologies
www.copernic.com

Pros: Easy searching for specific subjects; duplicate removal; customizable.

Cons: No prices returned for shopping searches; too US-centric.

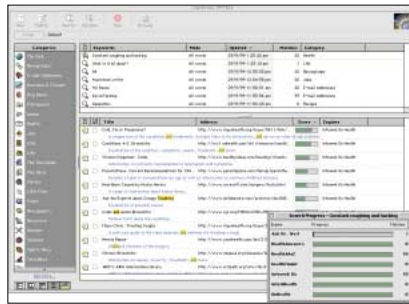
Price: \$29.99 online.

Star Rating: ★★★★★/7.6

Very soon, when OS 9 is released, you will have the opportunity to try Sherlock 2. In the meantime, Copernic 99 offers many similar features – plus some new ones.

The basic version of Copernic 99 is available for download, and for the moment, it's free. The Plus version gives you more than 20 search categories, rather than the four in the free version. These categories can be added to as Copernic develops new ones. Already, there are some new ones available, such as Jobs and MP3 files.

The layout of Copernic 99 is more like a self-contained browser than a conventional search engine. It fills the screen – and it



Searching questions

Copernic 99 Plus 2.0 has more than 20 search categories.

needs to, to show all the search options available. The left-hand column holds the different search categories – such as General, News and Email addresses. There are also more specialized categories, like Health, Jobs, Kids, Recipes and Movies. To search you click on the most relevant category and type your request. This queries the most suitable search engines for your request. Unfortunately, not all the most relevant search engines are included, particularly UK-specific engines.

For example, the Job-search category has loads of job databases to search, but all are US-centric – so are useless to all but the most adventurous UK job-seeker. This is the case with many other categories, but it would be relatively simple for Copernic to fix that. There is already a French language search available, and a Japanese version of

the software. If somebody at Copernic is listening, could we please have some UK-specific searches?

The US-centric searches don't spoil the software totally – after all, Sherlock 2 isn't particularly UK-focused. It is a fact of life that most Web pages are found in the US, and many US search engines do have UK content included.

Copernic displays in the main window, with the score, location and search engine scanned shown. Compared with Sherlock 2, Copernic consistently found a few extra pages with its search, though the results vary with each search. The clever thing about Copernic, is its ability to check each page before you visit it. Just click on the verify button and each page is checked for bad links. No more "error 404s" is almost worth the price alone.

Macworld's buying advice

Once you get your paws on Sherlock 2, there is no compelling reason to spend more money on Copernic 99 Plus. It does some things differently, some things better, and some things worse. It is certainly worth looking at, and you can do that for free by downloading the demo at www.copernic.com. There is a Windows version, which is going to be more important in the PC world – as it didn't have a Sherlock-type search tool until Copernic 99. However, people that use Macs need only wait for the next OS before this stuff is built in. **David Fanning**

Mid-range lightweight projector



LP 435z

Manufacturer: InFocus (0800 028 6470)

Pros: It is light, bright and simple to use.

Cons: Not exactly cheap.

Price: £3,995

Star Rating: ★★★★★/8.8

The InFocus range covers everything – from small portable projectors, right up to fixed-conference projectors. The LP 435z is in the middle, with both high power and resolution in a relatively lightweight box. It has a brightness of 1,000 lumens – enough to be visible without dimming the lights. The reason InFocus has been able to get this extra power is the DLP, or Digital Light Processor.

DLP technology was developed a couple of years ago, as an alternative to LCDs. Instead of projecting through an LCD panel, the image is reflected off a special chip. The DLP chip is covered with thousands of microscopic hinged mirrors. The image is created by bouncing light of the DLP chip,

which controls the tiny mirrors on its surface. The light then goes through an RGB colour wheel, and finally the lens. This means that a brighter light-source can be used, plus the size and weight can be kept down.

The resolution of the LP 435z is XGA, or 1,024-x-768 pixels – this makes for a much sharper presentation compared to lower resolution VGA models.

Controls and connections are important if the machine is going to be lugged around. The Cable Wizard is a simple single-cable that makes it easy to attach the projector to a Mac or PC.

Another problem with mobile presentations, is you never know what

kind of stage you will be on. Small rooms can be a problem, especially if you need to be 20 feet away from a wall to get a large image. The LP 435z has a zoom capability, making projecting in close-quarters easier.

Macworld's buying advice

The LP 435 is not cheap, but if you need to give impressive presentations, it will make the job uncomplicated. It can be back-breaking work lugging a good, bright projector around – but this one appears to be the lightest in its category. If you can afford the price, you and your back won't regret it. **David Fanning**



Automate email-administration



QuickMail Office 2.0

Publisher: CE Software

www.cesoft.com

Distributor: Computers Unlimited (0181 358 5857)

Pros: Streamlined client; LDAP directory server with Web-enabling plug-in; built-in bulletin board; anti-spam controls.

Cons: Incomplete IMAP support; no Web-based mail access; no Web-based or other remote administration.

Price: Five users, £299; 10 users, £449; 25 users, £999.

Star Rating: ★★/6.2

Everyone knows that email is the lifeblood of modern business. Alas, keeping email flowing in a large – or even medium-size office – is a tedious chore, that grows rapidly with the user population. CE Software's QuickMail Office 2.0 lends a helping hand to harried email administrators – it delivers a streamlined, browser-like, client-server-stored message-retrieval via the Internet Message Access Protocol (IMAP). It also offers enhanced filtering, to block annoying spam, and a Web-accessible address-book server that integrates with any Mac-based Web server. QuickMail Office still lacks two features commonly found on other mail-server platforms – Web email access and remote administration – but the client delivers functions never seen before in any Web-based mail interface.

Package Deal

QuickMail Office 2.0 offers one-stop shopping for enterprise-email. The bundle includes the QuickMail Pro 2.0 mail server, a license for five QuickMail Pro clients – either Mac or Windows – and the new QuickMail Pro directory server.

Installing the server takes just seconds, and configuration requires only that you know the email domains you wish to serve. Once you've installed the server, you create a mailbox for each user. You can also set default user preferences, and organize users into groups.

Client installation is equally straightforward – users copy the client installer from the file server and run it, providing their user names and passwords when prompted. The client then retrieves the users' account profiles, and configures itself. This feature greatly reduces the work required to roll-out QuickMail for the first time, and lets users move from one computer to another without administrative intervention.

The QuickMail Pro server supports the most popular Internet mail protocols – SMTP, POP3, APOP, IMAP, and UUCP – over either a dedicated or dial-up Internet



connection. The server application displays the status of all available protocols, as well as bar graphs showing the volume of traffic for each. A message filtering function lets you block spam and sort incoming mail based on header content, or triggers AppleScripts to perform automated chores, such as email responding. Built-in gateway interfaces for Mark/Space Software's PageNow, and 4-Sight's 4-Sight fax sender, let you route email to alpha pagers or fax machines, and a built-in mailing-list server gives you standard mail-reflector functions.

New with this release are shared folders, which offer a bulletin-board-like central repository for general messages; IMAP support, allowing mail storage on the QuickMail Pro server, rather than on users' desktop computers; and support for multiple email addresses per user. This last feature lets users change their online "persona" to fit the situation; a customer-service clerk, for example, can become service@acme.com when replying to messages addressed to that email alias.

One of the nicest new features is a separate Lightweight Directory Access Protocol (LDAP) server, that maintains centrally managed address books. A Web-server CGI plug-in lets you put your address books on the Web, complete with search capabilities and email URLs, making directories accessible to off-site users.

QuickMail Pro's server has some rough edges, however. IMAP support isn't complete – for example, users can't create or rename folders, archive messages, or search message contents. Alas, these are the very IMAP features that users most want when giving up control of their mail

to a central repository. The server also has no Web-based – or any other – remote administration capability, making it hard to maintain from a distance. And, QuickMail lacks Web-based mail access for end-users – at a time when this feature is appearing in competing Mac mail-servers.

Ready for pick-up

Users can read mail from the QuickMail Office server with any Internet-compliant email client. However, QuickMail Pro's client offers features not found in most other clients. A new browser-like message viewer organizes incoming mail as a hierarchical list – that can be automatically filed. A built-in contact manager stores a user's own local address book merged with LDAP directories, providing a single point of look-up.

QuickMail's Venerable Forms feature – still a unique capability – lets users store data-entry forms as templates, for collecting and distributing information in a standardized format. Return Receipts let users know when the recipient has read outgoing mail, and a life-saving Unsend feature lets you reel in that ill-considered resignation notice.

Macworld's buying advice

QuickMail Office 2.0 provides one-stop shopping for email-serving and client software. The absence of Web-based email, and the limited IMAP support, may inconvenience mobile users – but, if your users access email from their desks, and you want consistent email handling throughout your organization, QuickMail Office is all you need. **Mel Beckman**

I'm in the book

QuickMail Office 2.0's LDAP directory server sports a Web-based interface, that gives you convenient access to centralized address books.

Slide-show software



Showreal

Publisher: Accent Interactive (0207 387 7020)
www.showreal.co.uk

Pros: Simple to learn and use; integration of other media.

Cons: Extremely limited functionality.

Price: £199

Star Rating: ★★/3.6

A multimedia presentation tool, Showreal has worthy aims – to allow Mac design-professionals to create presentations quickly and easily. This it does, but the cost of such simplicity is that Showreal has next-to-no features.

A Showreal presentation is essentially a slide show, with the presentation advanced from slide to slide with a mouse click, or cursor key. Each slide can contain a foreground and background image, some header text and some body text, or a range of other media formats, such as QuickTime



It's showtime

Showreal's simple interface makes it easy to build presentations and order screens.

video, Flash player movie, a Director presentation, even a Web browser.

Adding elements to a slide is easy enough, as is importing media, and shuffling the slides around. Setting time delays for automatically advancing slides is straightforward, and there are 17 transition effects to use between slides.

But that's it. Showreal is lacking in a whole lot of areas. And, there's no interactivity possible. For instance, you can't add interactive buttons to jump to one slide or another. And, there's no animation capabilities, unless you use an imported Flash or Director projector. The

Showreal manual makes a lot of its ability to embed Director or Flash movies, but if you already possess these programs, then why would you want to spend £199 on Showreal? They can do everything Showreal can – and a lot more.

The biggest limitation with Showreal is the restriction of on-screen elements at once. Only two images and two blocks of text can be displayed on any one screen, which is laughable. It means that to make any half-decent presentation, you will need to pre-prepare most of the contents of each screen in a graphics program.

Some salvation for Showreal comes with its ability to run several presentations at once, and to switch between them. Self-contained presentations can be made for distribution, and there is the option of making a player that will run on a PC.

Showreal is a nice idea but is poorly executed. If it could create interactive buttons, and placed no restrictions on the number of text or graphic elements that can be displayed on-screen at once, Showreal would be a funky little presentation tool. As it is, there are better tools on the market – such as Katabounga, Flash, or Scansoft's Kai's PowerShow.

Martin Gittins

High-quality, low-cost fonts



TakeType

Publisher: Linotype Library GmbH
www.linotypelibrary.com

Distributor: Heidelberg CPS (01242 285 100)

Pros: Good selection of usable faces; high-quality 80-page manual.

Cons: So many fonts, so little space.

Price: £199

Star Rating: ★★★★★/8.6

Typography is, in general, a subjective affair: we all have our own opinions about what looks good, and what doesn't. But there's nothing like a selection of fresh, new typefaces, and that is precisely what's on offer with Linotype's TakeType CD-ROM.

The full Gold Edition font library costs over £4,000. But, the TakeType sub-set is just £199, and includes more than 250 font weights – selected from the many entries submitted to Linotype's International Digital Type Design contests, between 1994 and 1997.

Take four

Divided into four categories – text, display, fun and symbol – and supplied

in both PostScript and TrueType formats, TakeType has some unique faces. From classic body-text fonts, such as Ergo and Rowena, to bold headline faces, like Bigband Terrazzo and Neuland Star, through to specialist design type, such as Animalia, Funny Bones and Party Time. Not to forget one of the best sets of symbol fonts I've seen – TakeType has an excellent selection.

Macworld's buying advice

At less than 80p per weight, TakeType is superb value for money – and two sampler disks are available at £25 each, if you want to test the water. It's certainly worth taking a look at if you're in the market for some new font ideas.

Vic Lennard

Beluga

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz

Agogo Swash Two

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz

Down Town

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz

Atomic

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz

Brewery Medium

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz

Fresh Baked Pot

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz

Funny Bones One

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz

Irish Text

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz

Many thanks to AtomicType (0181 964 9754)

preview

Email the Gates way



Outlook Express 5

Publisher: Microsoft

www.microsoft.com

Pros: Enhanced interface; simplified message-creation tools; redesigned address book; integration with Apple technologies.

Cons: No encryption or digital certificates; no stationery; lack-lustre HTML-based email.

Price: Free

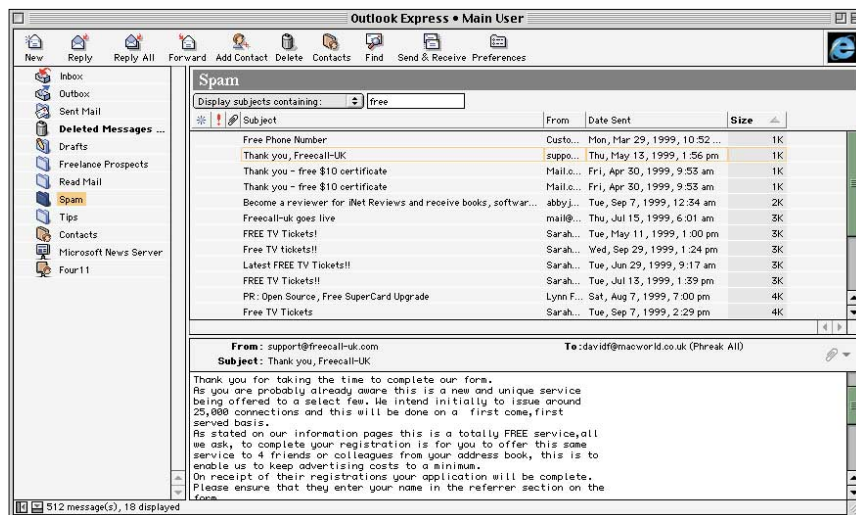
Microsoft's latest update to its email client, Outlook Express (OE) 5 Macintosh Edition, is much improved over version 4.5. With the exception of a few bugs, the beta version I reviewed is fairly solid. The final version will be available for download later this Autumn.

OE 5 still lags slightly behind Netscape Messenger with respect to creating and sending HTML documents with graphics and tables. However, OE 5 does improve on many features that Messenger lacks. Notable improvements include: a redesigned Address Book; an enhanced Address AutoComplete function; and simplified set-up and configuration of multiple accounts. The new release also includes brand-new features, unique to Mac OS, such as an advanced search feature, a Junk Mail Filter – to control spam, a Mailing List Manager, and integration with Palm OS devices.

As with Version 4.5, installation of OE 5 is a snap. After you've dragged the folder to the hard disk, and launched the application, OE 5 will import all your data from Version 4.5, as well as that from Messenger or Qualcomm's Eudora program. Setting up accounts is easy, thanks to the new Setup Assistants. Similar to its Windows counterpart, OE 5 supports Post Office Protocol (POP), Internet Message Access Protocol, and Microsoft MSN Hotmail accounts.

Another noticeable improvement is an enhanced QuickFind field, that automatically filters messages in your inbox on the basis of text strings. This feature works on both email and newsgroups. The beta version I tested didn't have the advanced search feature working, but when the product ships, you should be able to enter multiple criteria to locate email or newsgroup messages.

While reading mail within the inbox,



A thing of the past

With Outlook Express 5's spam filter, scenes like this will become a distant memory.

you can now increase the message size with a click of a button, as well as apply automatic text re-wrap. This feature can save you time by not having to open messages in separate windows.

Drag-&-drop features still abound: you can easily move messages from one account folder to another, select single or multiple messages – and drag them to a sub-folder, or drag-&-drop message header information into the Address Book. Other enhancements include full contextual mouse operations, while working within an inbox. For example, it is simple to add a sender's email address to your Address Book.

Helping hand

Another helpful feature when sending documents to Windows users is the capability for OE 5 to append a DOS extension. This way, when the message is received, a Windows user can immediately open the attachment from within his, or her, email application.

By the time OE 5 ships, you should be able to set preferences that will let you synchronize contacts from the Address Book with a Palm device. You will not, however, be able to synchronize your messages. The synchronization will achieve conflict resolution, allowing you to maintain the most current information on both Outlook Express and your Palm device. You will also have the option of having Outlook Express overwrite your Palm database, or vice versa.

Some of the best enhancements by far are the message-composing features. With the new Address AutoComplete feature, when you choose to create a new message, a new tabbed dialogue box pops up requesting you to enter a recipient's name. The AutoComplete feature is integrated

with the Address Book, and fills-in addresses as you begin to type characters. These can be nicknames, email addresses, or first or last names. When a recipient has multiple email addresses, a cascading menu displaying choices appears. When sending email to groups, double-clicking the icon displays a window listing each recipient – particularly helpful when you don't remember who's in a specific group.

Despite improved text formatting via a new icon that toggles between plain text and HTML formatting, Outlook Express still falls short compared to Netscape Messenger's excellent formatting capabilities. Unlike Messenger, OE 5 still lacks the capability to send and receive encrypted messages.

It's clear that Microsoft needs to work out some bugs before finalizing this version. On occasion, the application crashed; drag-&-drop functions need polish; AppleScript support isn't fully operational; and it doesn't fully co-exist with Microsoft Office 98. Still, I found that the majority of the new features worked as expected, at least well enough to evaluate how the new update will work. I welcome the improvements, and appreciate Microsoft's dedication to keeping the memory requirements small, while evolving the application to work like a Mac application should.

Macworld's buying advice

OE 5 for Macs is mostly on par with its Windows counterpart. Macintosh users will appreciate the productivity enhancements. Once bugs are ironed out, this version will out-perform version 4.5, and will be well worth the update.

Jeff Senna

Power

play

With its Power Mac G4, Apple is allowing us to really feel the wind in our hair.

By Andrew Gore

Comic books made their mark on the world by telling the stories of people with amazing, and bizarre, powers that place them far above the realm of mere mortals. Invisibility, superhuman strength, invulnerability, blinding speed – in the world of superheroes, no capability is too fantastic to be possible.

Though the ability to bend steel with a single thought is still firmly seated in the world of fantasy, another kind of super power just became a reality. With the arrival of the Power Mac G4, the personal supercomputer is finally here.

Based on the new PowerPC G4 processor, which is capable of executing well over one billion floating-point instructions per second (the requirement to qualify for supercomputer status), the Power Mac G4 is to most computers what Superman is to the average citizen of Metropolis.

In a world where Apple spends a fortune to get just the right tone, saturation, reflection, and transparency in its plastics, little things can mean a lot. As some readers may remember, Macworld wasn't sure what to make of the look of the blue-&-white Power Mac G3, a model now discontinued after a whopping eight months in existence. It wasn't that we didn't like the blue-&-white G3; we simply felt that it borrowed a little too much from the consumer-friendly look of the iMac to be taken seriously by the professional user it was designed for.

We're happy to report that we feel no such ambivalence about the chassis of the Power Mac G4. Words such as elegant, refined, and striking come to mind. Although the overall design of the case remains the same as for the G3, the Power Mac G4 replaces the blueberry front panel with a shade of grey that Apple calls graphite. The sides are now an opaque silver-grey, and you can no longer see through the Power Mac's skin to the metal framework inside. Perhaps most striking are the clear handles, which beautifully offset the graphite Apple logo on the side panels.

Best of all, our favourite feature of the blue-&-white G3's design remains unchanged in the G4 – the easy-to-open door that gives users full access to all the Power Mac's internal components.

Flame on

By any measure, the new PowerPC G4 chip is incredibly fast. Using megahertz as a measurement is a start: these three new Power Macs clock in at 400MHz, 450MHz, and 500MHz. But those numbers don't adequately describe the speed of the G4 chip.

continues page 72





The G4’s wide-screen sidekick

Yet again, Apple is taking the lead when it comes to computer display technology. The £2,599 Apple Cinema Display is the industry’s first 22-inch, 16:10 (wide-screen) aspect ratio, digitally controlled LCD panel. We were suitably impressed during our first look at near final prototypes of the display. This sleek, silver device looks remarkable – even when it’s turned off. When it’s on, it’s truly stunning.

The Cinema Display is designed for designers. It’s the first LCD panel that looks great from any viewing angle, horizontal or vertical, and it offers the most-consistent colour of any LCD we’ve seen to date. With 1,600-x-1,024 pixels, there’s plenty of desktop space for a razor-sharp two-page spread, with lots of room left over for palettes and tool bars.

Because it uses a digital interface, the Cinema Display is free of the complicated set-up procedures common to analogue LCD panels. In fact, the Cinema Display does away with complicated controls altogether – its only two buttons are for adjusting brightness.

The Cinema Display perfectly complements the new G4’s clear, silver, and charcoal colour scheme. The LCD panel is framed by a faintly striped silver bezel, which sits atop clear plastic legs that are wide enough apart to let you tuck your keyboard out of the way. An elegantly counterbalanced clear plastic support leg juts out of the rear of the Cinema Display, allowing for easy, single-handed tilting of the display from near vertical all the way back to an angle that’s perfect for viewing by a standing group.

There is only a single, permanently attached cable coming out of the Cinema Display. It leads to a doughnut-shape box that features video, USB, and power inputs. The back of the Cinema Display also offers two USB ports. The display quality on the prototypes we saw was impressive. The display was bright, sharp, and rock-solid. Colours were vivid and natural, even at wide viewing angles. The result is probably the first LCD worth consideration by serious designers and technology buffs alike.

However, at £2,599, it’s clearly not for everyone. In fact, that price is somewhat misleading – you can purchase the Cinema Display only through the Apple Store and only if you buy it with Apple’s fastest G4 systems. Prices start at £3,899. Even then, expect quantities to be limited for quite some time, as 22-inch LCD technology is brand-new and – at least for the time being – limited exclusively to Apple.

Jeff Pittelkau



The flash That’s because in addition to being faster than the G3 processor, and offering higher clock speeds, the G4 includes a new sub-processor – that Apple has dubbed Velocity Engine. The name may be new, but the technology is something we’ve been hearing about for some time – a high-speed sub-processor called AltiVec by the G4’s inventor, Motorola. (For more on the G4 processor, see the sidebar “Introducing the G4 processor.”)

Although Motorola and IBM plan to produce G4 chips both with and without Velocity Engine, Apple currently plans to use only G4s that feature the sub-processor. This is a good thing, because applications have to be modified in order to take advantage of Velocity Engine features.

Several companies have already announced plans to support Velocity Engine – in fact, an Adobe Photoshop plug-in for Velocity Engine will come with every Power Mac G4. The first day the G4 arrived, several other companies announced Velocity Engine support in their products, including Casady & Greene (SoundJam MP) and Terran Interactive (Media Cleaner Pro).

Depending on the program, users could see up to a four-fold improvement, over non-Velocity Engine versions, in the speed of certain functions, such as complex encryption, graphics filters, and multimedia compression.

Speed racer However, the speed improvements from the G4 don’t end with Velocity Engine. According to Apple, even applications that aren’t Velocity Engine-savvy will see significant performance boosts. Some of this has to do with the faster speed of the G4 chip itself, but some of it also has to do with improvements in the logic board on certain models of the G4 (see the section “Silver surfer,” below). And keep in mind that the Power Mac G4 is a supercomputer, even though there’s only one processor inside that grey-and-silver box. Apple stopped shipping Macs with multiple processors mostly because the G3 chip didn’t work with multiprocessing. However, the G4 has no such limitations – meaning that G4 Macs with several processors inside are a distinct possibility down the road, especially considering the powerful multiprocessing abilities that will be built into Mac OS X.

Silver surfer

Not everything about these new Power Mac G4s is as crystal-clear as their curved handles, however. That’s because while all these models share the same G4 moniker, some striking differences become apparent when you open their side doors.

Two-face In the initial Power Mac G4 line-up there are two different configurations, one an intermediate step between the faster G4s and the blue-&-white Power Mac G3, and the other a high-end configuration featuring impressive new technologies.

In order to get one model in the G4 line-up down under £1,100 – and to get it out to customers as soon as possible – Apple placed a 400MHz G4 processor onto a slightly modified version of the blue-&-white G3’s logic board and put the board in the new Power Mac G4 case. In almost all other respects, the low-end Power Mac G4 is exactly the same as the G3 Power Macs. One notable exception: none of the Power Mac G4 models feature an ADB port.

As a result of using the older logic- board design, Apple was able to pack a lot into the low-end, 400MHz G4, considering its £1,099 price tag (see the table, “Power Mac G4 at a glance”). A low-end version of the G4 featuring a 450MHz processor will be available in October, according to Apple.

Clobberin’ time The high-end G4s, initially running at either 450MHz or 500MHz, are based on a totally new logic-board design, and include some impressive refinements. For instance, the 66MHz

Introducing the G4 processor

The PowerPC G4 processor, that drives Apple’s latest Power Mac systems, is not merely a faster version of the previous G3 chip. With its Velocity Engine sub-processor, the G4 incorporates functions that would previously have been performed by separate chips such as digital-signal processors, or MPEG decoders.

In technical terms, Velocity Engine – Apple’s clever brand name for the AltiVec technology developed by Motorola – is a 128-bit vector-processing unit. Most processors chew data one piece at a time; Velocity Engine can perform up to 16 simultaneous calculations. It’s especially well suited to accelerating calculation-intensive

multimedia operations. Developers must rewrite their software to take advantage of Velocity Engine features. However, Adobe has already developed a Velocity Engine plug-in for Photoshop, and many other developers have announced Velocity Engine support.

Although software must be written specifically to support Velocity Engine, some other G4 features will accelerate performance in any application. The G4’s floating-point unit – used extensively in 3D rendering operations – is up to 25 percent faster than the G3’s at any given CPU speed. In addition, the G4 supports up to a 2MB backside cache, compared with a limit of

1MB in the G3. The backside cache speeds performance by storing frequently used data, for quick access by the CPU. Finally, the G4’s cache-management system has been improved, so applications run faster than they would on a G3 processor running at the same speed, even if they don’t make use of the G4’s new features.

A downside of the chip is that it consumes more power, and generates more heat than the G3. The main consequence is that current G4 chips cannot be used in laptops. However, it’s likely that Motorola will develop low-power versions suitable for future PowerBooks.

Stephen Beale

PCI graphics-card slot in the blue-&-white G3 and the 400MHz G4 has been replaced by a 133MHz AGP 2x slot. AGP (Advanced Graphics Port) is a high-performance PC industry standard for connecting graphics cards. And according to Apple, with the right driver software, any of the ultrafast AGP cards currently available for Intel PCs will work in the 450MHz or 500MHz G4s.

Memory bandwidth has also been doubled on the higher-end G4s – to 800MBps (up from 400MBps on the low-end system) – with the maximum amount of RAM increased to a whopping 1.5GB. That translates to systems that are much faster reading to, and writing from RAM – which means RAM-intensive applications, such as Photoshop, will receive major speed-ups with these models.

Connection colossus Even USB will run faster on these systems: while maximum throughput remains at 12MBps, there is now a separate USB controller for each USB port, giving users with multiple USB devices two independent 12Mbps data connections, so all USB devices no longer need to share a single connection. Apple has even added an internal FireWire port on the high-end G4s, so you’ll be able to add fast internal FireWire devices later.

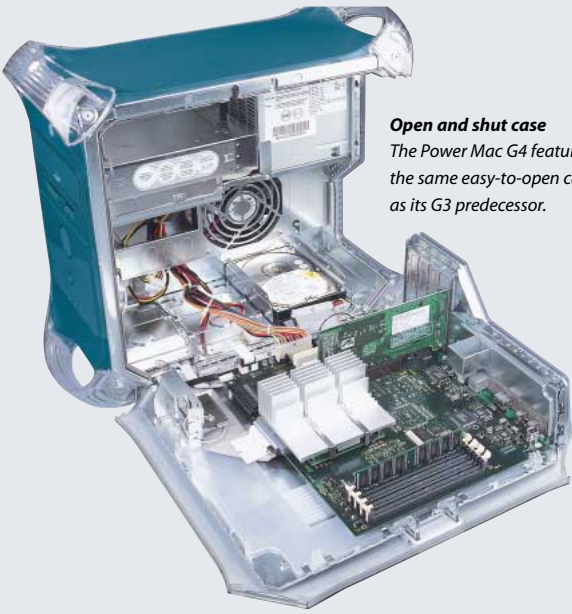
Taking a play out of Apple’s own iBook announcement (see “It’s the look! IBook of love,” September 1999), the high-end Power Mac G4s come with an AirPort wireless networking slot, and an AirPort antenna built into their handle. For £69, you can add an AirPort card that will let the G4 hop on a high-speed wireless network.

What’s more, software that will come with the high-end G4s will allow them to act as an AirPort hub, negating the need to buy the £199 AirPort base station. Apple is still testing the maximum number of wireless connections a Power Mac G4 can handle, but the company expects this capacity to be the same as the hardware base station’s (up to 10 clients with a range of 150 feet).

With great power ... At what price comes all this computing muscle? The standard 450MHz configuration will sell for £1,699, according to Apple. The top-of-the-line 500MHz configuration, featuring a DVD-RAM drive (offering both DVD playback and up to 5.2GB of writable DVD storage), will cost £2,399.

The last word

If you’re itching to rush out and buy one of the high-end Power Mac G4s, hold your horses. While Apple says the low-end 400MHz system is shipping now, at press time the company was predicting shipment



Open and shut case
The Power Mac G4 features the same easy-to-open case as its G3 predecessor.

of the 450MHz and 500MHz G4 models sometime in October.

Unless you absolutely can’t afford the pricier models, or can’t wait another minute, we suggest you bide your time and wait for the high-end G4 configurations to appear. Although the G4 processor does account for a lot of the performance improvements in the new models, the niceties of the new logic-board design will also have major impacts on speed. And if you opt for the low-end model, you won’t be able to play with cool new capabilities like using an AirPort card, internal FireWire devices, two separate USB ports, or the new Apple Cinema Display (see the sidebar “The G4’s wide-screen sidekick”).

Beauty, speed, flexibility – the new Power Mac G4 could put even the most powerful comic-book superheroes to shame. Able to leap the fastest Pentium PCs in a single bound, this new Mac proves that Apple is truly a superpower in the desktop computer world.

mw

G4 configurations

SUGGESTED CONFIGURATION	DIRECT PRICE	MAX PROCESSOR SPEED	RAM (MAX)	MEMORY BANDWIDTH	CACHE RAM	GRAPHICS SLOT	HARD DRIVE	CD/DVD DRIVE	ZIP DRIVE	FIREWIRE PORTS	USB PORTS	56Kbps MODEM	AIRPORT
Power Mac G4/400 (low-end)	£1,099	400MHz	64MB (1GB)	400 Mbps	1MB	66MHz PCI	10GB Ultra ATA/33	CD-ROM	No	2	2	Yes	No
Power Mac G4/450 (high-end)	£1,699	450MHz	128MB (1.5GB)	800 Mbps	1MB	133MHz AGP	20GB Ultra ATA/66	DVD-ROM	Yes	3 (1 internal)	2 *	Yes	Yes
Power Mac G4/500 (high-end)	£2,399	500MHz	256MB (1.5GB)	800 Mbps	1MB	133MHz AGP	27GB Ultra ATA/66	DVD-RAM	Yes	3 (1 internal)	2 *	optional	Yes

* Each port on these models is on its own bus, doubling the potential USB throughput.



Site vision

How to make the most of your Web site.

By Jason Snell and Lisa Schmeiser

Building a Web site may never have been easier – but presenting and managing one is still something requiring plenty of thought. Here, we take you through some basic steps towards making your site more attractive and effective – and also take a look at how to best run an Internet server.

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Dress it up...

Never before has it been so easy to build a Web site. From Adobe GoLive to Macromedia Dreamweaver, WYSIWYG (“what you see is what you get”) software packages let you create pages by just dragging and dropping text and graphics into place – instead of learning to write HTML code by hand. Heck, you don’t even need to buy software – many Web-site services such as Tripod (www.tripod.com) have page-generating templates that create your code for you.

But, is your site easy for its visitors, too? Although WYSIWYG editors can help you build a site quickly and painlessly, they don’t guarantee the same ease of use for the folks on the other side of the browser – the people actually trying to use your site.

Just like tourists at an amusement park, or customers in a grocery store, your readers need some basic things to help them avoid getting lost or frustrated: orientation, guidance, reference, and motivation. When you really think about it, why build all those pages if they’re so frustrating to use that no one comes back?

Make sure that all the work you put into your Web site is time well spent by taking a few simple strategies to heart. They will make your Web site less frustrating to use and will help you build the kind of site that you’d like to visit yourself.

First figure out what you’re doing

The best work you can do to make your site easier to understand, doesn’t even require touching your Mac’s power button. First, ask yourself some basic questions: What’s the purpose of my site? What will people be looking for? What cues might help visitors remember where they are, and why they’re here? How can I get readers to stay and compel them to return?

Get to the point Sit down with pen and paper and write down your site’s purpose in one sentence. Then, sketch out what you think the basic building blocks will be. The example we’ll use is a

personal site, the purpose of which is to promote your hobby of Apple Computer worship. You might start out initially with a long list of topics you love and think will be fun additions, including a shrine to the System 7 team, your collection of haiku about the Mac Classic, and the scrapbooks of cross-country trips you took with your Apple IIe one summer.

Here’s the list we made for this site: 1) the home page; 2) news; 3) contact information, including an email address; 4) links; 5) Mac news; 6) Mac shareware; 7) a scrapbook; 8) a personal PowerBook collection; and 9) the Apple IIe.

Stick to it After you’ve made your list, look at it with a critical eye. Because you’ve seen numerous other Mac sites that feature links to news and software resources, you might automatically think this kind of links page would be a good idea for your site too. There’s no doubt that many people appreciate useful links, but that alone isn’t enough reason to throw them in the mix. Remember, the goal is to show how crazy you are about your computer – and what do news and software sites have to do with that? If you stick to your theme, your readers will be able to understand immediately what your site is about, and each section will make sense to them.

With this in mind, we decided to scratch links off our list altogether, and focus on the hobby sections: the scrapbook, haiku, and System 7 shrine. (You might decide instead to have a links page, but include only links to other fan sites like yours.) As you make these decisions, be vigilant. Extra stuff, simply for the sake of extra stuff, could make your site charmingly eccentric, but more likely it will make it confusing.

Map your site on paper After you get a good idea what your site’s purpose is, and what types of content it will contain, you need to figure out how everything will connect. One of the best ways to do this is to actually map out your site (see the diagram, “Sketching it out,” for an example).

Note that a lot of the arrows in our example seem to cross-link, leading to a tangled mess. This is not a bad thing – in fact, it’s one of the main points of the exercise. Try to keep your tangled, linky messes on paper. You can erase illogical connections, rearrange everything, or toss out a failed paper diagram much more quickly and easily than you can redo a Web site full of HTML files.

With everything in front of you, you’ll be able to think realistically about whether the way you’ve connected your pages makes sense. For example, our diagram shows that the “What’s new” page links only to the top level of each different section. Wouldn’t it make more sense to link directly to whatever’s new within those specific sections? We reorganized the site to add those links.

As you untangle your pages, you’ll discover key entry points to the site, how to direct readers to informative pages, and how to group the pages of your site together logically. For example, the pride and joy of your site might be the scrapbook pages of your Apple IIe sitting in front of assorted national monuments. Do you give those pages their own section – “Road Trip” – or do you put them with other scrapbook pages such as your PowerBook bungee-jumping trip? In this case, we decided to create a single page called “Scrapbooks” that lists the different scrapbooks, and links to a separate page for each one.

Once you’ve got a solid site outline in place, you’re ready to generate the signposts and breadcrumbs that help your users find their way around – the site navigation.

Nail down your navigation

Your users are entirely dependent on you to tell them how to find what they’re looking for. Navigation – consisting of the hyperlinks, graphics bars, or buttons that allow people to move from page to page within the site – provides the guidance they need. This means it deserves some careful contemplation.

The two-tier technique Good navigation typically includes two parts: the primary level (usually the home page) that leads users to the entry points of separate sections (in our example, the scrapbook page, the news page, and the PowerBook collection page) and a secondary level (the main pages for each section) that steers users through the unique contents of your sections. If your site includes a lot of lengthy documents, you may also want to include a third type of navigation – links that move users to the beginning, or

Four mistakes that will sabotage your site

The best-laid plans of mouse-clicking and man can go awry if your site’s technical performance undermines the overall organization. Here are four of the biggest – and easiest-to-make – mistakes.

1 Bad colours In real life, there may be no bad colours, only bad colour combinations. On the Web, however, there are bad colours: colours that do not display consistently from browser to browser, or across different computer operating systems and monitors. As a Web-site guru, you need to be concerned about this because you’re going to be using colour as part of your site navigation. If colours vary wildly, depending on whether your users view the site using an old 256-colour monitor or a newer one with thousands of colours, users will lose the ability to distinguish between different colours and their corresponding functions.

It’s in your best interests to design your site around any combination of the 216 colours in the Web-safe palette. A good online reference for this is Lynda Weinman’s site at www.lynda.com.

2 Bad graphics Artistic merit has nothing to do with this: a graphic is bad if it’s too big for a browser to display quickly, or if it’s not saved in a Web-friendly way.

If you’re using graphics to connote headlines, navigation, or a site’s look and feel, try to keep the sizes of the individual files small, and save the graphics in the Web-safe palette in your graphics program.

3 Bad HTML Writing code that works across different browsers isn’t enough to guarantee speedy site performance. Once you feel confident enough to muck about in HTML code, you should also work on streamlining your code – so that it loads as quickly as possible. What’s the biggest offender? The nested table – in other words, a table within a table within a table.

A browser will not display a table until it has figured out how to draw the whole thing. That means when one, two, or three tables are nested inside a table, the browser has to chug through the contents of those tables before displaying row one of the outside table holding them all.

All the while, your viewers will be twiddling their thumbs. Instead of relying on carefully nested tables to simulate a paper-based layout, stack your tables in a series of structured horizontal-only elements. The tables will load one at a time, allowing your viewer to look at the topmost tables, while waiting for the rest to appear.

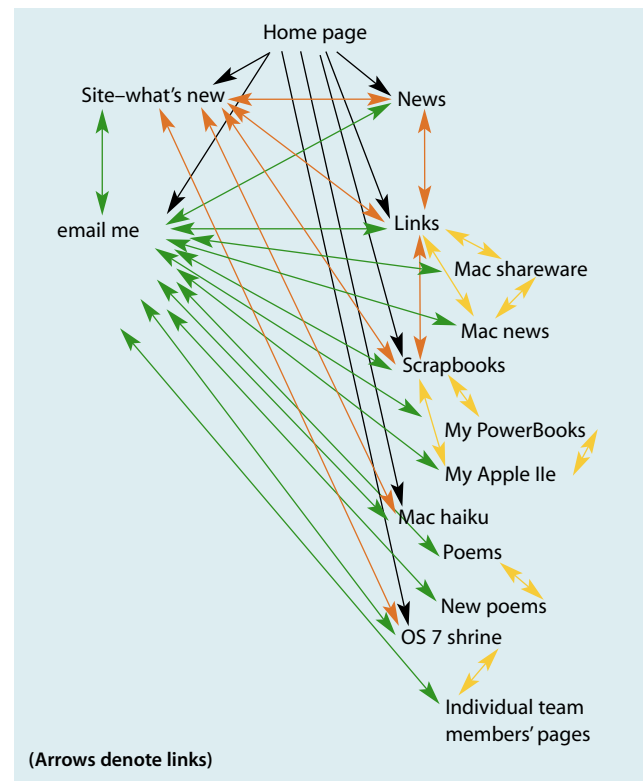
The other culprit is wordy code: although adding attributes – like size, align, and colour – to a tag may add visual precision, the words weigh down the file and provide a browser with more HTML to chew on before rendering a page. Consider streamlining your use of

attributes. For example, instead of assigning the vertical alignment valign=top to each <td> in a table row, write the attribute once in the table row: <tr valign=top>.

4 Bad layout Finally, remember that your audience will be looking at your site on monitors of all sizes – from laptop computer displays, to 27-inch behemoths. Setting the layout of your page to a specific width may knock key features off the screen or force users to scroll from side to side simply to read a page. You can avoid annoying your users by adopting one of two layout strategies: find out what the average monitor resolution for your users is and design to that, or adopt a “liquid HTML” building style that lets the layout expand and contract according to the browser window’s size.

“Liquid HTML” means that you’re taking absolute numeric values (such as <table width=“400”>) out of your tables and putting in percentages instead (such as <table width=“80%”>).

The idea behind liquid HTML is to allow the layout to preserve a sense of scale relative to the size of the browser window; as the user expands or contracts the browser window, the layout expands or contracts relative to the window’s width.



Sketching it out

Before you put your ideas in code, make sure to sketch them on paper. It’s a lot easier to sort out a mess like this before making your Web pages.

end, of a particular story, or allow them to move back and forth one page at a time.

Nix on the name game You should strive to give your sections and navigation elements clear, unambiguous names. Some readers might appreciate whimsy or metaphor, but others certainly won’t. For example, some of your readers will know right away what a section called “The Dirt” is about, but you can bet that everyone will understand what they’ll find in the “News” section. The entire purpose of navigation is to help people get around and feel at ease in your site – the last thing you want is to have the basic tools for getting around your site mystify your readers.

Be consistent

Unlike most software programs, the Web doesn’t really offer a predictable user interface, or way to get around sites. When you open an application on your Mac, you can be reasonably sure that you’ll find pull-down menus at the very top of the screen, and that the leftmost one (which will almost always be called File) will allow you to open and save new files. The rules for navigating the Web, however, change from site to site.

As a result, it’s your job as a Web-site builder to provide an easy-to-grasp interface for your user. Start by assuming that all visitors to your site are first-timers, and have less than a minute to figure out where they are and how to get where they want to be. Make the job easier for them by providing clear cues.

A place for everything These cues don’t have to be complicated. In fact, it’s better if they’re not. Why set up an elaborate metaphor that you’d have to explain later? The best way to help people get around is to set up a predictable place for everything on your home page, or in the section. Save the exceptions for items that you want to stand out.

For example, if the primary navigation on your site is always via a vertical list of links in the left-hand margin of the page, then

readers will assume that they can always move around the site by clicking in that area. This is how you’ll provide references to readers – by giving them a set of constant cues, that tell them what to expect from every page.

Colour cues Layout is only one area where you’ll want to be consistent; colour is another. Readers rely on the colours of links to tell them when they’ve visited a link or not. You can carry this relationship between colour and function further, and associate specific colours with different sections of a page or site. For example, if the section’s peach, you must be in today’s headlines. Colour is a quick way for your brain to figure out where you are, and what you’re looking at. One example of this is the BBC’s Web site (www.beeb.com), where each section has a unique colour scheme.

The little touches Finally, always include page titles (they’re in the <head> tag at the beginning of the HTML document) so readers can quickly see where they are. You should also include your email address, or a link to a contact form on every page; readers like to be able to give feedback quickly.

Provide a clear way in and out

Thanks to search engines, you’ll always face the possibility that new readers will land in the middle of your site, instead of on the front page. Your job is to provide those readers with a well-lit Exit sign, to help them get to your site’s front page. Doing this lets your readers re-orient themselves, so they see your site in a way that makes sense to them, and it allows people to bail out of pages quickly if they aren’t where they want to be. If they’ve dropped in on page five of your epic poem to the System 7 team, for example, they may want to get back to page one quickly so they won’t miss a single verse.

Entrances and exits are especially important if you’re building a site that includes sequences stretching over several pages. For example, if you’re going to ask users to register online, you want to

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let them know where they enter the registration process, where they are relative to the beginning and ending of the registration, and how to get to the last page. Few people like filling out forms online, but mild dislike can turn to loathing if your reader is filling out page after page – with no clear idea of when the task will be done. Make entrances and exits a part of your site navigation.

Readers subconsciously regard your site as a series of tasks. They're looking for a starting point, a specific action to be performed with specific results, and an exit that lets them know they've completed the task. When a reader gets dropped into the middle of a task – be it reading an article or browsing a directory of links – the first response is usually to get out and then reapproach the pages after figuring out the context.

Employ a lab rat

You may think your site makes perfect sense, but you'll find out if

that's true only after someone else has tried to use it. Before you post your new and improved site, ask some friends to click through a version of it and give you their honest feedback. Preparation at this stage can make all the difference.

Another person can catch flaws in site navigation, or inconsistencies in visual cues that you've tuned out. For example, your fearless lab-rat friend may think that your "Scrapbook" section is a personal scrapbook, not an homage to the road trip you took with your Apple IIe – "I want to see pictures of you in front of the Millennium Dome, not your computer!"

After mulling this input over, you might decide to change the title of the section to "Computer Scrapbook."

Getting another point of view is crucial: it will either confirm that you were on the right track with your site's organization and look, or will let you know what areas you need to refine before releasing your site on an unsuspecting Web audience.

Serve it up...

Running an Internet server has always been something for big businesses and hard-core computer geeks. After all, to operate a server you must have a continuous connection to the Internet – not something most people have – and a compelling reason not to use the email and Web services offered by your Internet provider. But with the spread of always-on connection technologies, such as DSL (Digital Subscriber Line) and cable modems, the rules have changed. Now many people who once could connect to the Net only by an intermittent modem connection have the ability to serve information out of their own homes and small businesses. And the wide variety of server software available for the Mac makes it easier than ever for them to take control of their Internet lives.

Why serve it yourself?

In all likelihood, somewhere at the offices of your ISP (Internet service provider) is a climate-controlled room, housing anywhere from a handful to dozens of computers being used as Web servers, email servers, file servers, and several other kinds of servers. And chances are, there's a team of trained technical professionals whose jobs involve keeping those servers up and running at all times, protecting them from catastrophic hardware failures that would put your Web site out of business, or erase vital email messages you haven't read yet.

Running your own server doesn't mean you'll need to hire a team of technicians in white coats and give them a key to your house. But it does mean you'll need to do more work than you do now. So the question is, what can you gain by setting up your own server, rather than using the ones at your ISP?

Web control If your Web site is made up of a collection of static files, then running your own Web server may not offer much of an advantage over using someone else's server. However, if your ISP charges an extra fee for space on its Web server or charges you by the byte for all the traffic on your site, you might be able to save some money by putting an older Mac into service as your Web server.

Running your own server really becomes an advantage when you've moved beyond a simple home page. Perhaps there's some specific interactive feature you want to implement on your Web site – fill-in forms, pages with content that changes based on who's viewing them, and the like – but it's something you just can't create on your current ISP's Web server. You can take advantage of all your Mac-based server's built-in features, and buy Web-server plug-ins to add any other special features you might want.

Email might Most high-speed connections come with one or several email accounts. But what if you want more? With your own email server, you can create as many accounts as you want; you can even create extra email addresses that automatically forward to some other mailbox – great if your friends can't remember if you're

bob_johnson@mydomain.com or bjohanson or bobj or bob.

Most email-server programs, such as Qualcomm's Eudora Internet Mail Server (£179; Soft & Net, 0151 292 0829), also let you do things like create accounts that automatically reply to incoming mail. (For example, you could put a text file containing street directions to your house on the mail server and then whenever you need to give directions, you'll be able to say, "Send an email to directions@mydomain.com!")

If you are really ambitious, you can also set up mailing lists. These can be simple and unchanging groups: for example, family@mydomain.com could be an address group that automatically forwards to all your family members, saving people from having to remember everyone's individual address. But mailing lists can also be a bit more complicated. Using mailing-list-processing software, such as Fog City's LetterRip Pro (\$395; www.fogcity.com, download), you can set up automated mailing lists that people from the outside world can subscribe to (and, later, unsubscribe from).

Share files If you're constantly trading files with friends or business associates, it's easy to get tired of the flurry of email attachments. If you find yourself wishing you could return to the old days when you shared space on a file server, you can – by running an FTP (File Transfer Protocol) server, such as Stairways Software's downloadable NetPresenz (\$35; www.stairways.com). FTP is a standard Internet protocol for exchanging files, and FTP client software is available for just about every computer operating system.

One warning: although running Web or email server software can be somewhat risky (see the sidebar, "Play it safe"), running a file server can be extremely dangerous. Before you start, carefully plan your security system. Make sure guest access is disabled. Make sure people can get into only the areas you want them to get to. Carefully read the documentation for your server software; the last thing you want to do is open your hard disk to anyone roaming the Internet, giving them free rein to read your personal documents and trash your hard drive.

Video voyeurism Even folks who don't want to set up their own Web, email, or file servers may be intrigued by the idea of putting a live picture up on the Internet. If you attach a camera to your Mac, and run software such as Rearden Technology's SiteCam (\$199 online; www.rearden.com), you can broadcast live images of yourself, your dog, your backyard, or whatever you choose. These can be still pictures updated every few minutes, or they can be a live video stream.

Share databases You don't need to become a Web-publishing expert to share your databases on the Web. Using FileMaker Pro 4.0 (£169; Computers Unlimited, 0181 358 5857) or later, you can let people view, search, and even modify, if you wish, your FileMaker databases over the Web.

Let the server beware

Before you get started setting up that plug-&-play Web and email server, that will make your life so much cooler, here's the truth about

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Four mistakes that will sabotage your site

Running a server means that anyone on the Internet can talk to your computer, even if all your computer tells them is "Buzz off". The Mac is quite a formidable opponent for hackers, but a carelessly configured server can lead to major security problems.

If you run a server, you have to be painfully diligent about making sure it has been configured properly, or your private information could be stolen, or even destroyed.

Smart passwords No matter what kind of servers you're running (even if you're just running File Sharing), always make sure your passwords are secure. For example, don't let people use their first name as their user name, and their last name as the password.

Don't use any word that can be looked up in a dictionary as a password. And don't use obvious passwords, such as password, or

easily guessed referential passwords, such as Joshua – the password used in the 1983 computer-hacker film *War Games*.

Know your surroundings If you're letting your data be seen by people all across the Internet, realize that you're giving people you've never met the chance to break into your system and see your data. Plan your security accordingly. For example, you might think nothing of sharing a FileMaker Pro database over the Net – but if you don't protect it with passwords, anyone could stumble along and read, alter, or even destroy your data.

Before you use any program that communicates via network, consider carefully what your security measures are. It's one thing to feel secure when you're using an AppleTalk-based network of four Macs; that feeling can be quite dangerous if your computer is attached to every other

computer on the Internet.

Spam trap If you're running an email server, you need to make sure that it's secured against "relaying" – receiving mail from someone and then resending it for them. That's because relaying is a feature exploited by senders of junk email, and spammers are always on the lookout for new email servers that will relay their messages to unsuspecting victims.

Protect yourself There is a plethora of software packages that can protect your Macs. For example, Open Door Networks' DoorStop (\$299 online; www.opendoor.com) monitors connections to your server and lets you restrict access as you see fit. Intego's NetBarrier (\$75 online; www.intego.com) provides similar security functions, blocks "denial-of-service" attacks that can slow down your network to the point that it's unusable, and more.

running an Internet server: it's hard. Granted, it's much easier than it used to be – and it's much easier to get up to speed on the Mac than it would be if you were trying to run a Unix-based server. But it's not a situation where you can install some applications, double-click on them, and forget them. Running a server brings with it a whole set of issues that people who use their Mac all day long, and shut it off at the end of the day never have to worry about. And before you decide to spurn your Internet provider and set out to process all your email yourself, or host your own Web site, you should know if you're up to the challenge.

Always on For a server to be effective, you shouldn't shut it off. That means, for all practical purposes, that you shouldn't set up your Mac as a server and continue to use it to render 3-D images, update databases, or even write your first novel. The job of a server should be done by a dedicated Mac, although it need not be the latest top-of-the-line model. An older Power Mac is ideal, and even older pre-PowerPC Macs can master simple serving tasks, such as running an email server or a basic Web server. If your current ISP provides you with only one Internet address – common with cable modems and low-cost DSL services – you may need to run Internet-sharing software if you want to surf on one Mac, while you're serving on the other (see the sidebar "Internet sharing 101" in the companion feature "Keep it in the family", page 82). You'll need to be sure that your Mac will restart itself in case of a crash, or a power outage. There's a cornucopia of hardware and software that helps recover your Mac – we've put up a long list of server tools as part of the Wire Your World special report, at www.macworld.co.uk/wired/world.html).

Backing up Servers hold vital information – but then so does the computer you use every day. The difference is that servers hold information that's vital to everyone who uses them, not just you. So, whereas you might (unwisely) avoid backing up your own computer because you're willing to take the risk, you can't take such risks with your server data. You'll need to regularly back up your server to some form of removable-storage device, using software such as Dantz Development's £159 Retrospect or £35 Retrospect Express (Computers Unlimited, 0181 358 5857).

Before you decide to spurn your Internet provider and set out to process all your emails yourself – or host your own Web site – you should know if you're up to the challenge.



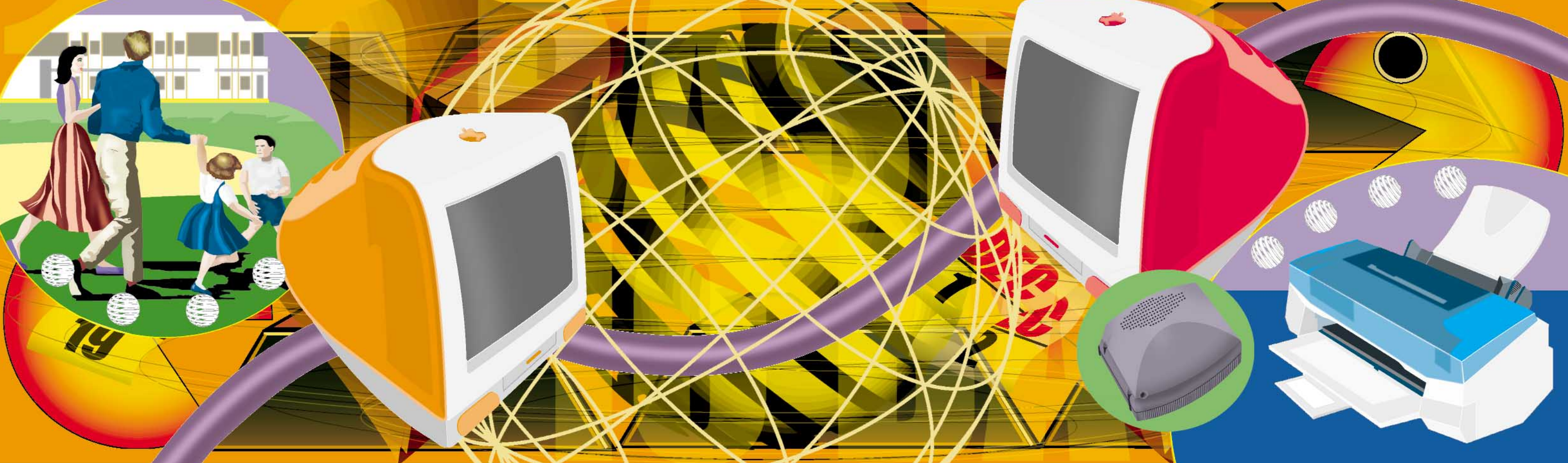
Restrictions on serving Before you buy everything you need in order to set up a server, be sure to check the rules you agreed to when you signed up for high-speed Internet service. Many Internet providers ask that users not run servers on their computers. Your connection to the Internet must also be via an unchanging Internet address – otherwise, nobody will know where to find your server. Be sure to ask your Internet provider if you've been given a static IP address; if the answer is no, you won't be able to run your own server.

The last word

Running your own Internet server isn't for the faint of heart. Before you take the plunge and kiss your Web-hosting company good-bye, think carefully about whether the added cost, and time, required to set up and run a server are worth it. If you've got the inclination and need the power and flexibility, operating your own Internet server can be quite a rewarding experience.

Building an easy-to-use site, meanwhile, takes time, experience, and many forehead-slapping lessons you wish you didn't have to learn. Fortunately, if you learn from the past mistakes of Web pioneers, you'll have a strong beginning for making your site a more reader-friendly place to visit.

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Keep it in the family

Home networking is within your family's grasp.

By Adam Engst

The following is a scene that's becoming as quaint as the happy nuclear family of Fifties sitcoms: a computer, a printer, and a modem. These days, that simple setup is about as unlikely as a modern family made up of an office-bound husband, a stay-at-home housewife, and two-and-a-half perfect little kids. No, things are a bit more complicated now. Millions of households have more than one computer. The Internet has become part of everyday life – and everyone wants to get on it. At the very least, the appeal of exchanging files and sharing printers should make you consider networking all your home, or small office's, computers together.

With new high-speed technologies like DSL (Digital Subscriber Line) and cable modems arriving, a small network can also let all your computers share one fast, always-on Internet connection. You can even use the network to play games, not just over the Internet but also between the various Macs (and PCs) you own. And while transferring and backing up your files over a network may not sound sexy, the iMac's lack of a floppy drive makes the network more vital than ever. You may think that connecting all your computers is going to be a complicated and costly proposition – but it doesn't have to be. Here's an in-depth guide to the terms you'll need to know, the skills you'll need to have, and what you'll get once you're all set up.

Why create a network?

At first glance, it might seem like creating a network inside your home is a task reserved for computer geeks and the same 12-year-olds who knew how to program a VCR the day they were born. But there are plenty of reasons for you to set up your own network.

Share your files Apple broke with tradition by eliminating the floppy drive from the iMac and the blue-&-white Power Mac G3s. You

could spend extra money on a USB floppy drive, but then you have to schlepp disks from the family room to the den, and back again. Using a network to transfer files is faster and easier.

Surf anywhere A simple problem: you have DSL, a cable modem, or some other means to connect to the Internet, but it works only with the one Mac it's connected to. How can your other computers access the Net using the same connection? A simple solution: use a network and some Internet-sharing software (see the sidebar "Internet sharing 101"). This is also a great way to avoid buying a modem for each computer.

Play games You don't need a network to play games. But it's a lot more fun to play against real people, and many of today's hottest games let you beat up on either computer opponents or other humans via network play. You can play against other people on the Internet, family members on your home network, or both.

Share printers Prices have dropped, but you probably don't want to buy a printer for each of your Macs. If you have a network, though, you can share most printers with every Mac on the network.

Back everything up Don't be frustrated by the fact that your new iMac can't back up to your old SCSI-based Jaz, CD-R, or tape drive. When your old and new Macs are networked together, you can back up over the network using Dantz Development's £159 Retrospect or £35 Retrospect Express (Computers Unlimited, 0181 358 5857). If you've got an older Mac, you can even set it up in a closet, or on the floor, as a dedicated backup server – preserving all the files you have on your current models. (For more about backup, see "Get your back-up," March 1999.)

Keep your dates straight My wife and I each have our own Macs, and we have a PowerBook that mostly lives in the kitchen. Thanks to our home network, and network-capable calendar and

contact software, we can schedule dinner with some friends, or look up a telephone number from any one of our computers. Changes are instantly available to any computer, so we don't have to worry about scheduling conflicts, or outdated contact information.

Meet the network

Now that I've convinced you to connect your computers together, it's time to give you an overview of network technology and terminology. That terminology can be intimidating – especially if it's spoken by scary people in white coats, who are paid lots of money to keep large corporate networks up and running. But in reality, setting up a simple home network doesn't need to be rocket science.

Into the ether The most common form of networking around is ethernet, which has been a standard part of most Macs for quite a few years now. Some Macs have built-in ethernet ports that let you plug an ethernet cable – which looks like a jumbo version of a telephone cable – right into your Mac. Older versions require you to buy a transceiver, a little box that attaches to both your Mac and the ethernet cable. Today, most ethernet networks are 10BaseT, letting you pass data at 10 megabits (roughly 1MB) per second. An up-and-coming protocol is 100BaseT, which uses the same-size connectors, but can be ten times faster. Many new devices can switch between the two speeds with ease – the iMac, for instance, can work with either 10BaseT or 100BaseT networks.

Ethernet is a tried-and-true networking format. But it's also true that most homes don't have ethernet running through their walls – and that means if you want to wire-up computers in far-flung locations, you'll need to run cables yourself or hire someone to do.

Both 10BaseT and 100BaseT ethernet are what are called star

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Home sweet home-network

Enough theory – let’s look at a sample network, so you can see how it all works. Our sample family has a PowerBook 520, and a Power Mac 7200, both hooked up to a LaserWriter via a LocalTalk cable.

When they want to move files back and forth, they use floppies, and when they want to print from the PowerBook, they swap the LocalTalk cable from the Power Mac. They’ve just purchased a shiny new grape iMac, and put the Power Mac in the kids’ room for games and school projects. They also have a SCSI-based Jaz drive that they’ve been using on the Power Mac along with Retrospect Express for backups. Finally, they’ve just installed DSL high-speed Internet access, so they’ve got a

DSL modem that connects via ethernet, and they want to attach it to all their computers.

In the end, they want a network that lets each Mac print, back up to the Jaz drive on the Power Mac, connect to the Internet, and copy files back and forth as needed. That’s easily accomplished, but they’ll have to go shopping first.

The newer your Mac, the easier it is to get it on ethernet. This family’s iMac has an ethernet jack built right in. But, they’ll have to add ethernet to the other two computers: in this case, an ethernet transceiver for both the PowerBook and the Power Mac (roughly £25 each).

The LaserWriter is networkable but is

designed to work only with low-speed LocalTalk networking. With a LocalTalk-to-ethernet bridge, such as the £93 EtherMac iPrint LT from Farallon, any Macintosh on the new network will be able to print to it.

Throw in an ethernet hub, some cabling to connect it all together, and a copy of Internet-sharing software, and you have a network.

Network shopping list

- Ethernet cables (Cat5, five cables); £35.
- Ethernet transceivers (two); £27.
- LocalTalk-ethernet bridge (LaserWriter); £55
- Ethernet hub (10BaseT, eight ports); £27.
- IPNetRouter; £49.

Total estimated price: £193

networks. At the centre of the network is a hub, a box you plug ethernet cables into. The cables radiate out from the hub in a star-like pattern, hence the name. You don’t usually chain ethernet networks together, as you would SCSI devices, connecting one to another and to the next (although Farallon’s line of EtherWave products will let you do just that). Normally, you plug one end of an ethernet cable into a computer, and the other into a hub. Each hub can be connected to other hubs, extending the network even more.

Phone-line networking A recently developed networking standard is HomePNA, a system that uses telephone lines as the transport medium for your computer data. The strength of this approach is that, unlike for ethernet, most buildings are already wired for telephone service. Anywhere in your house where there’s a telephone extension, you’ve got a potential network connection area.

The problem for HomePNA in the UK is that, to plug anything into a BT socket, it must first have BT approval. Version one of HomePNA wasn’t built with European telephone networks in mind, and is unlikely to ever ship. However, its success in the US means that version two of the technology will be designed to receive approval from BT and other networks around the world. HomePNA will be available in the UK at some point, although it is not clear when.

The most amazing part, is that using a HomePNA network doesn’t interfere with the voice traffic, or even DSL Internet connections that are travelling through the same set of telephone wires. Although HomePNA isn’t as fast as a 10BaseT ethernet network just yet, at roughly 100Kbps it’s faster than almost any most Internet connections – and more than sufficient for most home network uses.

HomePNA does have some drawbacks, however. First, it requires a special PCI card for each computer in order to get HomePNA to work. Second, there’s no way of connecting an iMac – which lacks a PCI slot – to a HomePNA network. However, an iMac-friendly HomePNA product is likely to be available soon. If you’ve got an older Mac, a PowerBook, no free PCI slots, or want to network a printer, you may be similarly out of luck.

Wireless Freeing your computers entirely from wires would, of course, be the easiest way to set up a network. Wireless technology is undoubtedly where the world of networking will eventually end up. Instead of using wires, network data can be translated into radio signals that pass through your walls, floors, and ceilings until they’re received and deciphered. Wireless networking has traditionally been expensive and not particularly Mac-friendly – but the new AirPort technology introduced with Apple’s new iBook threatens to change all that, providing slightly faster speeds than 10BaseT without any wiring. And the new SkyLine PC Card from Farallon, which is compatible with the AirPort, will provide wireless capabilities for older PowerBooks.

The network shopping list

For some people, HomePNA may be a good answer to setting up a simple network – buy the cards, install, plug in, and you’re set. But ethernet has stood the test of time, is readily available, and offers

much more flexibility. That’s why for the bulk of Mac users, it’s probably wise to stick with ethernet.

AirPort is also a promising technology, but it’s still expensive – an extra £168 for a base station and an add-in card for one iBook. Even if you do buy an iBook with AirPort, ethernet makes sense – the AirPort base station comes with a 10BaseT/100BaseT ethernet port, so hooking that device up to an ethernet network of desktop computers, printers, and perhaps a high-speed modem will be a snap. Before you put together an ethernet network, you’ll need to gather all the parts you’ll require. Just what’s needed will vary depending on the Macs and printers you have, but here’s a basic checklist:

Cabling The cabling in my home is called 10Base2 – but its time has passed, as just about every recent Mac model provides built-in support for 10BaseT and/or 100BaseT. That’s the type of cable you should use. Not all cable is created equal. You need at least Category 3, or Cat3, cable for 10BaseT networking, but you should always buy Category 5, or Cat5, cable instead. Cat5 cable is not much more expensive than Cat3, and it works with the speedier 100BaseT ethernet. That means if you want to upgrade your network to 100BaseT in the future, you won’t have to pull out all your wires and start again.

Ethernet cards and transceivers Every Mac that Apple sells today has ethernet built in, and many older Macs did as well. Although not every Mac is so well equipped, you can add an ethernet card to just about any Mac, even the ancient SE/30. In most cases, the ethernet card drops into a slot on your Mac, whether it’s a NuBus slot – found on most Mac IIs, Quadras, and the first-generation Power Macs – a PCI slot (found on second-generation Power Macs and later), or even more esoteric slots such as the PDS (Processor Direct Slot) on the SE/30 and IIs, and the LC Comm Slot found on many Mac LCs and Performas. Older PowerBooks, with no such slots, can get on ethernet with the help of an adapter that attaches to the SCSI port, and newer PowerBooks can make use of ethernet PC Cards. One great resource for this sort of information is Farallon’s LAN Product Selector, located on the Web at www.farallon.com/products/selector/. While it covers only Farallon products, you can also use it to figure out what sort of items you’ll need, whether you buy them from Farallon or some other company.

Older Macs and LaserWriters with built-in ethernet aren’t exactly plug-and-play – rather than the telephone-style jack found on 10BaseT and 100BaseT cables, they have a special connector called an AAUI port. For these devices, you need to buy an AAUI ethernet transceiver – essentially, an AAUI-to-10BaseT converter box. Luckily, these transceivers are cheap: about £13.

Hubs With a star network such as 10BaseT and 100BaseT ethernet, you’ll need a central hub that all your devices connect to. These days, you can buy a hub for as little as £30, although more full-featured hubs can cost significantly more. When shopping for a hub, there are several issues to keep in mind. Be sure to consider how many ports you’ll need on the hub – you’ll need one for every device

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- 1 Plug your ethernet hub into an electrical outlet. Make sure to put it in a location that’s accessible to all of the computers.
- 2 Run a cable from the iMac’s ethernet port to the hub.
- 3 Connect the first transceiver to the Power Mac’s ethernet port, and then run a cable to the hub – in this case, our homeowner ran wires through the walls to keep cords out of the way. (One day, wireless networking will make running wires between far-flung locations a thing of the past – but right now, this is probably the best option).
- 4 Connect the second transceiver to the Power-Book’s ethernet port, and then run a cable to the hub.
- 5 Run a cable from the DSL modem to the hub. To share the Internet connection, install Internet-sharing software on the iMac, and make sure the iMac is turned on when any of the other Macs need to connect to the Internet.
- 6 Set up the LocalTalk-to-ethernet bridge, and connect it to both the hub (via a 10BaseT cable) and the printer (via its LocalTalk cable).
- 7 Optionally, the family could purchase Apple’s new AirPort base station (£199) and bring a new iBook home. After the base station is plugged into the hub, an iBook equipped with the £69 optional AirPort card can roam freely in a roughly 150-foot radius, surfing the Net and exchanging files at ethernet speeds.

Internet sharing 101

To share one Internet address among several computers, you need a router – something that acts as a traffic cop to handle the flow of Internet data between your computers and the Internet. For most home and small-office networks, it's easier and more cost-effective to use a software-based router – rather than an expensive hardware router. With five different Mac OS software routers available, how do you decide which to choose to connect your network to the Internet? The decision depends on how many Macs will be using the Net simultaneously and what advanced features you might want.

No matter which product you choose, remember that whenever you're connected to the Internet, it's conceivable that someone could attempt to break into your Mac. All of these products include security features to protect you, but it's also a good idea to turn off guest access in the Sharing dialog box for shared folders – and be careful what you publish using Personal Web Sharing. Realistically, if you take basic precautions, you have nothing to worry about.

Home networks For a home network with a couple of Macs, your best choices are Vicomsoft's SurfDoublor (£34; www.vicomsoft.com) and SurfDoublor Plus (£46), or you can order IPNetRouter online from Sustainable Softworks (\$89; www.sustworks.com). SurfDoublor is slightly cheaper but allows only two Macs at a time to access the Internet simultaneously. SurfDoublor Plus offers all of SurfDoublor's features, plus parental controls and content-filtering capabilities.

IPNetRouter has no per-user limitations, and provides better performance than SurfDoublor when running on older Macs. On the downside, IPNetRouter is somewhat more difficult to install and configure, although Sustainable Softworks provides an excellent tutorial and background information on its Web site. Both companies provide free trial versions of their software on their Web sites.

Small-office networks If your network contains more than a few Macs, SurfDoublor's two-Mac limitation eliminates it in favour of Vicomsoft's multiple-user SoftRouter Plus (£139 to £234; price varies depending on number of users), which also provides additional features such as the caching of Web pages to increase page loading speed, a local DNS server, and a remote-access server, so users can dial into your network.

IPNetRouter remains an excellent choice for these networks as well, and can be significantly cheaper than SoftRouter Plus if you don't need SoftRouter Plus's additional features.

School networks If you feel the need to restrict the users on your network from accessing specific Internet resources, Vicomsoft's Internet Gateway (£134 and up) might be the best option for you, since it can prevent users from accessing sites on the CyberNot Block List, a collection of Internet sites that researchers at Microsystems (www.cyberpatrol.com) have deemed inappropriate for the typical 12-year-old surfing the Web, without adult supervision.

on your network, so make sure to plan for the future. You can also buy two hubs and connect them together, which might help if you've got collections of computers in two or more widely separated locations, such as a main level and a basement. Then all you'll need to do is run one cable between the two hubs. (Keep in mind, however, that 10BaseT and 100BaseT cables are limited to a length of 100 meters, or 328 feet.)

You should also consider whether it makes sense to get a hub that supports both the 10BaseT and 100BaseT protocols. If you own several devices that support 100BaseT, as the iMacs and the blue-&-white Power Mac G3s do, a hub that would let those devices communicate at 100 megabits per second – while every other device moseys along at 10 Mbps – might be worth the higher cost.

Make sure the hub you buy doesn't require you to use a lot of switches, jumpers, or software to get it to work correctly. Ideally, using a hub should be as easy as plugging it into a power outlet and plugging in your networking cables.

Bridges What if you have an old LaserWriter that supports only LocalTalk networking? You can add an ethernet card to an old Mac, but that's seldom possible with older printers. To solve this problem, you need a bridge, a device that connects two dissimilar networks, such as LocalTalk and ethernet. Bridges are relatively dumb – all they do is pass network traffic from one network to another, without analyzing it or routing it in any way. Thus, bridges, which come in either software or hardware form, are relatively cheap.

Software bridges require a Macintosh connected to both networks – it's a good use for an old Mac that has both a printer port for LocalTalk and an ethernet card. Apple's free LaserWriter Bridge is the most well known bridge software, but it only lets Macs on the ethernet network print to a LaserWriter on the LocalTalk network. More recently, Apple released the free LocalTalk Bridge, which lets you share files with LocalTalk-based Macs as well as print to LocalTalk-based printers. Download it at <http://asu.info.apple.com/swupdates.nsf/artnum/n11358>. You can also share StyleWriters on a network, using Apple's Printer Share software.

The problem is, Apple's bridge software isn't officially supported by Apple – meaning it may have some minor problems running under Mac OS 8.5 and later. Also, activities on the Macintosh running the bridge software can reduce performance between the two networks, and that Mac must remain on at all times if you want to use the devices it's connecting you to.

Hardware bridges don't require a Mac, may not require configuration, and offer more functionality. For instance, some hardware bridges work not just with AppleTalk for printing and

sharing files between Macs, but also with TCP/IP, so Macs on the LocalTalk network can access an Internet connection attached to the ethernet network. If the free LocalTalk Bridge doesn't work for you or if you don't have a Mac that supports both LocalTalk and ethernet, go for a hardware bridge such as the £93 EtherMac iPrint LT from Farallon (Softline, 01372 726 333) or the £99 AsantéTalk bridge from Asanté (Computers Unlimited, 0181 358 5857).

Routers Where bridges blindly pass network traffic back and forth between networks, routers – also called gateways – act more like traffic cops, analyzing and routing network traffic appropriately between two different networks. In the context of small networks such as the ones we're discussing, routers are primarily for connecting an entire network to the Internet. As with bridges, routers can be either software programs, or hardware devices.

Hardware routers often sport specific ports for different types of Internet connections. For instance, you might buy an ISDN-capable router, which would have a jack for an ISDN connection and an ethernet jack. Such a router would connect an ethernet network to the Internet via an ISDN connection.

The devices you get when you have DSL or cable-modem Internet connections installed are usually called modems, but often they're also routers, since they often use ethernet to connect to your computer. Though you can sometimes attach these devices to an ethernet hub, that doesn't mean that all the computers on your network will be able to simultaneously share that Internet connection. In many cases, DSL and cable-modem connections are meant for single computers, despite their ethernet interface.

Whether you're using a cable modem, DSL, ISDN, or a regular modem, you can often share your Internet connection among all the computers on your network. What you need is Internet-sharing software, and there are several different options for Macintosh users. To find out how it works, see the sidebar "Internet sharing 101."

The last word

Networking Macs has always been easy, thanks to LocalTalk and built-in software support in the Mac OS. But, not until recently has networking become something for everyone, in large part due to more households purchasing multiple computers, especially the network-savvy iMac.

The Internet has also played a starring role, since anyone with multiple Macs wants them all to be able to access the Net through a single connection. Whether it's for sharing an Internet connection, sharing files and printers, backing up your files, or playing games, if you have several Macs, you need a network.

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Channel hopping

The Web-connectivity market is rapidly entering a new era. **By David Fanning**

Internet communications technologies are evolving rapidly and, within a couple of years, modems – the longest standing means of Net connection – will be eclipsed by broadband communications.

In the meantime, it's getting more difficult to choose a Net connection method for domestic or work use.

Here, we take a look at the hardware options available and at which one is right for which job. Given the rapid pace of change for this technology, the life span of any particular model cannot be copper-bottomed. We can, though, give you the estimated longevity of each technology – and the hardware you need to use it.

First, if you're not already hooked-up to the Internet, you're in a tiny minority where *Macworld's* readership is concerned. Last year, 83 per cent of our readers were hooked into the Net – a figure that is now almost certainly into the 90s. Being connected isn't the big deal it once was.

For instance, any iMac takes care of connectivity issues straight off. If your machine doesn't have a built-in modem, you'll have to buy some hardware. G3 Power Macs either have a built-in modem or at least a slot for one. There is, though, nothing stopping you from buying an external modem or a terminal adaptor. Older machines that use serial ports rather than USB still offer plenty of choice on the modem front, but ISDN terminal adaptors are less abundant. If you want to run ISDN on an older machine you'll need to use an ISDN card – a more expensive option that might just be enough to encourage you to buy a new Mac instead.

Analogue or digital?

Your main choice is whether to go analogue (modems) or digital (ISDN). Digital is the better option – but how much better relative to cost? In theory, the fastest analogue connection is 56Kbps. The reality is that this is, at best, 50Kbps. Often, 56Kbps is more like 33.6Kbps, depending upon your line and service provider. When



compared to dual-channel ISDN, offering 128Kbps, it's easy to see why ISDN is so appealing. There is a catch, though: cost. Even with the newly affordable BT Home Highway options, ISDN is still prohibitively expensive if you have anything less than a sizable budget: line rental is twice as expensive and, of course, dual channels means double the phone bill.

Also, it's likely that you'll only use one of the two ISDN channels, and at a speed of 64Kbps. For the dough, this is hardly a vast improvement on 56Kbps.

Other ISDN bonuses, though, do include faster dialling – allowing almost instant connections – and faster upload times. Unlike V.90, connection speed is the same in both directions, so uploading files to servers is as quick as downloading. The 56Kbps

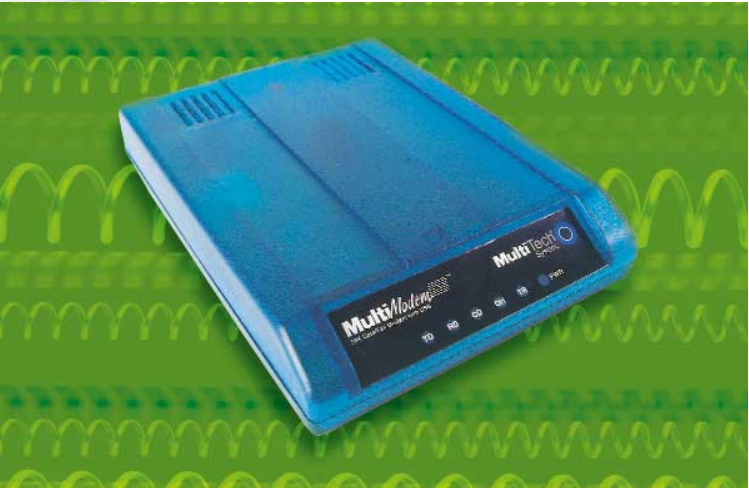
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Editors' Choice

WebShuttle

Macworld Rating ★★★★★/9.0

Of the ISDN terminal adaptors, the WebShuttle shines as a great Mac product. It has software designed to make hooking-up your Mac to ISDN as simple as possible. With its translucency, it is a Mac product to the core.



Fax a lot
The MultiModem's software bundle includes the simple and powerful fax software, Fax STF.

modem to the ISP is not as fast. To be totally digital, you need to use ISDN.

Emerging options

Unlike hard disks and processors, a decade of rapidly increasing speeds has, for modems, reached its end. ISDN seems to be the natural progression: it's faster and now freely available, albeit at a great cost.

But ISDN itself is a mature technology, even though it's only recently become more affordable for consumers. The rub, is that speeding up ISDN is merely a matter adding more channels which, in turn, demands a greater cash outlay. Each channel adds a 64Kbps data-stream, but at the cost of another telephone call. For consumers, it doesn't make sense to spend extra cash to get more bandwidth beyond 128K – unless there are additional benefits, such as an continuous connection. Such benefits are on the way, but are slow in arriving, especially if you live outside a big city. Where extra channels make sense is with peer-to-peer file transfer. In time, they will also be used for Internet access.

Another available technology is cable modems, but only in specific areas and through specific cable companies – and it works only with specific computers. If you have the opportunity to sign-up for a cable modem service, do so. Even though the service doesn't have a guaranteed bandwidth, it's an always-on service, so even if it runs slowly, you don't have big telephone bills to worry about. In theory, it can run at speeds up to 36Mbps – in practice it runs at a fraction of this. But its high bandwidth means this is still extremely fast when compared to ISDN or modems.

And what about ADSL (Asymmetric Digital Subscriber Line), which has been

welcomed and pooh-poohed in equal measure? Its detractors claim the service will be available only to those living within half-a-mile of a BT exchange. They also claim it will be expensive – as much as £200 per month. BT is remaining tight-lipped about the exact service that will be offered and at what cost, so both these predictions could prove well-founded. The pro-ADSL lobby say that, while availability may indeed be limited, the distance is a two-mile radius of a BT exchange. This means that most big cities will have pretty good coverage. Outside these areas, coverage will remain, at best, patchy, and at worst non-existent.

Cost is still an issue paramount to the success of ADSL. The lowest estimate I have come across is £60 per month – £40 of which is the price the ISP has to pay BT for the line. To become a mass-connection technology, ADSL cannot be more expensive than this.

The service that will eventually be offered will be a chunky 512Kbps download capability and 256Kbps upload. This is upwards of four times the speed of dual-channel ISDN, eight times the speed of single-channel ISDN and more than ten times the speed of a conventional V.90 modem.

Market forces are increasingly at work with BT's ADSL service. Its biggest threat comes from cable access to the Internet. Although cable connectivity opportunities are limited, coverage is growing. Cable & Wireless offer a cable service for data "sometime next year", and could pose a real threat to ADSL. Rumour has it that ADSL will be available first in areas that already have cable. This makes sense from a business perspective, as BT is likely to want to target areas most threatened by cable. This will have the effect of reinforcing the emergence of distinctive have and have-not areas when it comes to always-on options.

File transfer

Before the Internet became the humming network it is today, ISDN was used to transfer sizable files from one site to another. In fact, it's still the best way to move important files around the country, because it means the user does not have to rely on the temperamental bandwidth offered by the Internet. To use ISDN in this way, you need more than just a simple ISDN terminal adaptor: you require an ISDN card and special site-transfer software. This software is sold with the card, although compatibility is a problem.

Here, a couple of years ago there were two main contenders: Hermstedt and 4-Sight (now known as Wam!Net). 4-Sight had the bulk of the market using its ISDN Manager software. Then German giant Hermstedt – already well established in Germany – brought out Grand Central Pro as a competitor title for 4-Sight. A compatibility war raged for a while, as Hermstedt made its product compatible

Modems and ISDN: the cost of connection

COMPANY	PRODUCT	STAR RATING	PRICE	SPEED (Kbps)	COMMENT	CONTACT	TELEPHONE
Billion	USB ISDN TA	★★★/6.0	£67	128 (64Kbps drivers only)	Dual-channel driver should soon be on the way.	Edge Vivicom	0118 965 7743
Global Village	Teleport USB	★★★★/8.0	£99	56	Good Mac drivers, but not the cheapest.	Boca UK	0990 420 421
Global Village	Teleport Internal	★★★★/8.1	£79	56	Easy to install, less hardware for your desk.	Boca UK	0990 420 421
Hermstedt	WebShuttle	★★★★/9.0	£159	128	The ultimate in simplicity and functionality.	Hermstedt	0171 421 1500
Hermstedt	Marco ISDN PC Card	★★★★/7.5	£350	128	ISDN for road warriors.	Hermstedt	0171 421 1500
MultiTech	MultiModem USB	★★★★/7.3	£99	56	Translucent, but pricey.	MultiTech	0118 959 7774
Zoom	ZOOM ISDN MX/5	★★★★/8.4	£179	128	Great functionality, including analogue fax.	Zoom Telephonics	0870 760 0060
Zoom	ZOOM 56K USB	★★★★/8.4	£60	56	Cheap and cheerful, good software.	Zoom Telephonics	0870 760 0060
ZyXEL	omni.net LCD ISDN	★★★★/8.4	£189	128	Good, but it doesn't beat the WebShuttle.	Electronic Frontier	0118 981 0600

with ISDN Manager, and as 4-Sight regularly updated ISDN Manager, which had the effect of undermining its compatibility.

Since then, the industry has seen major changes. 4-Sight was bought out by Wam!Net and it, in turn, teamed up with Hermstedt. Wam!Net then brought a different business model to ISDN communications, offering a secure private network, which simplified and complicated file-transfer in almost equal measure.

In the meantime, Hermstedt continues to develop its Grand Central Pro software, adding features such as on-the-fly compression, and greater compatibility with other file transfer protocols.

Wam!Net still supplies solutions for normal peer-to-peer file transfers, using Transmission Manager – the new name for ISDN Manager.

However, the main direction of the company is towards managed and tracked file-transfers, using its ISDN network. The service works through a charge being levied per megabyte for file transfers, in place of having a telephone bill to pay. Responsibility for its tracking and safe arrival has been shouldered by Wam!Net.

For the less technophobic, Hermstedt continues to offer its Grand Central Pro software with its Leo ISDN cards. The Hermstedt cards have built-in hardware compression that is used by Grand Central to squeeze extra performance out of ISDN lines. This was originally 40 per cent faster than without compression, but new versions have advanced the technology and now file transfers of more than 900Kbps are possible over a standard 128Kbps line. This is highly dependant on the file that is being transferred. For example, a QuarkXPress document containing TIFFs is tricky to compress, because TIFFs can often be compressed already. Trying to compress already compressed components slow down the file-transfer the process. Now, Grand Central Pro skips the components that are already compressed, making it faster.

ISDN is still the method of choice for important document transfer, and the print trade relies on it heavily. Although the alternatives discussed here will become

available in time, they are not likely to replaced ISDN any time soon. If you need fast, reliable transfer of big files, then ISDN is what you need.

Choosing your weapon

If you're the owner of a pre-USB Mac, your options with modems and terminal adaptors are becoming limited. The serial port on older Macs is not ideal for ISDN, so a card is the better – but very expensive – option. It's worth considering a USB card, and either a USB modem or terminal adaptor.

You can pick up a Keyspan USB card from AM Micro (01392 426 473). This will add to the price of your modem or terminal adaptor, but will make sure that it remains compatible when you upgrade your Mac. If you have an even older NuBus Mac, a serial device is your only option.

iMac owners already have an internal modem as standard, meaning there's no point in getting another modem. ISDN, though, would improve connection speed. Blue G3 and the new G4 Macs have a slot for an internal modem. This can be filled either as a built-to-order option, or with a Global Village internal modem. Alternatively, external USB modems or USB terminal adaptors will do the trick.

If you're on the move with a PowerBook, you can get an ISDN PC card from Hermstedt, called Marco. The Marco card offers dual-channel ISDN access to the Internet and basic file-transfer software for £350. For an additional £299, you can upgrade the software to Grand Central Pro and use its advanced features.

As both modem and ISDN technology are moderately mature technologies, there's little difference in speed between competing models. The fluctuating speeds, achieved while connected to the Internet

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PC plod
The Billion USB ISDN TA 128 is a PC product that promises all kinds of extras – including Answerphone, telephony, fax and file transfer software – but all it delivers are basic Mac drivers.



Channel of your piece
Although ZyXel's omni.net has drivers capable of using both ISDN channels you must choose between a single- or dual-channel connection before connecting.



Skip to the Zoom

At £60, the Zoom 56K USB modem is cheap and cheerful, yet still has good software.

are more a symptom of your service provider and the server that you're connected to. For example, connecting to the Internet at 128Kbps with dual-channel ISDN will not guarantee that things will be faster. You can be sure that speeds of less than 128Kbps are not the fault of your terminal adaptor.

The best way to choose a device is by looking at the software. Many

modems and terminal adaptors are designed primarily for Windows machines, with Mac-compatibility being something of an afterthought. The cross-platform models may be cheaper, but the software is unlikely to be as feature-rich.

It's difficult telling what kind of throughput you're getting from your ISP and, consequently, hard to discriminate between one ISP and another. The WebShuttle, though, provides a way of monitoring such performance through the WebShuttle control panel. Apart from offering excellent control when turning the second channel on and off, it gives a real-time display of bandwidth use. This means you can tell how often you're maxing-out on bandwidth, and whether it's worth turning on the second channel. If you want your Mac to make the choice for you, set the parameters for automatic channel assignment. For example, you can set it so that, if the first channel is saturated for more than 15 seconds, the second one will kick-in. Then, once you have downloaded the file and the transfer speed drops, it will hang-up the second line. It's best to set a minimum time of, say, five minutes, before closing the channel which gives you the minimum call-charge. Otherwise, you'll connect twice in five minutes.

The Billion USB ISDN TA 128 is a PC product with a basic Mac driver. The box promises all kinds of extras – including Answerphone, telephony, fax and file transfer software. Unfortunately, all it offers are Mac drivers, and these support only single-channel dial-up. Essentially, Macintosh users get a raw deal compared with the Windows mob.

The ZyXel .net faired slightly better, but is still missing major PC functionality. But at least it has drivers capable of using both ISDN channels. The problem with this, is that you must choose between a single- or dual-channel connection before connecting. You're unable to change your mind in mid-surf, which is frustrating. The WebShuttle is the only terminal adaptor that supports this via its bundled software. It does it this so elegantly, it puts the others to shame.

With its drivers and even additional fax

software, the Zoom ISDN MX/S performed fairly well. But, again, there is a problem. Even though last year, the Zoom won a *Macworld* Editors' Choice award, the Macintosh world has moved on and USB has taken over. The MX/S is a serial device and, therefore, incompatible with any of the recent Mac range. This is a shame, because Zoom has spent more time than most of the ISDN manufacturers in getting the software right. However, nobody comes close to the Hermstedt WebShuttle, which is a Mac product through and through.

The modems we examined are all USB devices, with the exception of the Global Village internal modem. The internal modem has all the functionality of the external modem, but hides inside your Power Mac G3. The design of the Power Mac G3 makes it installing it simplicity itself, although absolute beginners may find it a little scary. All you need is confidence and everything fits together very simply.

If you're still worried by the thought of opening your machine, there's an external USB option. The shape will be familiar to those who remember the Teleport series, although the colour is now translucent white. All power is supplied by USB, so if you have more than a couple of USB devices you may need a powered USB-hub.

The software for both models will be familiar to those who used previous Global Village modems. It's simple to use and designed for the Mac, which is always a sign of good modem software. The other USB modems we looked at – the MultiTech MultiModem and the Zoom 56K USB – were also well supported by software. Both included the excellent Fax STE, simple and powerful fax software.

Macworld buying advice

If you already own a Mac with a built-in modem, such as the iMac or specific G3 models – buying a new modem will get you nowhere. Only an ISDN terminal adaptor will improve your Internet speed. You may hesitate spending your hard-earned on a BT Highway installation, especially with the thought in mind that it has a limited lifespan. However, the emergence of an affordable ADSL solution arriving in your area within the next 12 months remains, at best, a long-shot. Even when it does arrive, no-one knows how good or extensive the service will be. Moving to ISDN will give you time to let early adopters check out the new service for you. I would only buy a modem if on a tight budget – or if ISDN makes no sense for your situation. However, don't expect to see many modems around in two or three years.

Of the ISDN terminal adaptors, the WebShuttle shines as a great Mac product, with its software designed to make hooking-up your Mac to ISDN as simple as possible. With its translucency, it is a Mac product to the core. Its most recent software upgrade also means it's PC compatible too. Lucky them. **MW**

01/01/00



Crash



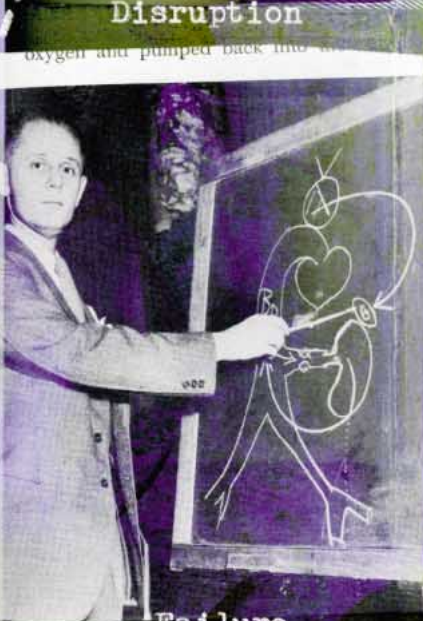
Bomb



Disruption



Breakdown



Failure



Collapse



Hang

End of the world

At the stroke of midnight on January 1, the one thing you won't have to worry about is your Mac. Or will you? **By Geoff Duncan**

Unless you've spent the last few years stranded on a desert island, chances are you've felt the wave of panic sweeping the world regarding computers and the year 2000. It seems like everyone is preparing for the day when computers might freeze or go haywire – as banks, hospitals, airports, and the PC empire frantically try to anticipate, and forestall the damage the year 2000 may bring to businesses around the world.

The bottom line: at the stroke of midnight, January 1, 2000, some computers and other digital systems – such as ATMs, security equipment, communications services, power plants, and industrial automation – will stop working.

At their most basic, Y2K (yes, that's short for "year 2000") problems are simple to understand: if a system doesn't handle dates properly, it may become confused by years ending with "00." Systems that correctly handle dates past the year 2000 are considered Y2K-compliant.

In the real world, Y2K problems could range from the trivial to the catastrophic. Systems may invalidate credit cards, destroy records, shut down power grids, or assess decades' worth of late fees for that library book on your nightstand. And the damage might not stop there. Digital technology is a part of our everyday lives – it's in our coffee makers, our cars, and even our telephones. As a result, assessing the full potential impact of the year 2000 is a daunting task. No one knows how widespread, or significant, these problems might be – especially on a global scale.

But forget about the globe. What about your Macintosh?

Your Mac and the millennium

First, breathe a sigh of relief: even the oldest Macs can deal with dates from January 1, 1904, through February 6, 2040, so there's no fundamental year-2000 disaster lurking inside your Macintosh. If your computer is running system software released in the last decade – System 6.x through Mac OS 8.6 – it can handle dates from 30,081 B.C. to A.D. 29,940. The BSD Unix, that undergirds Apple's recently released Mac OS X Server, supports dates through January 18, 2038.

And as for the year 2040, there's an interesting explanation behind Apple's odd expiration date. The original Mac development team chose midnight, January 1, 1904, as the start of the Mac calendar – in part because it's mathematically convenient to have a calendar system start on a leap year, which 1900 was not. And, since the calendar was built to cover approximately 136 years, your Mac OS won't expire until the start of the year 2040.

Because of all this, Apple's a bit smug about the Macintosh and

the year 2000 – the company even aired a commercial about Y2K during the 1999 Super Bowl. Apple has also assembled a sizable Y2K statement on its Web site (www.apple.com/about/year2000/), indicating which hardware components and operating systems the company has tested.

However, even though your Macintosh hardware and OS are ready for the year 2000, that doesn't mean your software – especially custom databases, macros, and spreadsheets – will function correctly once the New Year arrives.

Of errors and expectations

Fundamentally, all Y2K problems stem from a computer system's inability to correctly process century information in dates. Some errors arise because the computers are dealing with incomplete date information, such as years expressed with only two digits. In such cases, computers must make assumptions about that information to use it at all. (See the sidebar "It could happen to you").

Some programs may interpret dates differently than you'd like. If you enter a date in the format "1/31/00," a database program may read the date as January 31, 1900, even if the current date is well into the twenty-first century. Although this confusion can be annoying, technically you've entered a date with no century information – it might as easily refer to the year 1300 as the year 2000 – and you have to hope your computer is smart enough to know which century you mean. However, that same program would have a Y2K problem if it misinterpreted a date with century information. If entering "1/31/2000" doesn't produce the intended result, you've got trouble. To avoid ambiguity, get into the habit of using four-digit years when entering dates, to help isolate Y2K problems.

Safeguard your software

Even though the Mac OS doesn't have a problem interpreting far-reaching dates, that doesn't mean your software will handle the year 2000. The fact is, not all programs were created to take advantage of the Mac's Y2K savvy.

Frequently, you'll find that applications used on the Macintosh may not be able to use the Mac's built-in date capabilities (see the sidebar "Proceed with caution"). Similarly, your Mac OS programs may inherit date problems when you use files from other operating systems, or those produced by programs with Y2K problems.

The most-common, and most-troublesome, Y2K concerns for Macintosh users are in customized software and scripts.

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Spreadsheets, databases, scripts, and macros built with everything from FileMaker Pro, Microsoft Excel, and AppleScript are all prime candidates for date-related snafus. It's not that these applications aren't ready for the New Year, although some have isolated issues, but that certain folks who use them to build special formulas and macros, may not know how to handle the year 2000 correctly. (See the sidebar "It could happen to you").

Be safe, not sorry

Before you panic, take comfort in the fact that you're using a Mac. Aside from some minor software tweaks, your faithful Mac should be

ready to go. But to be on the safe side, keep track of the versions of each application and any special features you've created, such as sorting formulas, spreadsheet macros, and scheduling shortcuts.

Satisfaction guaranteed Just to be safe, check with the makers of all the software you use – from word processors and graphics applications, to accounting packages and backup programs – to see if the programs have been properly tested for the date change, and if any problems were found. Most companies dedicate a section of their Web site to product-specific Y2K information (also see the sidebar "Proceed with caution"). Generally, programs that

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Proceed with caution: ways to survive Y2K

Your Mac may not have been bitten by the Y2K bug, but that doesn't mean that your files and documents are immune to Y2K corruption.

Company: Apple Computer

Product: Cyberdog

Version: 2.0

Problem: In email messages and newsgroup postings, Cyberdog will use a three-digit year in the date header of outgoing messages after 1999.

Solution: Get patch from www.cyberdog.org.

Company: CE Software

Product: QuickKeys

Version: Prior to 3.5.3

Problem: The Timer Options control panel displays years in two-digit format and does not correctly trigger events in 2000.

Solution: Download the free 3.5.3 update from www.cesoft.com.

Company: CE Software

Product: QuickMail Pro Client

Version: Prior to 1.5.4

Problem: Unknown.

Solution: Download a free update from www.cesoft.com.

Company: CE Software

Product: QuickMail Pro Server

Version: Prior to 1.1.1

Problem: Unknown.

Solution: As above.

Company: Claris

Product: Emailer

Version: 1.x

Problem: Starting January 1, 1999, the year 1999 is displayed as 1919 on incoming email.

Solution: In Emailer's preferences, turn off Use Sender's Date/Time for received mail, or upgrade to version 2.x by contacting the original developer at www.fogcity.com.

Company: Connectix

Product: Virtual PC

Version: Prior to 2.1.1

Problem: Cannot handle the leap year of 2000.

Solution: Download the free 2.1.1 update from www.connectix.com.

Company: DataViz

Product: MacLinkPlus Deluxe

Version: Prior to 10.1

Problem: No specific problem stated, but the

10.1 update lists Y2K compliance as a new feature.

Solution: Download the free 10.1 update from www.dataviz.com.

Company: FileMaker

Product: FileMaker Pro

Version: Prior to 2.1

Problem: If a year in a date-field is entered as two digits, the program assumes it's a twentieth-century date.

Solution: Manually convert two-digit years to four-digit years, or upgrade to FileMaker Pro 3.0v5 from www.filemaker.com.

Company: FileMaker

Product: FileMaker Pro

Version: Prior to 4.1v2

Problem: The TextToDate(date) calculation registers two-digit years as being in the 1900s.

Solution: Download the FileMaker Pro 4.1v2 English Updater to fix non-specified Y2K date-handling issues (www.filemaker.com/about/year2000directory.html).

Company: Global Village

Product: GlobalFax

Version: Prior to 2.6.8

Problem: Users are unable to use the Send At feature to schedule faxes for years beyond 1999.

Solution: Download the free 2.6.8 update from www.globalvillage.com.

Company: Global Village

Product: Global Village or PowerPort 56K PC Card Software

Version: Prior to 3.0.6

Problem: The Send At dialogue box does not display dates ten years from the current date.

Solution: Download the free 3.0.6 update from www.globalvillage.com.

Company: Insignia Solutions

Product: SoftAT

Version: All versions

Problem: Each time the program is started in the year 2000, the date in the DOS and Windows 3.1 Date command is set back to April 1, 1980, and must be manually set ahead to the proper date.

Solution: There is no solution for this product. The user must upgrade to SoftWindows 98, SoftWindows 95 V.5, or RealPC 1.0, all of which run only on PowerPC-based Macs.

Company: Insignia Solutions

Product: SoftPC

Version: All versions

Problem: Each time the program is started in the year 2000, the date in the DOS and Windows 3.1 Date command is set back to April 1, 1980, and must be manually set ahead to the proper date.

Solution: The user must upgrade to SoftWindows 98, SoftWindows 95 V.5, or RealPC 1.0, all of which run only on PowerPC-based Macs.

Company: Insignia Solutions

Product: SoftWindows

Version: 1.0.2 for 680x0 Macs; 1.0.3

for Performas; 3.0.3 for Power Macs

Problem: When the program is started in the year 2000, the date in the DOS and Windows 3.1 Date command is set to April 1, 1980, and must be manually set ahead to the proper date.

Solution: The user must upgrade to SoftWindows 98, SoftWindows 95 V.5, or RealPC 1.0, all of which run only on PowerPC-based Macs.

Company: Intuit

Product: QuickBooks and QuickBooks Pro

Version: Prior to 4 M12

Problem: A fatal system error will occur if you enter a post-2000 date in any field on or after January 1, 2000.

Solution: Update your software to version 4 M12 by October 31, 1999, because technical support for older, non-updated versions of QuickBooks will not be available after this date. See www.intuit.com.

Company: Intuit

Product: Quicken

Version: 98 prior to R5

Problem: While the program itself is compliant, online banking won't actually work past September 5, 1999.

Solution: Release 5 enables online-payment functionality for dates after September 5, 1999. Download the free update from www.intuit.com.

Company: Microsoft

Product: Excel

Version: 5.0

Problem: MS Query accepts two-digit years for an ODBC query, but always assumes they're twentieth-century dates.

Solution: Always use four-digit years for queries based upon date data.

Company: Microsoft

Product: Excel

Version: 98

Problem: Some wizards are available to watch over date input to keep it Y2K compliant.

Solution: Download the free updates from www.microsoft.com.

Company: Microsoft

Product: Outlook Express

Version: 4.0

Problem: Messages that have a two-digit year in the date field, are read as being sent in the 1900s.

Solution: Download the upgrade to 4.01 from www.microsoft.com.

Company: Microsoft

Product: PowerPoint

Version: 4.0 through 4.0c

Problem: Opening PowerPoint 98 files in PowerPoint 4 may cause two-digit years to display as "1XX" if the files were created after 1999 and you're using the Update Automatically date format.

Solution: Do not use two-digit years with the Update Automatically feature, or resave PowerPoint 98 files as PowerPoint 4 files.

Company: Microsoft

Product: Word

Version: 6.x.x

Problem: Two-digit shortcuts for dates are read as being in the 20th century except, for the year 00, which is read as the year 2000. This occurs when you use high-level date-handling functions but not when inserting a date from a menu.

Solution: See www.microsoft.com/support/.

Company: Novell

Product: NetWare for Mac

Version: 3.12 or prior

Problem: Unknown.

Solution: Upgrade to version 3.2 or 4.2 from www.novell.com.

Company: Now Software/ Qualcomm

Product: Now Up-To-Date

Version: 2.1

Problem: Displays the wrong year when printing events in the year 2000.

Solution: Upgrade to the fully compliant version, 3.6.5, from www.now.qualcomm.com.

Company: Prairie Group Software

Product: DiskTop

Version: 4.5.2

Problem: Unable to find files by date from 2000.

Solution: Users will be notified of updates.

List compiled by Rich Barron. For the most up-to-date news about Y2K compliance, log onto www.macnologist.com/y2k/.

The final countdown

Thankfully, our Macs are ready for the year 2000. But what about all those applications and files? Luckily, you won't have to leave the fate of your Mac to the Millennium Gods. There are a few things you can do to prepare for the dreaded date. It's a good idea to track the latest 2000 news and run periodic system checks; you can also safeguard your Mac by performing the following tasks. Remember, always back up your computer before beginning the following tests, and make sure you have the latest updates to your software.



Test your Macintosh

Task 1 Turn off any automated backup software or schedulers. Since these tests involve changing dates on your Mac, it's possible that your computer will think past appointments should be deleted, browser cookies should expire, or the wrong files should be backed up. The safest way to run these tests is to work on duplicate test files and then throw away the duplicates when you're done.

Task 2 Open the Date & Time control panel and set it for 11:58 pm, 12/31/99. Turn off your computer for at least three minutes. This will prompt the operating system to roll over to the year 2000 while your computer is turned off. If the transition is successful, reset the control panel to the above date and time and let the transition occur with the computer turned on. If the OS fails to roll over to the year 2000, you have an OS-level Y2K problem.

Task 3 With your Mac set in the next millennium, you can start looking for problem programs and data files. Test all of the date formats available with two-digit and four-digit years. Save and close files, and relaunch them. If possible, import, export, and run calculations on files with dates in short and long formats. Make sure that two-digit 1900 dates are not accepted as 2000 dates and vice versa. Sort the files to make sure that a year-2000 date is seen as more recent than a 1999 date. Also look through a copy of your actual data files for the same problems.

Task 4 Duplicate the previous tests with the following dates:

01/01/1999 Some applications start having date-related problems a year earlier than expected.

09/09/1999 If the date is shortened to 9999, it could cause problems with some files or applications.

12/31/1999 "Tomorrow" should be seen as 01/01/2000 in all applications that use dates.

01/01/2000 The year 2000 should follow 1999.

02/29/2000 The year 2000 is a leap year. Make sure applications don't roll over to 03/01/2000 from 02/28/2000.

01/01/2001 Some apps might misbehave in 2001 and beyond.

Task 5 When finished, set the date back to the present time, enable any disabled software, and trash your test files. Keep an eye out for any problems that testing may have introduced. — RICH BARRON

It could happen to you

Typically, the trauma of Y2K won't crash your system, but it may cause programs to behave oddly or present misleading information. A spreadsheet may calculate ages or durations incorrectly because it fails to use built-in date routines, or a database might sort or display information in unexpected ways, even if it's processing dates correctly.

Calculating the problem Since a Y2K bug can creep up anywhere, we tracked a Microsoft Excel spreadsheet of a landscaping and horticultural business that operates a dozen vehicles and tracks mileage, depreciation, maintenance costs, and more. The owner's son created the original spreadsheet in the early 1990s, using Microsoft Excel 3.0 on a Mac SE.

We found that when the business acquires a vehicle with a model year greater than 1999, the age calculations will produce incorrect results, regardless of whether the years are entered in the two-digit ("00") or four-digit ("2000") format. In fact, because the owner's son didn't use Excel's built-in data capabilities when he created the formula, this spreadsheet produces incorrect results for any four-digit year, before or after the year 2000.

Users with modest Excel experience can correct this formula, but spreadsheet calculations are intimidating and arcane to many people. One solution would be to rework the spreadsheet (under Format: Cells: Number) so that the program treats data in the Model Year column as dates and then to change the calculation so that it uses built-in

date routines.

Dates gotta hurt Databases are also subject to Y2K mishaps and may even have Y2K problems that derive from organizational policy, rather than computational error. For example, help-desk consultants at a community college in the US state of Washington, track technical-support incidents in a database, which assigns each incident a unique ID number.

The database creates the incident IDs with the ID number beginning with the last two digits of the year, followed by two-digit representations of the month and day. In 2000, the database will continue to assign correct ID codes, but how people use the ID numbers will create a Y2K glitch. When consultants start a shift, they search for incidents assigned to them, sorting so that important, recent incidents are listed first. Once the year 2000 begins, new incidents will sort to the bottom of the list instead of the top. Although it would be a trivial task to change the ID number format so that incidents sort correctly, the ID numbers are used by other departments, including one that employs a Web-based tracking system for internal billing. Any changes would have to be approved by several groups, entailing weeks of meetings and bureaucratic coordination.

One solution might be to investigate different ways to sort the database, so that users see the results they expect without having to change the ID numbers; however, this may create additional problems for other database users.

manipulate date information, such as genealogy software and spreadsheets, are more liable to suffer Y2K mishaps than software such as an Adobe Photoshop filter, that never considers dates.

If a program has problems, a corrected version may be available, but it's probably the most recent release with an upgrade fee. And those of you who own older Macs may find that some new versions are available only for PowerPC-based Macs, or that the software requires more RAM or disk space than your current Macintosh can provide. With older programs, you may find that although the software has known Y2K problems, the company is out of business or no longer supports the product. Again, if you can't work around it, you'll have to switch to another program.

Unavoidable irks If you use customized databases, scripts, or macros, you need to figure out how they'll handle the year 2000. There are some general Y2K testing procedures (outlined right) that can help you start troubleshooting. Otherwise, contact the original creator — whether that's a consultant, a shareware author, or someone down the hall — to see if they've reviewed the program for any snags or problems.

The last word

Don't let this article fill you with trepidation: the Macintosh is extremely well prepared for the year 2000, and most Mac programs won't have any difficulty making the transition to the New Year. However, the Mac has no special immunity to the potential crisis ahead, and you shouldn't ignore the threat of Y2K incompatibilities.

The best preparation is to run our recommended tests on your Mac; check your software's Y2K status; and then sit back, relax, and grab that bottle of bubbly from the fridge. Your Mac will still be with you next year.

MW



Sites for sore eyes

Adobe ImageStyler is the easy way to design Web pages.

By Tom Negrino

Everyone wants his, or her, Web site to look sharp – but the reality is that many of us building sites are not trained designers. Maybe you're in sales, and the boss just gave you the responsibility of building the company Web site – with no budget for an artist. Or maybe you're just eager to express yourself on the Web, and don't want to deal with the expense, and steep learning curve, associated with big graphics guns, such as Adobe Photoshop. If you need results quickly and inexpensively, Adobe's £85 ImageStyler is just the answer for non-designers trying to create Web sites.

The beauty of objects

Adobe released ImageStyler around the same time it released another Web-graphics program, ImageReady, this confused folks. But, the two programs are quite different, and one reason is ImageStyler's object-based nature.

ImageStyler lets you work with objects and vectors, which are scalable and non-destructive (whereas ImageReady and Photoshop let you work mainly with static bitmapped images; see the feature "Net again" October, 1999). This means you can do things with ImageStyler that are impossible with Photoshop and ImageReady. For example, if you edit or transform an image by adding filters, your original image will still be intact. You can edit without consequences, since you can revisit and change artwork at anytime. ImageStyler encourages experimentation, and doesn't punish you for playing around.

Everything in ImageStyler is an object, whether it's a photo, a block of text, or a shape. You can apply styles to any object – a style is a combination of colour, gradients, opacities, textures, and other effects – and an object can have up to five layers, each containing any combination of effects. Another bonus is that you don't have to laboriously create each graphic separately, and then piece them together in a Web-page-layout program. You can create graphics and lay them out in the ImageStyler window, and then just



export the file; ImageStyler generates the individual graphics and the HTML file that defines the layout for the Web.

On the following pages, I outline two ways that ImageStyler excels for the non-designer creating a Web site. You will learn how to construct attractive buttons, that have different JavaScript rollover behaviours (see "Make snazzy rollover buttons") and how to create nice-looking text (see "Create instant graphical text"). To learn an additional technique – how to composite custom-shaped images – go to www.macworld.com/1999/10/create/.

Even though ImageStyler is designed for the casual artist, professionals will also find it a handy addition to their arsenal. It allows you to quickly apply effects to images and text, and you can save ImageStyler compositions in Photoshop format for further tweaking. If you create graphics for the Web, ImageStyler should be part of your tool kit.

MW

Tom Negrino

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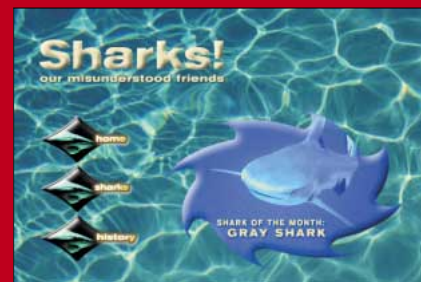
Make snazzy rollover buttons

Creating navigation buttons in Photoshop can take time, and there's no easy way to quickly try out a series of effects. This is where ImageStyler shines. You can create custom button shapes, using the tool palette, or pick one of the shapes included in the Shapes palette. If none of those shapes fit your needs, you can import any EPS graphic – such as an Adobe Illustrator or Macromedia FreeHand file – and store it in the Shapes palette. Then you can dress up the shape using ImageStyler's Textures and Styles palettes.

ImageStyler also takes all the pain out of adding JavaScript rollovers to your buttons. Not only does it write all the JavaScript code for you, but it also treats the rollover action as

just another attribute of the button object. That means you can move, copy, or edit the object as you wish without having to re-adjust the rollover effect. When you're ready to publish your Web page, ImageStyler exports an HTML file that includes all of the JavaScript required to make the effects work. Here's how I made the buttons for my sample site, "Sharks!"

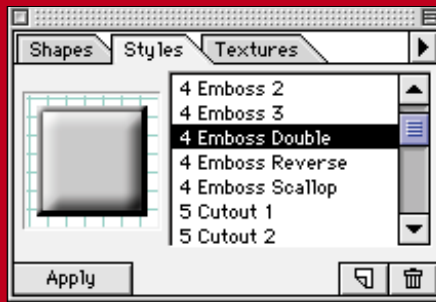
I wanted to make buttons with sharks on them, so I dragged an EPS file of a shark from the Finder into ImageStyler's drawing window. I scaled the image using the selection handles. I chose the diamond shape from the Shapes palette, and then clicked on the Matte button at the bottom of the palette.



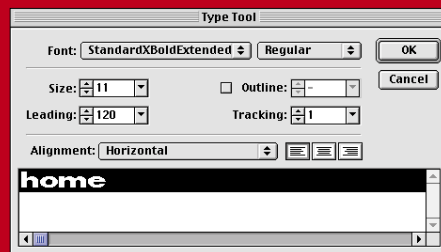
1 To create three buttons, I selected the one I had made and chose Edit: Make Alias two times. Since they're aliases, changes made to any button will be reflected in all three.



2 I dragged the three buttons into a rough vertical stack, and evened out the spacing by selecting all three and choosing Object: Align: Horizontal Centers, followed by Object: Distribute: Vertical.



To add a style to the three buttons, I selected one of them, found a style I liked in the Styles palette, and clicked on the Apply button. All of the buttons updated simultaneously.

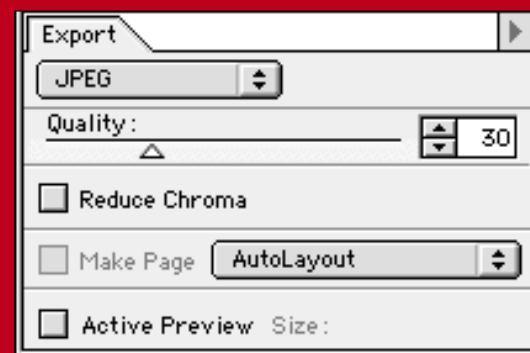


size. I wanted the text to be highlighted when a Web surfer's cursor rolled over the button, so I turned to the JavaScript palette.



4 In the JavaScript palette, the basic state of an object is noAction. To create a new state, I clicked on the New button at the bottom of the palette, which activated the onMouseOver state (see "What does that code mean?").

Using any of ImageStyler's tools, you can change the appearance for the onMouseOver state to a different colour, style, gradient, texture, shape, size, or position. To add a URL to a state, enter the URL in the Web palette. To add onMouseDown or onMouseOut states, repeat the above.



want GIF or JPEG) and chose AutoLayout. When I chose File: Export, ImageStyler rendered the button images and created an HTML file, including all of the JavaScript needed to make the button rollovers work.

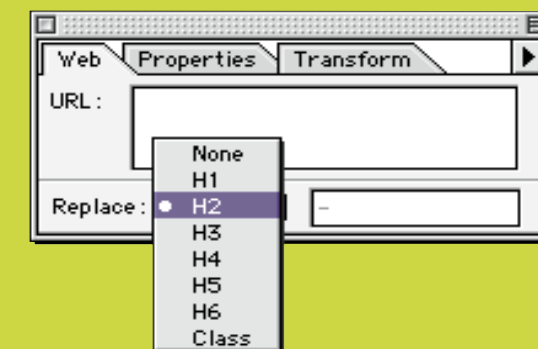
5 After I got the first text object looking just the way I wanted it to, I chose Edit: Duplicate and changed the duplicates' text to sharks and history. Then I dragged each text object over its respective button. Under Window: Export, I selected a graphics format (you'll usually

Create instant graphical text

One of the coolest features of ImageStyler is its ability to read an HTML file, apply an ImageStyler template, and turn text that's tagged with an HTML headline style into antialiased graphical text. This is a great way to dress up your site. You can use the technique to make sharp-looking buttons and navigation bars, as well as spiced-up headline text. Here's how to do it.



1 First, make the graphical template in ImageStyler. To do this, create a text object and style it as you wish. It doesn't matter what the text says, because it will be replaced by text from the HTML file. To tell ImageStyler that the text is meant to be



replaced, select a replacement heading such as H2 from the Web palette. If the replacement text is on top of a shape – as it would be for most buttons – ImageStyler will render the text object, and the shape together when the replacement takes place.

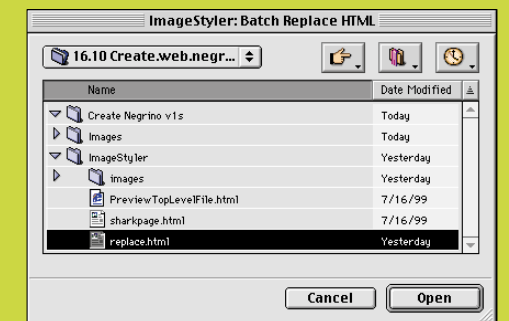
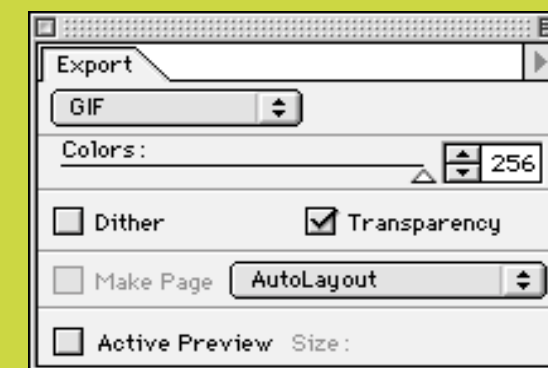
2 Next, create the HTML content. Open an HTML editor such as BBEdit, type in the headlines, and tag them with Heading 2. The text should look like this:

```
<H2> Shark Facts</H2>
<H2> Spotlight on Species</H2>
<H2> FAQ's</H2>
```

Then save the document with a name like replace.html.

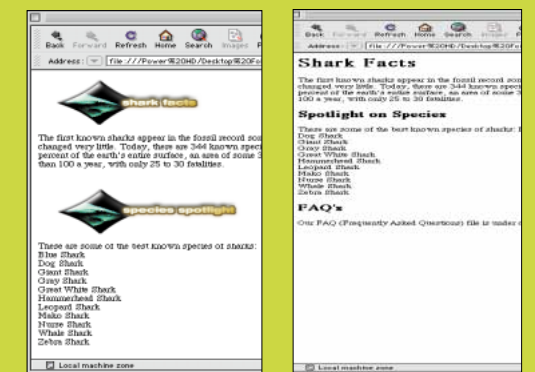
3 Now go back to ImageStyler, choose Window: Export, and pick the graphics format that you want.

TIP: If you choose GIF, hold down the shift key while dragging the Colors slider, and the number of colours snaps from 256, to 128, to 64, and so on.



4 Now choose File: Batch Replace HTML and select the replace.html file. ImageStyler will then render as many images as you have tagged and rewrite the replace.html file to reference the new graphics files. It will also automatically create a copy of the original replace.html file and rename the original replace .old.

If you open the replace.html file in a browser, you'll see the new graphics, as shown here.



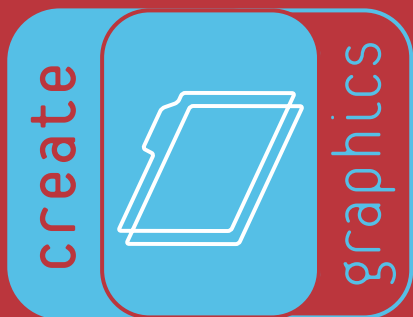
What does that code mean?

If you're unfamiliar with JavaScript events, the terminology can be a bit confusing. Here's what the different events mean:

onMouseOver The chosen effects happen (for example, the button changes from blue to yellow) when a Web surfer rolls the cursor over the object.

onMouseOut The chosen effects happen when a Web surfer's cursor rolls off the object.

onMouseDown The chosen effects happen when a Web surfer clicks on the object.



Colour calamities

How to navigate Photoshop's RGB colour-space pitfalls.

By Bruce Fraser

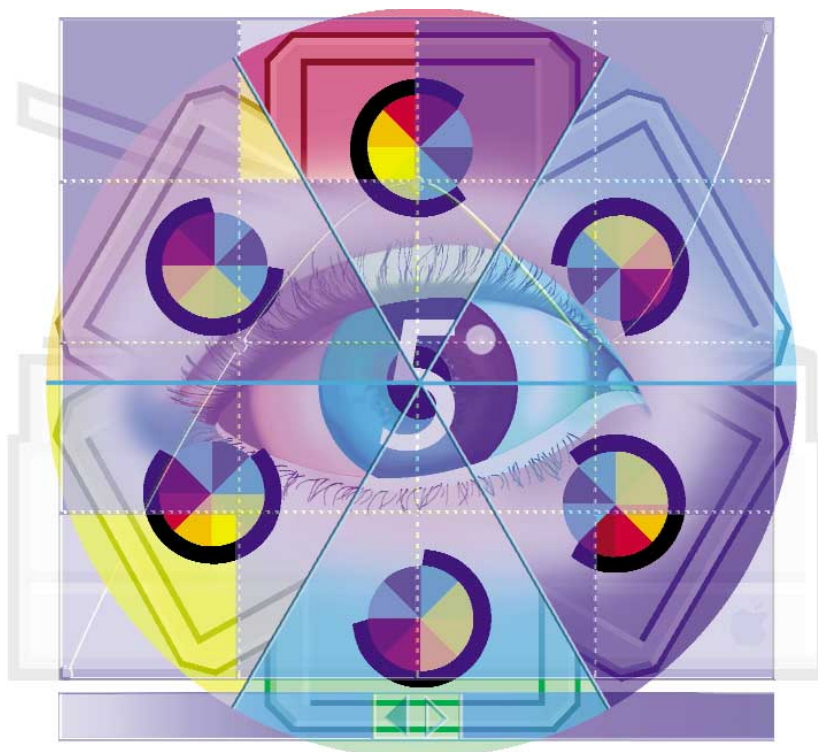
Desktop colour-management technologies give designers the possibility of superior control – but also some serious headaches. A prime example is one of the more controversial colour-management features of Adobe's Photoshop 5: the adoption of RGB colour-space definitions, that are not simply based on your monitor. This was a great leap forward for colour on the desktop (see the sidebar, "Why use RGB colour spaces?"), but created problems with most scanner-driver software on the market. As a result, the image you see via your scanner software often looks different when it arrives in Photoshop. So how can you reconcile the two, ending up with an image that has the colours you want?

A troubling mismatch

Most scanner software does not yet take advantage of Apple's ColorSync colour-management technology, and simply sends your image's RGB values directly to your monitor. If you're fairly new to colour management or you aren't sure how ColorSync works, check out Apple's ColorSync Web site at www.colorsinc.com. Photoshop 5, however, interprets these RGB values according to the settings you've made in the RGB Set-up dialogue box – and uses your ColorSync System Profile to transform the values that get sent to your monitor (see the screen shot "Your monitor's profile"). This disagreement between Photoshop and your scanner software creates colour havoc.

You have a number of options for avoiding the colour-fidelity problems that arise when you're scanning into Photoshop 5. For one, you can just hobble Photoshop 5 by using your monitor RGB as Photoshop's RGB workspace, but this isn't such a great idea (see "Workaround 1: Downgrade Photoshop 5") – plus it defeats part of the purpose of upgrading to Photoshop 5.

Other options let you reap the benefits of Photoshop 5's advances, but involve a little more effort with your scanner software. For example, sometimes your best



bet may be to do the bulk of your editing in the scanner software (see "Workaround 2: Correct the pre-scan image"). Most scanners can capture more than eight-bits-per-channel, but are limited to eight-bits on output. You can obtain significantly better quality by making as many of your large edits as possible in the scanner software, where you'll have more data and more detail to work with, rather than editing the reduced data in Photoshop.

When you edit the high-bit data in your scanner software, you still end up with a full 256 levels per channel in the final 24-bit image. But when you edit this image in Photoshop, you immediately start to lose some of the possible levels in each channel (see the screen shot "Image quality control"). For example, when you make tone or colour corrections on a 24-bit

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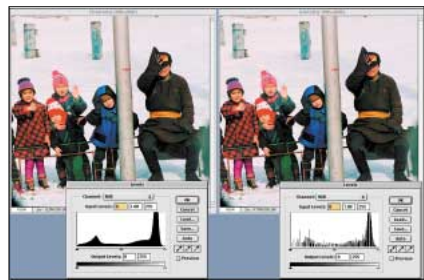


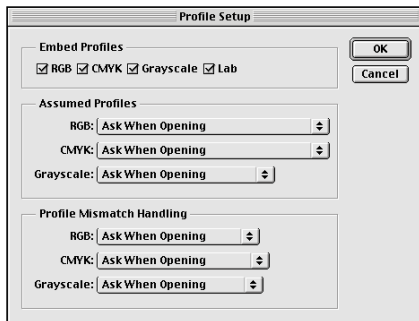
Image quality control

The 16-bit-per-channel image on the right and the eight-bit-per-channel image on the left may look similar, but their histograms show a big difference. The higher-bit image contains a full 256 levels in each channel, but the eight-bit image has lots of missing levels that will cause the image quality to deteriorate under subsequent editing.

image, some levels that were formerly adjacent get stretched apart. If they get stretched too far apart, you start to see obvious jumps of colour instead of smooth gradations – a phenomenon called posterization. Similarly, some levels that were formerly apart get squashed together, resulting in loss of detail. So there's a significant advantage to editing the high-bit data in the scanner software instead. But then again, if the scanner software displays the image differently than Photoshop, you may wind up with an image that looks beautiful in the pre-scan display but awful in Photoshop.

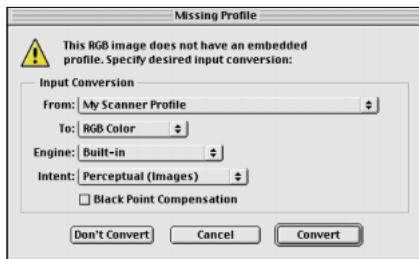
If your scanner has a colour profile, you can use that to convert the colour values to those in Photoshop's RGB profile (see "Workaround 3: Convert from your scanner profile"). But, some scanner drivers insist on making automatic corrections and don't let you turn this feature off – in this case it's impossible to create a ColorSync profile for the scanner. To profile a scanner – or any other device – you must be able to keep it in a consistent state, automatic corrections mean that the scanner scans each image differently.

Even better is when your scanner driver allows you to scan to an output profile (see "Workaround 4: Choose your output



Automatic mismatch warning

You can make Photoshop's Profile Mismatch Handling feature let you convert an image as you open it. To do this, choose Profile Setup from the File menu's Color Settings sub-menu. In the Profile Setup dialogue box (above), set all the Assumed Profiles settings and Profile Mismatch Handling settings to Ask When Opening. When Photoshop's Profile Setup is configured like this, you'll see the Missing Profile dialogue box (below) when you open a file that has no embedded profile. You can then convert the image into your RGB colour space as it opens, instead of using Profile To Profile after the fact.



profile"). Heidelberg CPS's LinoColor, Imacon's ColorFlex 1.8, LaserSoft's SilverFast, Nikon's scanner software, and Second Glance's ScanTastic all let you do this, and other scanner-software makers are likely to follow suit in future.

The best option of all may be to bring a high-bit image into Photoshop, if your scanner software can save high-bit scans – a growing number of scanner drivers can do this. When you save a high-bit scan, you're grabbing all the data the scanner can capture (see "Workaround 5: Import masses of raw data"). This will create a huge file, but all the image's data will be there for you to edit as needed in Photoshop.

Choosing a lesser evil

Depending on the capabilities of your particular scanner software, you can use one or more of the workarounds discussed below – presented from least to most desirable – to get around the mismatch between Photoshop's RGB and your scanner's RGB. At least one of these solutions should work for you.

Note: All the workarounds assume that your scanner driver operates as a Photoshop plug-in. If you scan to disk with a stand-alone application and you have Photoshop set up to warn you of profile mismatches (see the screen shot "Automatic mismatch warning"), you can use the Profile Mismatch Handling feature instead of Profile To Profile to make conversions, using the same settings mentioned in each workaround below.

Workaround 1: Downgrade Photoshop 5

The simplest solution is to make Photoshop 5 behave like older versions of the program. I recommend using this approach only if your scanner software doesn't let you turn off automatic corrections, doesn't support high-bit export, and doesn't support output profiles – and you can't be bothered to learn to work with the new behaviour of Photoshop 5.

What to do In Photoshop 5, choose RGB Setup from the File menu's Color Settings sub-menu. In the resulting dialogue box, choose Monitor RGB from the RGB pop-up menu, and turn Display using monitor compensation off (see the screen shot "Downgrading Photoshop"). **Pros:** The problem disappears, because Photoshop now simply sends the RGB values in the file straight to the screen.

Cons: The fairly substantial disadvantage is that you lose all the benefits of the RGB colour-space approach introduced in Photoshop 5. Your colour gamut is limited to what your monitor can display, and your editing space won't be perceptually uniform (see "Why use RGB colour spaces?" for a definition). Plus, if you send the files to someone else, they'll have to run the files

Why use RGB colour spaces?



Applications without colour-management features simply send the RGB values in your image directly to your monitor. This creates several problems.

- Since every monitor behaves differently, when you send the same RGB numbers to different monitors, the images don't look the same. Even when you calibrate monitors to the same specifications, it's rare for them to match exactly.

- Monitor colour gamut – the range of colours a monitor can reproduce – is generally larger than the gamut of most output devices, including printing presses. However, it's much smaller than the gamut of film, and it also limits some of the colours you can reproduce on a press, particularly cyans, and adjacent blues and greens. If you work in monitor RGB, you limit the range of colours you can capture in your scans, as well as the range of colours you can print.

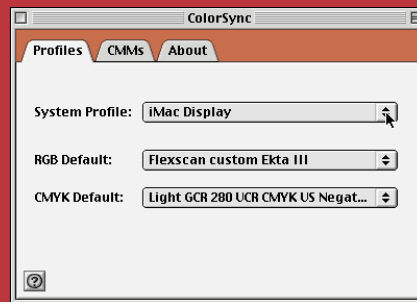
- Monitors are inherently non-linear, and their RGB colour spaces are perceptually non-uniform. This means the same increment of change you gain, by using editing tools such as Photoshop's Levels, Curves, or Hue/Saturation, may produce varying perceptual changes in different parts of an image's tonal range, or colour gamut. The

same move may result in a barely perceptible change, or in a large jump, depending on where you apply it.

Photoshop 5 lets you address all three of these issues by uncoupling the RGB colour space from the monitor – it's an arbitrary colour space that doesn't depend on the quirks of any particular device. For maximum editing flexibility, you can select a perceptually uniform RGB workspace with a large enough gamut to encompass your devices. Plus, you can standardize on a single RGB workspace for your workgroup and then move files around from one machine to another without worrying about colour variations.

By default, Photoshop 5 automatically embeds a ColorSync profile in every image when you save it. When you move the image to another machine, Photoshop knows what actual colours the RGB values represent – or, to put it another way, the program knows what the colours are supposed to look like.

Photoshop's Display Using Monitor Compensation feature (see the screen shot "Downgrading Photoshop") uses the information stored in your ColorSync System Profile to perform a customized, on-the-fly, conversion of the RGB values as they're sent to your monitor – making it possible for the image to appear the same on every monitor.



Your monitor's profile

To use a custom monitor profile on your Mac, you must load it in the ColorSync control panel as the System Profile. Currently, only AppleScript uses the RGB Default and CMYK Default settings, so if you aren't scripting ColorSync conversions, you can ignore them.

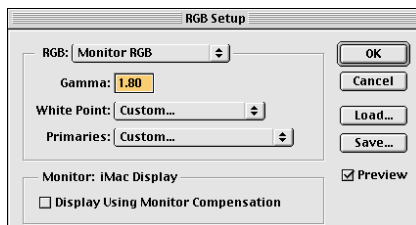
through a conversion process to get them to display properly. And, even if they are also using Monitor RGB as their colour workspace, it's extremely unlikely that their monitor's colour quirks will match yours.

Workaround 2: Correct the pre-scan image

Even if your scanner software doesn't let you turn off automatic corrections, doesn't support high-bit export, and doesn't support output profiles, there's a better solution than downgrading Photoshop 5. If you correct an image based on the pre-scan, you can make your monitor, not your scanner, the source profile for the image.

What to do Scan as usual, making the image look good in the pre-scan (see the screen shot "Pre-scan editing"). Once the image is in Photoshop, choose Profile To Profile from the Image menu's Mode sub-menu. In the Profile To Profile dialogue box (see the screen shot "Converting your monitor profile"), choose your monitor profile in the From pop-up menu. In the To pop-up menu, choose RGB Colour.

For the Engine pop-up menu, I recommend choosing Built-In, but in most cases you'll get virtually identical results no matter which engine you use. Then choose Perceptual (Images) from the Intent pop-up menu, turn Black Point Compensation off, and click on OK to perform the correction. Once it's done, the image should look the same in Photoshop as in the scanner driver.



Downgrading Photoshop

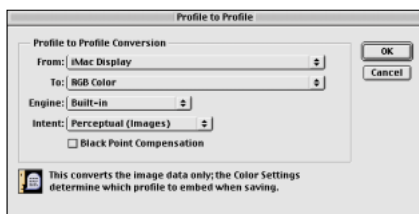
To make Photoshop 5 behave essentially like Photoshop 4, choose Monitor RGB from the RGB pop-up menu in the RGB Setup dialogue box, and then turn Display Using Monitor Compensation off. Photoshop will then simply send raw RGB values to your monitor.



Pre-scan editing

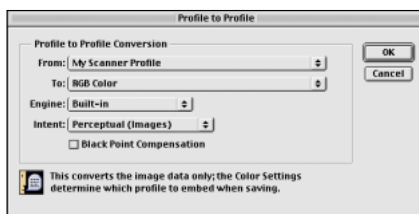
If your scanner software sends raw RGB values to the monitor, you can use that software to edit the pre-scan and use the monitor profile to bring the image into Photoshop's RGB workspace.

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Converting your monitor profile

You can convert your image from the Monitor RGB colour space, into Photoshop's RGB colour space, using Photoshop's Profile To Profile command. Just choose your monitor profile in the From pop-up menu, and choose RGB Colour – which selects whatever colour space you've chosen in the RGB Setup dialogue box – in the To pop-up menu.



Converting your scanner profile

To convert an image from your scanner's RGB colour space into Photoshop's RGB colour space, use Photoshop's Profile To Profile command. Choose your scanner profile in the From pop-up menu, and RGB Colour in the To pop-up menu.

Pros: This approach is simple, lets you scan the way you're used to scanning, and allows you to take advantage of most of Photoshop's new colour-handling features.

Cons: The colours in the scan are limited to those your monitor can display. And since the conversion is performed on 24-bit data, you may lose some image quality.

Workaround 3:

Convert from your scanner profile

If you have a profile for the scanner – and the scanner driver allows you to disable all automatic corrections – converting the profile is a more favourable approach.

What to do Scan the image with no corrections. In Photoshop, choose Profile To Profile from the Image menu's Mode sub-menu. In the Profile To Profile dialogue box (see the screen shot "Converting your scanner profile"), choose your scanner profile in the From pop-up menu, and RGB Colour in the To pop-up menu. The choose Built-In from the Engine pop-up menu, and Perceptual (Images) from the Intent menu. Turn Black Point Compensation off and click on OK. Once this is done, the resulting image should look very like the original.

Pros: You can preserve colours that lie outside your monitor's gamut.

Cons: As the conversion is performed on 24-bit data, you may lose image quality.

Workaround 4:

Choose your output profile

If your scanner driver allows you to choose an output profile, use the Photoshop 5 RGB colour space. You can create a ColorSync profile for your RGB workspace by clicking the Save button in Photoshop's RGB Setup dialogue box (see the screen shot "Saving a ColorSync profile"). To make this profile

available to other applications and to your scanner software, make sure you save it in your ColorSync Profiles folder, which you can find at the root level of your System Folder.

What to do Scan as usual, making global corrections in the scanner software. When the image lands in Photoshop, it will look the same as it did in the scanner software.

Pros: You can preserve all the colours your scanner can capture. Plus, you'll get better image quality because the colour conversion is performed on the high-bit scanner data rather than the 24-bit final image.

Cons: You're making all your edits based on a smallish pre-scan image, so you can't see all the detail in the final scan. Also, your scanner software's tools are most likely not as comprehensive as Photoshop's.

Workaround 5:

Import masses of raw data

If your scanner driver allows it, bring the raw high-bit scanner data – with no pre-scan corrections – into Photoshop as a 48-bit RGB file, and make all your corrections in Photoshop.

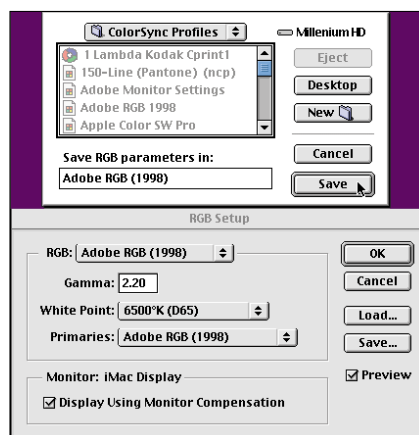
What to do Set the image crop and resolution in your scanner software, and bring in all the data you can. If you have a profile for your scanner, you can use Profile To Profile to convert the image from scanner RGB to Photoshop's RGB colour space before you make any corrections. This should get the raw image closer to the appearance of the original so you'll have fewer corrections to make.

Pros: You correct the full-resolution image using Photoshop's tools rather than correcting the low-resolution pre-scan image using the more limited tools scanner software offers.

Cons: The file size is twice as large – at least initially – as that of a 24-bit image. Once you've done the conversions, you can downsize the image to eight bits per channel by choosing eight Bits/Channel from the Mode sub-menu on the Image menu. However, you could make a good case for archiving the high-bit file for future conversions to output devices, since you'll always get a better result doing the conversions on 48-bit data than you will on 24-bit data.

The new colour architecture in Photoshop 5 may cause some head scratching, but it offers major pluses over the old ways.

Eventually, scanner software will integrate seamlessly with Photoshop 5, but for now, one of these methods should help you work around the mismatches. Whatever method you happen to choose, you should get consistent colour from your scanner. MW



Saving a ColorSync profile

To create a ColorSync profile of your Photoshop workspace, first load the space you want to use in Photoshop's RGB Setup dialogue box, then click Save. Save the resulting profile in the ColorSync Profiles folder so that your scanner software – and other ColorSync-savvy applications – can locate and use it.

Bruce Fraser is co-author of Real World Photoshop 5 (Peachpit Press, 1999).



Optimize Mac OS 8.6

Get your new system
software running with
minimum fuss

By Ted Landau

Mac OS 8.6 won't flabbergast you with flashy new features. Instead, what you get is increased stability and a faster Mac. That's because Apple has made numerous "under the hood" changes – from improving how the Macintosh processor divides its time among multiple open applications, to fixing a bushel of bugs.

Although most users will find updating to this system quick and painless, there are potholes lurking on the road to Mac OS 8.6 success. If you're not alert to the dangers, it can seem as if 8.6 causes more problems than it fixes. Here's how to keep the road as smooth as possible.

Don't stall at the install

The first trick is to get the OS to install the way you want it to.

Missing files Mac OS 8.6 includes updated versions of system software. However, if you use the Mac OS 8.6 Update – available free from Apple's Web site – you'll find that some of this software, such as ColorSync and Macintosh Runtime for Java, doesn't get installed. It's not a bug. Some of the software simply isn't included in the Update. To get the missing software, you have two choices: get the Mac OS 8.6 CD – that includes all the files, or get the additional files as separate downloads from Apple's Web site, at <http://asu.info.apple.com/swupdates.nsf/artnum/n11386>. You'll find links to most of these files on the Update page, but in a few cases, you'll have to dig deeper. Two important files that you have to get elsewhere are Apple's OpenGL 1.0 (<http://asu.info.apple.com/swupdates.nsf/artnum/n11420>) and IomegaWare (www.iomega.com/software/updates.html). As a bonus for going the download route, you get software that's even newer than the versions included on the Mac OS 8.6 CD.

Finally, Apple goofed and forgot to put the updated Internet Access extension (version 1.3) in the Mac OS 8.6 Update. It's available only on the 8.6 CD. But don't worry, version 1.2 is almost identical.

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Give the Finder a boost

Do you have a wish list of features you'd like to add to the Finder? Your wishes may already have been granted.

A collection of freeware and shareware patches enhance the power of the Finder.

Although none of these patches are exactly alike, they have significant overlap. For example, they all add ⌘-key shortcuts (such as ⌘-T for Empty Wastebasket) to the Finder's menus. It's best to select the one that best suits your needs, and use only that patch. Also, follow the directions that come with these patches very carefully – otherwise, the Finder may crash at start-up. (You can find links to all the patches mentioned here at www.macworld.com/1999/10/secrets/ or www.macfixit.com.)

Patch-it-up

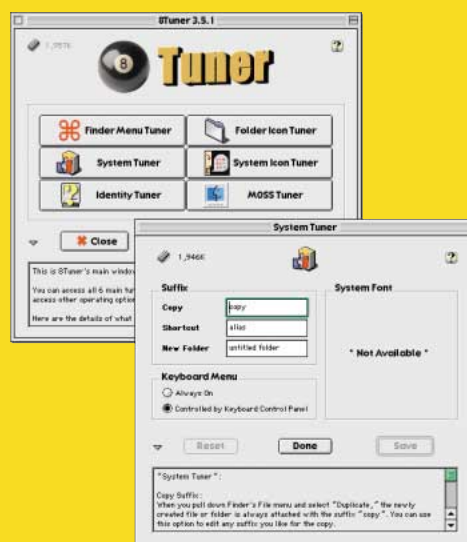
Chakaranda's Mac OS 8.6 Finder Patch, Jon's OS 8.6 Mods, and Finder 8.6 Patch all primarily add assorted ⌘-key shortcuts to the Finder's menu. Jon's OS 8.6 Mods and Finder 8.6 Patch go a step further, adding a Finder Quit command. You can use this command to quit the Finder, similarly to the way you quit any other application. The benefits are that it frees up extra memory and possibly regains memory lost to a "leak." If you quit all other open applications, the Finder will re-launch. As a bonus, you can hold down ⌘-option and rebuild the desktop without needing to restart the Mac.

Jerry's Finder 8 Patch combines almost all the features of the previous three patches, and then heads off into new territory. It increases the memory allocation to the Finder – which may help reduce Finder crashes and let you keep more windows open. It also

modifies the Finder's naming schemes. For example, if you're tired of deleting the alias suffix from the name of every alias file you create, you can use this patch to keep the suffix from appearing.

8Tuner is more than a patch – it's an application that gives you complete control over which of its many options to install (see "Customize the Finder," below). Among the options you can choose from are the Finder Menu Tuner, that lets you select your own ⌘-key shortcuts for Finder menu items, and Identity Tuner, that lets you change the text About This Computer in the Apple menu to anything you want, such as About Ted's G3 Speed Demon.

And, like Jerry's Finder 8 Patch, 8Tuner enables you to change the default names of aliases, file copies, and untitled folders.



Customize the Finder

If there's something about the Finder that you don't like, such as the way it names copied files (the option shown here) or its default ⌘-key shortcuts, 8Tuner will be happy to change it.

Avoid icons moving around



Do you need to reposition your icons every time you mess around with the resolution of your monitor? Instead of buying a shareware utility to reset your desktop-icon positions after switching resolutions (as suggested in July 1999's Secrets), you can quickly create an AppleScript application to do the job. Edouard Doubrovski was the first reader to contribute the following procedure. First, open the AppleScript Script Editor program. Then switch to the Finder, select all your permanent desktop icons – don't select a CD icon or any other icon that comes and goes from the desktop – and drag them as a group to a slightly offset position. Next, switch to the Script Editor application and click the Record button. Switch back to the Finder by choosing it from the Application menu, which will ensure that the selected desktop icons remain selected, and drag the icons back to their former positions. Go back to the Script Editor, click Stop, and save the script as an application. Now you can reset your desktop icons by opening the application you just created.

Ensure cable-modem security



I recently got a cable modem. Although I have a dynamically changing IP address, I'm concerned about hackers. How can I stay secure?
Todd Vaziri



Security is indeed a real issue, as a cable-modem connection effectively makes your computer part of a local network, consisting of all your neighbours who also

have cable modems. If you have file sharing turned on, your computer will show up as an AppleShare server in the Chooser of any neighbour with a Mac and a cable modem. Your IP address is irrelevant, because file sharing uses the AppleTalk protocol, not TCP/IP. Likewise, an AppleTalk printer, that's connected to the same ethernet hub as your cable modem, will also appear in neighbours' Choosers. Neighbours with PCs and cable modems won't see your Mac or your printer, unless they've installed software to enable Windows to use the AppleTalk protocol, such as the £189 PC MacLAN software, from Miramar Systems (Computers Unlimited, 0181 358 5857).

So how to protect yourself? Well, your first option is to turn off file sharing in the File Sharing control panel – the Sharing Setup control panel in Mac OS 7.6.1 and earlier – then your Mac won't show up in anyone's Chooser. You can also turn off your AppleTalk printer when it's not in use, and it won't be accessible to others either.

However, if your Mac is connected to an ethernet network with other Macs in your home or office, and you need to have file sharing turned on, double-click the Guest icon in the Users & Groups control panel, and make sure guest connections are disabled. Make sure to do this on all Macs that are connected to your ethernet network. With guest connections disabled, users will need to know a valid user name and password to connect to one of your networked Macs that has file sharing turned on. Set up user names and passwords in each Mac's Users & Groups control panel.

Another option is to isolate AppleTalk services from your neighbours' cable modems. You can do this by installing a

second ethernet port on one Mac, together with Internet gateway software such as the £34 SurfDoublor and £139 SoftRouter Plus, from Vicomsoft (www.vicomsoft.com), or the \$89 IPNetRouter, from Sustainable SoftWorks (www.sustworks.com). Then connect your cable modem to the second ethernet port, and connect the built-in ethernet port to your hub. You can also use a hardware gateway that has dual ethernet ports, such as the £476 SonicWall, from Sonic Systems (Gomark, 0171 731 7930). The gateway hardware or software forwards Internet traffic, but not AppleTalk traffic, between the two ethernet ports, and enables all network computers to share the Internet connection.

Snap and scroll in Photoshop



If you have palettes all over your screen in Adobe Photoshop (versions 3.X to 5.0), you can snap them against the nearest edge of the screen by shift-clicking their title bars.

Also, while zoomed in on an image, try scrolling with the oft ignored page up, page down, home, and end keys. Press the shift key while pressing page up or page down to scroll exactly 10 pixels, instead of a screenful. In Photoshop 5.0, you can also scroll left and right by pressing the ⌘ key in conjunction with any of these page-up or page-down shortcuts.
Jeff Grandon

Revisit your local host



The trick for visiting your Personal Web Sharing Site, by typing localhost in Microsoft Internet Explorer's address field (mentioned in August 1999's Quick Tips) prompted several

readers to describe other methods that should work with all browsers and Internet-client applications. Brian Ashe was the first to suggest typing 127.0.0.1 into your browser's location box. This IP address is the TCP/IP standard for accessing a server on the same machine as the client. If your computer is running additional TCP/IP servers, or a server with more features than Personal Web Server, you can preface that IP address with a prefix such as **ftp://**, **http://**, or **telnet://** to reach the desired service. Orya Blumenfeld Giron points out that the address 0.0.0.0 should also work.

Michael Shafae creates a hosts file in SimpleText to define names that refer to the appropriate IP addresses. Then he sets the TCP/IP control panel to Advanced mode, by choosing User Mode from the Edit menu; clicks the Hosts button that appears in the upper-right corner of the control panel; and selects his hosts file from the dialogue box that appears. Here's an example of a hosts file:

```
localhost CNAME
pm7100.mydomain.net
pm7100 CNAME
pm7100.mydomain.net
g3pb CNAME g3.mydomain.net
pm7100.mydomain.net A 127.0.0.1
g3pb.mydomain.net A 192.168.6.5
```

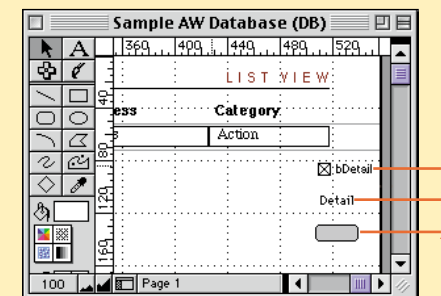
This file has two kinds of definitions. Each line containing CNAME links the nickname – at the beginning of the line – to the full name – at the end of the line. Each line containing an A specifies the IP address for a full name. The three parts of each line are separated by tabs or spaces. This example file specifies that the three names – localhost, pm7100, and pm7100.mydomain.net – all refer to the computer whose IP address is 127.0.0.1, which is the computer with this hosts file. This file additionally specifies that the two names g3pb

Make AppleWorks database buttons



AppleWorks 5.0 (and ClarisWorks) doesn't have a tool for making buttons on a database layout, but you can make them with the following method, devised by Jeffrey McLean. In layout mode, either paste or draw a button graphic (A). If necessary, create a label for the button, using the text tool (B); move the label over the button graphic; and group them. Then define a check-box field (C) and move it over the button graphic. Resize the check-box field to fit just inside the edges of the graphic.

Move the check-box field to the back, so the button graphic covers it. You can hide the check-box field completely by making its pen pattern and fill pattern transparent, and turning off its Show Label option, using the Field Info command.



To create action that happens when someone clicks the button, first record an AppleWorks macro that performs the desired action. Then define a calculation field with a formula like this:

```
IF("bDetail",MACRO("Detail View"))
```

Here, bDetail is the name of the check-box field, and Detail View is the name of a macro that changes the layout.

and g3pb.mydomain.net refer to the computer whose IP address is 192.168.6.5.

Speak and be heard

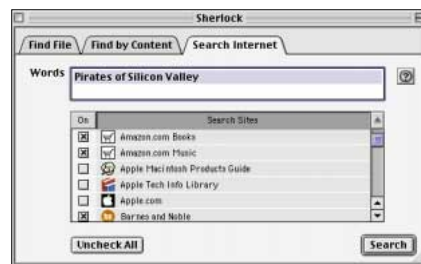


Take heart, you iMac and G3 users who have tried, in vain, to surf the Internet by voice command (as described in August 1999's Quick Tips). You need version 1.5.4 of PlainTalk, Apple's speech-recognition software, which comes

with Mac OS 8.6 (<http://asu.info.apple.com/swupdates.nsf/artnum/n11386>) and is also available separately (<http://asu.info.apple.com/swupdates.nsf/artnum/n11400>). PlainTalk 1.5.4 can use 44KHz sound input, the standard rate on iMacs and blue-&-white G3s; works with the iMac's built-in mic; and has many other benefits.

Joseph Schorr is a co-author of Macworld Mac Secrets, fifth edition (IDG Books Worldwide, 1998).

The Mac OS Update Installer can be fussy about what it decides to install. For starters, it won't install newer versions of certain files, unless it finds an older version on your hard disk. In a few cases, it won't install the new version, even if the old version is on your disk. For example, if you've moved Sherlock from its default location in the Apple Menu Items folder, Mac OS 8.6 Installer won't install the new version. Similarly, if you've renamed any Mac OS extensions or control panels – perhaps to modify their loading order – these may not get updated. One solution is to restore the original names and locations before updating. Otherwise, you can use Apple's TomeViewer utility to extract the desired files from the Mac OS 8.6 Tome –



Don't lose out

If you're not careful you could miss Sherlock's new features in Mac OS 8.6.

you'll find it buried in the Update Install Pieces folder – and install the files yourself.

In a few cases, the Mac OS 8.6 Installer deliberately removes files from your disk

without, replacing them with an update. For instance, it gives the familiar Jigsaw Puzzle the heave-ho. It also disposes of the Desktop Printing Extension – an unnecessary extension that can cause freezes.

Keep it running smoothly

Once you've installed the OS successfully, watch out for these obstacles. **Memory shortage** Some applications require about 300K more memory than they needed in Mac OS 8.5. It's a good idea to give a boost to any application that's acting up – select Get Info for the app, select Memory from the Show pop-up menu, and increase the Preferred Size. Sherlock is one program that will benefit from a memory increase of at least 300K if you've added

many Sherlock Internet search-site plug-ins.

Font bug If you're experiencing system crashes, you could have a font problem. Certain older fonts can get corrupted under Mac OS 8.6. Even if you don't have such fonts in your System Folder, you may have one embedded in an application, such as the font your Mac uses to create bullets when you type a protected password. Currently, there are two solutions – and you can use both: Install DiamondSoft's Font Fixer for 8.6 extension (www2.fontreserve.com/update/fontfix.html) or run the Corrupt FOND Fixer application, from Alsoft (www.alssoft.com).

Shutdown failure You may get an erroneous message when you attempt to shut down with OS 8.6 running on your

Mac. The message says that you can't shut down, because some applications have not quit. If this message appears, even after you've quit all applications, any of various extensions may be the culprit. Try updating SwitchRes 1.5.x to version 2.0 or disabling LibMotosh, if you have either extension.

Crash course Most remaining problems will likely require an updated version of some software. For example, printing from Adobe PageMaker 6.5.x can cause a crash when you're using Mac OS 8.6 – Adobe is working on a fix.

The companion software to G3 processor upgrades – especially upgrades for the L2 cache slot of Power Mac 6400s and 6500s – has been known to cause start-up crashes under Mac OS 8.6. Check updates. Road

repairs are now over. It's time to relax and take your new OS for a spin. **MW**

Ted Landau gives Mac OS 8.6 troubleshooting tips at his MacFixIt Web site (www.macfixit.com).

Macworld's features editor David Fanning and contributing editor Lon Poole answer readers' questions and select reader-submitted tips for this column. Send your question or tip (include your address and phone number) to David Fanning, Q&A, Macworld, 99 Gray's Inn Road, London WC1X 8UT. You can also send mail electronically, marked Q&A in the subject line, to david_fanning@macworld.co.uk or via fax to 0171 405 5308. We pay £25 for each tip published here. Please do not include a stamped-addressed envelope.

Peter Worlock



By all means buy your favourite machine
– but spare me the partisan techno drivél

Buy it, then shut it

There is some controversy among international scientists investigating health hazards from computer systems. Electro-magnetic radiation from monitors and other components may be a threat, according to some; others point to a lack of repeatable evidence. However, after a period of close observation and investigation I can end the controversy here and now. Computers are clearly a health threat. Prolonged use fries your brain.

The evidence for this is overwhelming – just take a look at any online discussion of hardware platforms, operating systems, SCSI vs IDE hard disks, or virtually any computer-related subject that involves a personal preference. Otherwise intelligent, educated people turn into morons.

With the same hardcore, fundamentalist mentality that allows religious fanatics to firebomb the innocent in the name of God, or anti-abortion right-to-lifers to advocate the cold-blooded murder of doctors and nurses, proponents of the single-button mouse will scream abuse and threats at anyone who declares the superiority of the two-button variety.

You can see this anywhere computer users gather together – but the greatest gathering of computer users is the Internet. Here, you find the saddest effects of prolonged exposure to a cathode-ray tube (or it may be magnetic fields generated by a spinning hard-disk, or possibly particle-emissions from repetitive mouse-clicking).

Whatever the cause, these people are sick, twisted, deranged... one connector short of a DIMM socket.

To see the effects at their most critical, check out the responses to the columns of John Dvorak, PC Magazine's long-time commentator and the very exemplar of the back-of-mag pontificator. Every time Dvorak dares to question the true strength of Linux, or any decision by Steve Jobs, the howls of outrage start up like a 747 on a short take-off. The pro-Wintel camp waded in and, before you know where you are, the debate is drowned out by the rat-a-tat-tat of spittle on keyboard as a thousand emails are fired-off by brains whirring in neutral.

And the saddest thing of all ...is that it doesn't matter.

After 16 years writing about this industry the one thing I know to be true is this: quality doesn't count: "better"

hardly ever succeeds; a second-rate product often wins. I can't begin to count the number of brilliant products I've seen left in the dust of some piece of brainless crap.

But that doesn't mean brainless crap will always succeed. The point is, it doesn't matter. People buy things for all kinds of reasons – some smart and some dumb.

The thing that does matter, is to retain some shred of intelligence about it all. If I buy product X and you buy product Y, my decision is not a threat to you, your belief system or your lifestyle. But too many computer users act otherwise.

And while we'd all like to think that Macintosh users must, almost by definition, display greater intelligence and aesthetic sensitivity, sadly it isn't so. There is a large and very vocal minority who are as brain-dead and abusive as the worst of their kind anywhere – and among "anywhere" I include the football terrace and the National Front meeting.

When Steve Jobs announced the G4 as a "super-computer", a lot of people – including some of my colleagues in the press, who ought to know better – suddenly glazed over and began drooling, "Hmm ... super-computer", with all the analytical intelligence of Homer Simpson in a doughnut shop.

It isn't a super-computer. It would have been a super-computer if Apple had launched it ten years ago. Today's super-computers are a thousand times more powerful than the G4. But it doesn't matter.

After spending a fortune waging a propaganda campaign against beige, Apple isn't going to persuade me that grey is a big improvement. You can say the G4 is silver-and-graphite; I can say it's two-tone grey. But it doesn't matter.

People will buy the G4 or they won't. Some will buy it for smart reasons, and some will reject it for dumb reasons. And vice-versa.

Computers are perhaps the greatest tool ever invented by the human race, but just a tool nonetheless. I'd rather have the worst computer in the world than none at all. I'd rather you were happy with your choice than unhappy with mine.

Buy the computer you want, the software you want, the mouse you want. Switch your brain on, make the smart choice, buy what's good for you. Enjoy it. Be productive.

Shut up.

MIW