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Teaching Acrobat New Tricks

Pioneering publishers discover prepress uses for
Adobe's electronic document software. By Pat Soberanis

Since it first released Acrobat software, Adobe Systems has offered it as a tool for creating and distributing electronic documents. But in the past year or so, a few intrepid souls have made Acrobat work as a prepress tool for black-and-white and even color publishing.

Color? With Acrobat? You heard right: you can output color-separated film from Acrobat files, directly or indirectly. The methods people have come up with so far may be inelegant and complex, but they have produced excellent results. "It's amazing," says Gary Cosimini, Adobe's business development manager for the publishing market. "We're just starting to think of something, and then the phone rings and it's somebody who's already doing it." And once Adobe incorporates prepress capabilities in future releases of Acrobat, Cosimini says the process should become more intuitive and straightforward.

Acrobat Basics

To fully understand the excitement and the efforts of the people we interviewed, you need to know something about how Acrobat 2.1 works and how its Portable Document Format (PDF) compares with PostScript. PDF is the file format used to reproduce documents so that they can be opened, manipulated, and printed in Acrobat, independent of the application that was used to create them. Acrobat

consists of three primary programs: Acrobat Distiller, which transforms a document into PDF; Acrobat Exchange, which lets you work with the PDF file; and the free Acrobat Reader, which lets you view and print a PDF file on Macintosh, Windows, DOS, or Unix platforms (as does Exchange, though not for DOS).

The procedure for creating a basic PDF file is simple: you compose a document in a page layout program, save it as a PostScript file via the Print dialog box, and convert that to PDF in Acrobat Distiller. Distiller is easy to operate: you just open the program and then open the file to begin the conversion. You can manipulate PDF files to some extent in Exchange, which lets you annotate text, crop pages, combine documents, and add links. For more extensive editing of PDF files, you can open them a page at a time in Adobe Illustrator 6.0 for the Macintosh—as long as you have the fonts that the document was created with.

The folks in the field who have chosen Acrobat over other portable electronic document technologies—such as Hummingbird's Common Ground and Novell's Envoy—have done so primarily because Acrobat is based on Adobe's Configurable PostScript Interpreter (CPSI) software, and most of these publishers are PostScript-based as well.

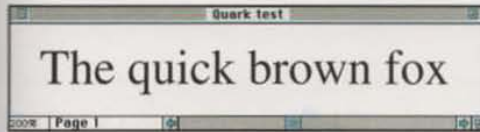
There are important differences between PostScript and PDF, though.

PostScript is a programming language created for flexible page description. PDF, on the other hand, is a file format, not a programming language—although it describes page elements using the PostScript language's imaging model.

A typical PostScript document includes some code, such as procedure definitions and arithmetic operations, that has little to do with putting marks (text, line art, images) on the page. For example, these lines of code might be "if" instructions ("if it's a color printer, do this"). Or they might be translation tables that help the output device figure out how the creator application describes images; every time an image appears, the PostScript document repeats the translation table. Depending on what you want to do with the document, this information can be extraneous, making the PostScript file larger than necessary and slower to output. "PostScript files tend to get long-winded," says Adobe's Cosimini. The procedural instructions can also cause problems on some output devices.

If you distill the PostScript document into a PDF file, however, much of the extraneous information is removed from the file. When you open the resulting PDF file in Acrobat and print it, the new file is much simpler, faster to download, and faster to print.

PostScript and PDF also differ in their output options. Although PostScript files



Compared with PostScript, PDF file descriptions are very compact, making for smaller, cleaner output files. Here, a one-page QuarkXPress document containing only four words was converted into both a PostScript and a PDF file. PostScript used 1,079 lines of code to describe the page and seven lines to describe the four words (left); PDF used only 108 lines to describe the page and only one line for the text (right).

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1067 0 0 F 0 <|____.Times> T F /|____.Times-Roman
1068 xpbm
1069 0 12 12 f
1070 72 159.39 m (T)M
1071 79.33 h 6 34.99 (he quic)D
1072 114.32 h 3 18.99 (k br)D
1073 133.31 h (o)M
1074 139.01 h 3 21.66 (wn f)D
1075 160.67 h (o)M
1076 166.67 h (x)M
1077 end
1078 %%QPKPageEnd
1079 endp

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32 /F6 1 Tf
33 48 0 0 48 50.5 709.45 Tm
34 0 Tr
35 0 g
36 0 Tc
37 0.025 Tw
38 [(The quick bro)25(wn f)15(o)0(x)1T]
39 ET
40 endstream
41 endobj
42 4 0 obj
43 <<
44 /ProcSet [/PDF /Text]

```

can be created manually in a word processor, they are usually output directly from the creator application—such as QuarkXPress—to any output device that has a PostScript interpreter, such as a printer or an imagesetter. The interpreter “translates” the PostScript code into raster (bitmap) data that the device can understand. PDF files, however, cannot be sent directly from a creator application to a PostScript interpreter; instead, PDF files must be output from Acrobat Exchange or Reader. But PDF page descriptions can be drawn more quickly and can be output by non-PostScript as well as PostScript printers. In this sense, PDF trades reduced flexibility (you have to use Acrobat) for improved efficiency (smaller, cleaner files output to any printer).

The Adventurers

Daniel Rodrigue, a consultant for the daily *Le Journal de Montreal*, sums up the reasons for the prepress side’s enthusiasm. “Now, you have to keep a library of software just to open the client’s file,” he says. “Why not use a common, easy format like Acrobat? You don’t need to worry about images, fonts, the creation application, or platform compatibility.” Reduced file size is also a major consideration. “We got 12- to 15-MB files down to 800 or 900 KB,” he says. Instead of having a “nightmare of cartridges and tapes” to deal with, Acrobat files are small enough to transmit electronically.

There are as many ways to bring Acrobat into the color-publishing work-

flow as there are users. Intrepid experimenters include Scott Whaley, president and CEO of Independent Publishing in Henderson, Tennessee, who prints the *Putnam Morning Light* newspaper from PDF files he receives from its staff; *Le Journal’s* Rodrigue, who uses Acrobat to



Intrepid experimenters are using Acrobat to clean up buggy PostScript files.

create multipurpose documents for the printed newspaper and its Web site; Marc Orchant, operations manager for Subia, a service bureau based in Albuquerque, New Mexico; and the Associated Press’s AdSend ad-distribution service, which sends up to 2,000 ads a day in Acrobat format.

One advantage of using Acrobat is speedy file transmissions. Acrobat is the *Putnam Morning Light’s* sole output application; it allows the Cookeville, Tennessee, staff to transmit page files

over a high-speed ISDN line to Whaley’s company 215 miles away in about 40 minutes (see sidebar “On Their Own,” page 66). Without Acrobat, Whaley says it would take about six hours to transmit the same section. Richard Gray, art director for Zimmerman and Partners Advertising in Fort Lauderdale, Florida, designs as many as 70 black-and-white and color ads a day for newspapers around the country. Using Acrobat and AP AdSend, he can send them the day they’re designed, so they appear in the papers the next day.

Others are using Acrobat to clean up buggy files. Subia’s Orchant, for example, uses Acrobat as a backup output method for unorthodox files that he can’t output any other way. In one case, it helped him separate and output a Microsoft Word for Windows 95 file with three spot colors, even though Subia hadn’t yet upgraded to Windows 95 and couldn’t open the Word file in earlier versions. Similarly, Sue Hillesland of printer R. R. Donnelley’s technical group in Lisle, Illinois, is one of several people testing Acrobat for what she calls PostScript “filtering.” Occasionally, when a client sends a PostScript file that won’t print properly, she runs it through Distiller and then creates a new print-to-disk PostScript file in Exchange (using the latest PostScript driver), after which it often goes through the RIP just fine. “Applications render PostScript in different ways,” explains Hillesland. “The Dis-

tiller itself is a very sophisticated tool for RIPing and 'normalizing' PostScript files."

In addition to PostScript filtering, Robert J. Nuelle, Jr., director of advanced technology for Lanman Lithotech, a World Color Digital Services company, has tested Acrobat for remote proofing with a client who publishes catalogs. He had already installed a 3M Rainbow Desktop Color Proofing system at the client's site and trained the staff there to calibrate it. The idea was to send QuarkXPress files via high-speed ISDN lines so the client could "preproof" for over-all color and design, though not for color accuracy.

At first, Nuelle found that Acrobat's default settings for converting the XPress files into PDF occasionally produced inconsistent color and images that had jagged edges. After experimenting with Acrobat's various settings for five months, Nuelle found he could produce PDF files that maintained much of the original files' image quality and color fidelity. When he used Acrobat in "live" production with the client, he discovered that "the difference between sending the PDF and the XPress file to the Rainbow was insignificant." Not so the difference

between file sizes: "The PDF file sizes were significantly smaller, about 10 percent of the original," Nuelle says. For the final proof, he still uses traditional laminated proofs to ensure accurate color.



Building high-quality color PDF files requires perseverance.

"I would not use Acrobat yet to go to press," he says. But Acrobat's compression technology makes for a more efficient preproof cycle, and Nuelle says he's interested in trying it out for electronic file transfer and archiving.

Nuelle has some company on the color-fidelity issue. Kevin Slimp, owner

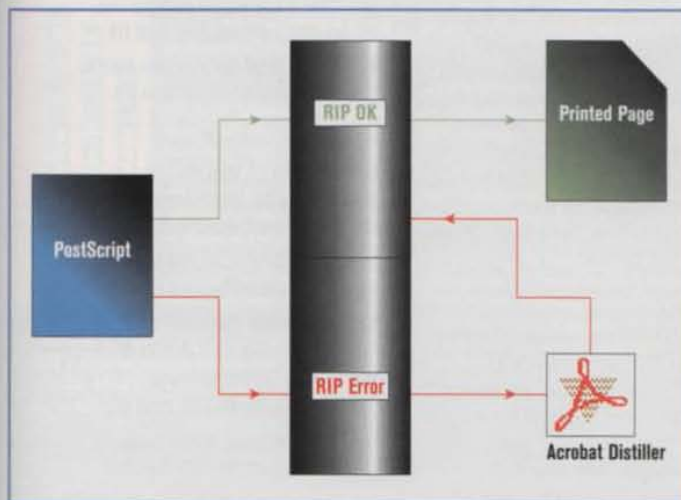
of AdTech Design in Knoxville, Tennessee, and a consultant for the *Putnam Morning Light*, says that properly configured PDF files can be printed to film "without any loss of quality from the original files." Kieran Joyce, color electronic prepress manager for AP AdSend subscribers *Philadelphia Inquirer* and the *Philadelphia Daily News*, also ran some tests to see whether PDF files could be incorporated into its Scitex system. "We're pretty happy with the process," he says.

Amber Acrobat

Getting that quality can be tricky, though. Since it was initially targeted for electronic file distribution, Acrobat's capabilities do not yet include color-separation or halftone-screen frequency or angle information. Acrobat senior product marketing manager Rob Babcock says these capabilities were part of the original plan, but Adobe had to choose between the general-business market and the publishing market to get the product out in a reasonable time. "We did make a conscious decision to leave out PDF capabilities that are in PostScript," he says. "We knew we could always go back to reach the needs of the niche users. That's what we are doing now with the new upgrade."

The next version, code-named Amber, will save halftone-screen and color-separation data, as well as Open Prepress Interface (OPI) comments, which allow the replacement of low-resolution images with their high-resolution counterparts at output. Amber is slated for release in mid-1996.

And Amber is just the beginning. According to Eric Bean, manager of product marketing for production systems, Adobe has a long-term strategy for making PDF a "core format for high-end production printing." As envisioned, PDF will incorporate high-end production capabilities and Adobe applications will generate PDF files directly, so PDF will be "seamlessly operable across all applications," whether the files are intended for Web, in-house, or commercial-print production.



PostScript files must be sent through a RIP and then output to a printer. When a PostScript file won't print properly, some prepress houses streamline the file by running it through Acrobat Distiller and creating a new PostScript file, which often prints without a problem.



QuarkXPress files of the *Putnam Morning Light* are converted to PDF in Acrobat Distiller, sent to the printer via an ISDN line, and output directly to film in Acrobat Exchange.

On Their Own

It all started back in May 1995, when Scott Whaley, president of Independent Publishing in Henderson, Tennessee, got a call from the thrice-weekly *Putnam Morning Light* in Cookeville, Tennessee, which wanted to know how PML could transmit its files electronically to Independent for printing.

Whaley contacted Kevin Slimp, owner of AdTech Design in Knoxville, Tennessee, who'd been investigating Acrobat's potential for newspapers ever since version 1.0 came out. Slimp came up with the concept, and "between us we developed the process," says Whaley. After six weeks of intensive trial-and-error testing, the results of their efforts were in their hands: the first four-color newspaper in the world output entirely from Acrobat files.

Once Slimp figured out that he could pre-separate the files in QuarkXPress when printing the PostScript file (see main story), the biggest challenge was getting good-quality, consistently printable files at sizes low enough to transmit efficiently over a 28.8-Kbps modem (the paper now has a dedicated ISDN line direct to the printer). "Newspaper pages are so huge, you have to design a good file to start with," with no unnecessary elements, says Slimp. "If you don't, it's just not going to print to the imagesetter."

Their hard-won lessons paid off. PML publisher Mike McCloud says there are tremendous cost and time savings in composing the paper, which ranges from 10 to 24 pages and up. "Any traditional paper of our size is going to have three to

four people doing pasteup," he says. "We do computer pagination with one person."

Each page is composed as a separate XPress file. The streamlined, all-digital workflow the team developed, in simplified form, looks like this in everyday production:

At the *Putnam Morning Light*

1. Shoot photographs using digital cameras; resize and adjust resolution in Adobe Photoshop.
2. Create graphics using clip art or illustration software.
3. Create 98 percent of ads on-site using Multi-Ad Creator.
4. Lay out the page in QuarkXPress using Type 1 fonts.
5. Print laser proofs for editorial review.
6. Print to a PostScript file from XPress, with separations on; include all images and fonts, set output resolution to 800 dpi, and use the PPD for the printer's ECRM imagesetter.
7. Create the PDF file in Acrobat Distiller, embedding all fonts.
8. Transfer the PDF file via a high-speed ISDN line to the printer.

At the printer

1. Receive PDF file transmission; open file in Acrobat Reader to check it.
2. Open PDF file in Acrobat Exchange, output to ECRM Knockout 4550 imagesetter at 1,270 dpi and 100 lpi via ECRM ScriptSetter RIP. The RIP embeds halftone-screen data, and registration is handled via the imagesetter's head and tail punch.
3. Film is ready for platemaking and press.

Toolbox

Hardware

Power Macintosh 7100, 8100, and 9500; Macintosh Workgroup Server 6150; Apple Computer Inc., 408-996-1010 or 800-776-2333. Circle 473 on reader service card.

Precision Color graphics card: Radius Inc., 408-541-6100 or 800-227-2795. Circle 474.

200-MB SyQuest drive: Micronet Technology Inc., 714-453-6000 or 800-800-3475. Circle 475.

Nikon E2s digital camera: Nikon Electronic Imaging, 516-547-4200 or 800-526-4566. Circle 476.

Kodak Digital Camera 40: Eastman Kodak Co., 716-726-7260 or 800-235-6325. Circle 477.

Unity 1200XL-0 laser printer: LaserMaster Corp., 612-944-9330 or 800-950-6868. Circle 478.

Knockout 4550 ScriptSetter imagesetter: ECRM Inc., 508-851-0207 or 800-537-3276. Circle 479.

Software

Adobe Acrobat Pro 2.1, Adobe Illustrator, Adobe Photoshop 3.0: Adobe Systems Inc., 415-961-4400 or 800-833-6687. Circle 480.

DeltaGraph Pro: DeltaPoint Inc., 408-648-4000 or 800-367-4334. Circle 481.

Macromedia FreeHand: Macromedia Inc., 415-252-2000 or 800-326-2128. Circle 482.

Multi-Ad Creator: Multi-Ad Services Inc., 309-692-1530 or 800-447-1950. Circle 483.

Personal MacLAN Connect: Miramar Systems Inc., 805-966-2432 or 800-862-2526. Circle 484.

QuarkXPress 3.31 for Power Macintosh: Quark Inc., 303-894-8888 or 800-788-7835. Circle 485.

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