

# Adobe™ Acrobat 2.0™

## Beyond the bounds of paper

Wiegert Tierie

Adobe Systems Benelux B.V.  
Europlaza, Hoogoorddreef 54a  
1101 BE Amsterdam Z.O.  
The Netherlands  
wtierie@adobe.com

### 1 Introduction

Witness an exciting new development in the computer revolution. No longer content to *create* documents better, faster and cheaper, we've begun to look for ways to *use* documents better, faster and cheaper. We are in the midst of a shift from the paper trail to the information superhighway. While concepts like just-in-time and on-demand are familiar in referring to hard goods, we are just beginning to apply them to our truly liquid assets – information. Today, if you can move it, use it or manage it more efficiently than the next guy, you've got a competitive edge.

Consider the following:

- June 1993. The first copies of Acrobat are just rolling off the assembly line. Kenneth Grant and W. David Schwaderer wrote in the Adobe Acrobat Handbook, 'If the IRS used Acrobat, widely accessible income tax preparation forms would print on low-cost home printers, averting taxpayers' frantic trips to copy forms for last-minute filings.'
- Now roll ahead eight months: On February 21, 1994, *Business Week* reported, 'Say the Internal Revenue Service hasn't sent you an 8841 to request a deferred payment. Now, instead of scrambling to the nearest post office or IRS office, you can get digital copies of the forms sent directly to your home computer. CompuServe in Columbus, Ohio has arranged with the IRS and Adobe Systems to provide electronically any of the 450 federal tax forms over its on-line information service. First,

subscribers to CompuServe<sup>®</sup>, which is owned by H&R Block Inc., have to download a copy of Adobe Acrobat software from the network – offered at no charge during an introduction period. Then, by searching for keywords, such as ‘charitable gifts,’ subscribers can find just the form they want and have it sent to their computer. Acrobat then reproduces the form on any printer – including dot-matrix models – almost as they appear on paper from the IRS.’

- President Clinton presented the FY1995 United States Budget to Congress in Acrobat Portable Document Format (PDF) on CD-ROM.
- Tandem Computer sends price lists, data sheets, product brochures and standard forms to field offices in PDF on CD, providing instant access to all product marketing and sales information.
- Over 100 World Wide Web sites offer PDF documents on their Web server in sheets, product information, newspapers, forms, magazines etc.

These real-life scenarios illustrate the growing interest in electronic document software, products that let users create, view and print documents regardless of the computer, software or fonts used by the creator or available on the recipient’s machine. Adobe Acrobat software strikes the best balance between screen and paper versions of documents, with its ability to navigate, link, search, crop and rotate; and with its PostScript™ language-based resolution independence and high-quality output.

## 2 What is Adobe Acrobat?

Acrobat software puts documents to work electronically. Anybody can create, use, store, share, view or print them. With any computer, any application and any printer.

Acrobat guarantees that the document you create is the document everybody sees. The Portable Document Format (PDF) has the flexibility to describe the content and appearance of documents created with virtually any application for virtually any computer or printer. Acrobat Exchange and Reader are powerful tools for accessing and managing information.

Adobe Acrobat is a family of products – Acrobat, Acrobat Pro, Acrobat for Workgroups and Acrobat Catalog – designed to bring the power of electronic documents to a broad spectrum of users. Each product contains the right collection of components for a specific user’s needs (see ‘Getting Started with Adobe Acrobat’ later in this document).

The Acrobat Reader is the perfect tool for corporate and commercial publishers who distribute documents to large audiences. Acrobat Reader is included with all Adobe Acrobat products and can be freely distributed without charge to others. It allows recipients to view and print any PDF document they receive, and gives them access to all the annotations, bookmarks and links that are part of the PDF file.

The Acrobat Exchange program gives users the power to exchange documents with other Acrobat users. They can create, view, collate, navigate and print PDF documents. PDF Writer creates PDF files from any application by ‘printing’ to a file when a user

selects Print from the application's File menu. Included in Acrobat 2.0 is Acrobat Search, which provides full-text search capabilities for collections of PDF documents. Using Search software, users can quickly search indexed PDF documents for single words or terms, phrases and arbitrary character patterns specified with wildcard characters. They can also perform Boolean searches for documents that contain combinations of words and phrases.

Acrobat Distiller™ software lets individual and network users transform PostScript language files into PDF documents.

The Acrobat Catalog program creates full-text indexes for collections of PDF documents. For each word or term, the full-text index lists the documents and page numbers where the word or term is used. The Acrobat Search software uses full-text indexes to find words and terms in the documents quickly, without having to open the documents.

## **2.1 The flexibility to use any document, anywhere**

Electronic document programs facilitate document distribution for users who are working on other computers, without requiring the recipient to have access to the applications used to create the documents. Not only the text, but formatting, fonts, page layout and graphics appear on-screen precisely as they would if printed on paper.

Electronic documents should be a natural extension of the existing work flow. To an everyday business user, that means working with any word processor, spreadsheet or presentation package and creating an electronic document as easily as selecting the Print command. It means adding value by easily combining elements from multiple applications into a single document, regardless of page orientation, fonts used and so on.

Commercial publishers, writers, graphic artists and engineers create more complex documents using applications and fonts that make use of industry-standard Adobe PostScript technology. Their work flow is different and demands an easy way to turn documents created with the PostScript language into shareable electronic documents, with the ability to fine-tune the file size and quality parameters.

Consumers look for the ability to view and print any document – not just documents they create, but those they receive from a multitude of sources – at the best quality possible. The process should fit seamlessly into the existing work flow and should accommodate any document.

Who needs electronic documents? Anybody for whom the communication, time value or management of information is critical.

Commercial publishers distribute materials electronically with all the visual enhancements that in the past required printed media.

Business organizations exchange proposals and reports electronically, enhanced with charts, diagrams, bold text, bullets and indentation. Price lists, data sheets, contracts and administrative forms are distributed days sooner. Technical documentation, blueprints and research are stored, managed and accessed more efficiently.

Information is central to most organizations, and making information more useful creates a competitive advantage.

## **2.2 More direct access to information**

The power of information lies in the ability to use it. A fundamental benefit of electronic documents is enhanced access. Acrobat provides unparalleled facilities for finding and using information:

- Sophisticated full-text search allows users to find detailed information in thousands of documents – from the desktop, without assistance from reference librarians.
- Cross-document links add a new dimension to information access, linking disparate documents across the network and allowing information to be referenced and updated dynamically.
- Article threads automatically follow the story for ease of on-screen viewing.
- Bookmarks and links take the user to topics of interest.
- Thumbnails provide visual browsing and navigation.

## **2.3 Better ways to manage information**

These days, it seems to be a given that hard disk use and network traffic will expand to exceed whatever capacity is allocated. Adobe Acrobat provides an opportunity to ease some of the strain of managing the varied collections of information that any organization must deal with:

- Documents can be indexed on existing networks without changing the way they are organized or stored.
- Document security controls access and reduces the need for multiple copies of documents in different locations.
- Multi-user notes allow workgroups to review and comment on material electronically.
- Compressed, platform-independent files can be archived on a central file server or distributed on a multi-platform CD-ROM.

## **2.4 An extensible architecture to customize and add value**

Adapting electronic documents to an organization's work flow means tailoring products for unique environments. Acrobat Exchange 2.0 contains a complete set of Application Programming Interfaces (APIs) for creating plug-in modules, customizing the user interface and integrating with other products. Leading systems integrators are incorporating Acrobat products into a wide variety of information systems.

## 2.5 More ways to integrate with other products

In today's resource-conscious market, businesses are looking for ways to create custom plug-and-play solutions from off-the-shelf components. In addition to the comprehensive APIs, Acrobat supports industry-standard interfaces to provide integration and customization features to the broadest set of customers, even nonprogrammers:

- Lotus Notes<sup>®</sup> F/X support to seamlessly share field-level information with today's most popular workgroup application. The information in PDF Document Info fields is used by Lotus Notes to organize their display in Views, giving users a powerful way to browse and find information across the network.
- DDE, OLE 2.0 and OLE automation support. As an OLE server, the Acrobat program integrates with important Windows<sup>™</sup> applications.
- AppleEvent support to connect Acrobat with HyperCard<sup>®</sup>, FileMaker<sup>®</sup>, Microsoft<sup>®</sup> Excel, AppleScript<sup>™</sup>, and many other popular Macintosh<sup>®</sup> applications.

## 2.6 A platform for evolution

The PostScript page description language is a de facto standard that is the foundation of the Acrobat program's Portable Document Format. Device and resolution-independent Adobe PostScript technology ensures that the most important investment – content – will migrate effortlessly into the future. Adobe published the Portable Document Format just as it did the PostScript language definition, to guarantee that information is not locked into a proprietary and transitory format. Choose any platform, monitor or printer today – or ten years from today – and Acrobat documents will take advantage of the benefits they offer.

## 3 Technical overview

The goal of Adobe Acrobat is to reproduce any document (authored yesterday, today or tomorrow) as faithfully as possible, in a form that can easily be viewed, stored and distributed. Simple objective, many obstacles.

First, consider what's necessary to deliver on the goal:

- Create documents that handle any font or graphic, from applications that may no longer be marketed or may not yet be developed.
- Work with the hardware and software that users have or will have.
- Create small files.
- Perform well in networked workgroup environments.
- Assist users in navigating documents and finding the information they need.
- Help manage electronic content.
- Print to any printer – ImageWriter<sup>®</sup> to imagesetter.
- Provide an open, extensible and flexible file format

Now, a brief look at some of the problems and solutions in the areas of fonts, graphics, content independence and compression.

### 3.1 Platform coverage

Adobe Acrobat software is the only electronic document solution that works seamlessly in the DOS, Windows, Macintosh, and UNIX<sup>®</sup> environments. Because all Acrobat products are based on core code that describes a document's content independent of hardware platform or imaging model – and because the format is available as an open, published standard – users are assured that they will always have solutions tailored to their current computing environment.

### 3.2 The key to quality and longevity – content independence

The Adobe Acrobat program's file format is PostScript language-base – not a bitmap image of the page. Text is maintained as actual text characters in a specific font; graphics are maintained as lines and Bézier curves; images are maintained as monochrome, grayscale or color, just as they were in the original document.

Portable Document Format (PDF) is a published standard<sup>1</sup> and does not rely on QuickDraw<sup>™</sup> or GDI.

Why is this important? The market moves too rapidly to track improvements to hardware and software in a timely way – device and resolution independence enable documents to be displayed or printed at the full resolution of next year's device. If you print to an 800 dpi laser printer, your text and graphics will print at 800 dpi. If you zoom in to 538%, the text and graphics will render at exactly that resolution and give you the best quality possible. In addition, a published file format ensures the openness of the solution and enables third-party vendors to embrace Adobe Acrobat and the PDF file format standard to deliver a wide range of solutions based on Adobe Acrobat.

Sure, flexible document handling covers common office documents, the stuff we churn out daily on our trusty word processors and empty into dumpsters weekly. But the flexibility to handle any document means legacy data and 'high-end' graphics, too. The PostScript language is the turf of both power graphics users and technical specialists using sophisticated equation fonts. Some kinds of documents can only be printed to Adobe PostScript output devices. Complex graphic artwork and images in Encapsulated PostScript (EPS) language format must be processed by a PostScript interpreter to reproduce at their full resolution.

How does Acrobat deal with PostScript language files?:

- 'fi' and 'fl' ligatures in PostScript Type 1 fonts
- Handling of PostScript Type 1 fonts included in the PostScript language file
- PostScript Level 2 files, even where PostScript Level 2 is not supported

---

1. Bienz, Tim and Cohn, Richard. *Portable Document Format Reference Manual*. Adobe Systems Incorporated/Addison-Wesley Publishing Company, 1993. ISBN 0-201-62628-4.

- Search for text within an EPS graphic
- Print without loss of quality
- Compare the size of the original PostScript language file to the PDF document
- Recognition of PostScript page-size operators or commands; you shouldn't have to manually change the page size in the Page Setup dialog box each time you want to convert a PostScript language file that is a different size or orientation (Acrobat handles this task automatically)

How does Acrobat handle these experiments? Flawlessly. Not only are all characters in fonts correctly captured and displayed on Macintosh, Windows, DOS and UNIX systems, but they are not stored as bitmaps, so you can display and print them at any resolution. The following screen shot shows a zoomed-in view at 410% (Acrobat is not limited to discrete magnification percentages).

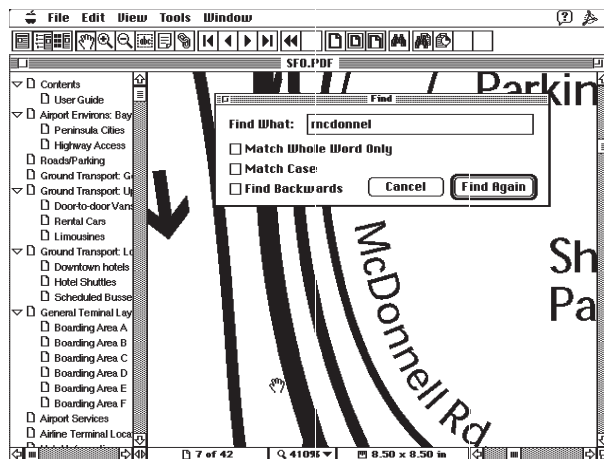


Figure 1: How does Acrobat handle any document you throw at it? Flawlessly.

### 3.3 Font handling

Fonts – their size, style and spacing – are the anchor of a document's appearance. Proper display of text is the toughest single problem in electronic document software.

Even users who have standardized on cross-platform applications and typefaces stumble over fonts when they try to share documents. Characters in fonts are referenced in platform-specific ways. Some characters are unique to a platform, such as 'fi' on the Macintosh. Acrobat handles font encoding intelligently to ensure that all characters are displayed properly regardless of platform. Further, Acrobat is the only electronic document program to offer full support for embedding both TrueType™ and Type 1 fonts. This document's Glossary contains useful information on font terminology.

There are three main approaches to representing fonts in electronic documents:

- Using local fonts
- Creating synthetic fonts (font substitution)
- Embedding the original font

Each approach involves tradeoffs among fidelity, performance and ease of use. Acrobat provides the full spectrum of options to meet the broadest set of user needs.

PDF files contain the names and metric information (called font descriptors) for all the fonts in the document. Adobe Type Manager™ (ATM™) or the native TrueType rasterizer rasterizes the requested font if it is available to the operating system; otherwise it creates substitute fonts based on font descriptor information in the PDF file. The layout, character spacing, graphics and general look of a PDF document are always preserved.

If a source document contains only the fonts installed with the Acrobat viewers, you don't have to worry about whether your readers have the fonts used in your document. But if your documents use other fonts, you can choose to let Acrobat create substitute fonts or to embed the fonts in the PDF file.

#### *Font substitution – for smaller files*

The Acrobat program's font substitution strategy creates synthetic fonts that closely simulate the appearance of unavailable fonts. It preserves exactly the spacing, alignment, stroke weights and other characteristics of the original font metric information stored within the PDF file. During the creation of the PDF file using the Acrobat PDF Writer or Distiller, the font metric information is extracted directly from the font itself (not the ATM font database, as people sometimes assume). Once the PDF has been created, the file itself is completely self-sufficient in terms of font metric information. The font metrics occupy only about 1K of space in the file, while embedding the entire font itself would use 25–30K.

ATM uses two special multiple master fonts to do font substitution: Adobe SansMM and Adobe SerifMM. Not available in application font menus, they were designed specifically to substitute for other fonts. Users can set preferences for substitution fonts to tune resource use versus quality. The default is both serif and sans serif, which uses both Adobe SerifMM and Adobe SansMM for font substitution.

#### *Font embedding – for absolute fidelity*

What about decorative fonts, such as Adobe Wild Type™, which preserve the document look but lose their communication punch when replaced by substituted fonts? Or TrueType fonts, which vary between Macintosh and Windows, and aren't available for UNIX? By embedding the actual font program into the PDF file, Acrobat Exchange/Reader can display the font exactly the same way on Macintosh, Windows, UNIX and DOS.





Figure 2: Acrobat uses the original font metrics and a multiple master font to preserve the characteristics of the original. On top is the original ITC Cheltenham<sup>®</sup> Condensed Bold font; below is the Acrobat substituted font, Adobe SerifMM.

The result? Type 1 or TrueType, simple or elaborate – not only are all characters in the font correctly captured and displayed on Macintosh, Windows, DOS, and UNIX systems, but they can be displayed and printed at any resolution (they are not stored as bitmaps). The following is a zoomed view at 410%.



Figure 3: Acrobat Exchange/Reader for Macintosh. Zoomed-in view (410%) of a document that was converted from a PostScript language file to PDF using Acrobat Distiller. Notice the 'fi' character and the high-quality appearance of the text, even at this odd magnification.

As with font substitution, several options allow users to balance file size with fidelity. New in Acrobat 2.0, the Acrobat Distiller embeds font subsets – only the characters used in the document – to reduce file size and improve viewing performance.

It's useful to understand how Acrobat handles symbolic fonts. During conversion to PDF, the outlines or actual font itself for the symbolic characters are placed into the PDF file. These character outlines are then used for on-screen display in Acrobat

Exchange or Reader. Below are 300-dpi scanned images of the printed output from Microsoft Word and Acrobat Exchange:

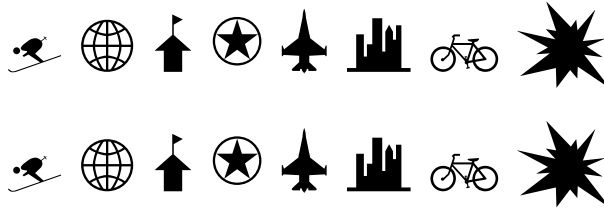


Figure 4: Top, original Word document (printed at 300 dpi) and below, Acrobat Exchange document (printed at 300 dpi)

Acrobat software properly displays symbolic fonts such as Carta™, because all the necessary font information (character shapes and metric information) are part of the PDF file and are guaranteed to be available for on-screen rendering and printing. (Acrobat does not rely on SuperATM™, which does not substitute for symbol fonts.)

Acrobat works with virtually any font; Type 1 and TrueType fonts can be embedded in PDF documents. Type 3 fonts are supported for printing and viewing – bitmaps are included in the PDF file.

Acrobat Exchange and Reader use the original TrueType font if the PDF file was created using the PDF Writer on that platform. The TrueType fonts in any original documents are converted by the driver to PostScript fonts (Type 1 or Type 3) if saved by a PostScript printer driver and converted to PDF by the Distiller. In this case, ATM does font substitution based on the font metric information in the PDF file. These fonts can be embedded by the Distiller.

In effect, you are embedding the Type 1 version of a TrueType font. (This is the case even if the named TrueType font is available to the operating system, because that font is designated as either a Type 1 or Type 3 font in the PDF file.)

### 3.4 File size

Space is precious. A successful electronic document needs to be as small as possible within the confines of the creator's quality requirements. Several factors affect file size.

Compression results in smaller PDF files. Acrobat employs a variety of methods to tailor the file size to user needs:

- Text, graphics (line art) and indexed color images are compressed using the LZW method.
- Color/grayscale images are compressed using the JPEG (Joint Photographic Expert Group) method. This is a lossy compression method; data is removed from the image to produce the compression.

- Image downsampling removes pixel information to decrease resolution and reduce file size.
- Font subsets maintain perfect fidelity by embedding only the characters used in a document.
- Monochrome images are compressed using one of four methods. The default CCITT Group 4 method provides the greatest compression in most cases. CCITT Group 3 compresses monochrome bitmaps one row at a time and is used by most fax machines. LZW produces the best compression for images that contain repeating patterns. Run Length produces the best results for images that contain large areas of solid white or black.

Acrobat 2.0 defaults to a binary file format (retaining the option for ASCII) to further reduce file size and provide more reliable file transfer in certain environments.

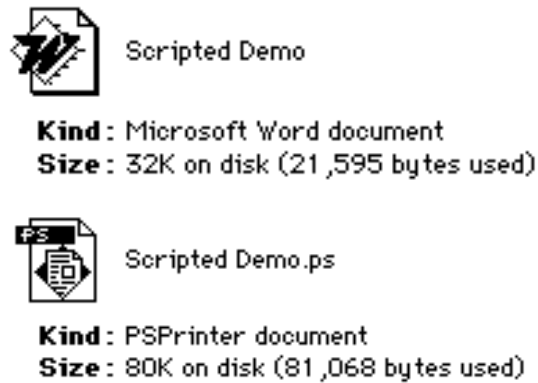


Figure 5: A typical Microsoft Word file and the resulting intermediate PostScript file.



Figure 6: The resulting PDF file is less than half the size ( $9,660/21,595 = 45\%$ ) of the native Word file.

Where appropriate to the content, Acrobat 2.0's cross-document linking capability allows information to be broken up into separate files with links to related information.

## 4 Getting started with Adobe Acrobat

|  | Use                               | If you  | For   |
|--|-----------------------------------|---|---|
| Acrobat  | <b>Reader</b>                     | Consume information provided by others (without comment)  | Browsing using links, bookmarks and thumbnails; printing  |
|  | <b>Exchange/PDF Writer Search</b> | Review others' documents  | Browsing and printing (as above) as well as adding notes, cropping, rotating, adding navigation |
|  |                                   | Create and receive a wide variety of documents  | "Printing" memos, reports or graphics directly from your application to shareable PDF files     |
|  |                                   | Collate and distribute documents from multiple platforms or application                                   | "Electronically stapling" pages from many documents; drag-and-drop page placement               |
| Acrobat Pro  |                                   | Need instant access to detailed information in multiple documents   | Performing sophisticated searches of PDF document indexes                                       |
|  | <b>Distiller</b>                  | Create documents with today's page layout, graphics and image editing software                            | Maintaining the high quality of PostScript language graphics, images and Type 1 fonts           |
|  |                                   | Need to distribute documents created on mainframes to PC and workstation users                            | Translating legacy documents to shareable PDF files   |
| Need to maintain the high quality of PostScript language graphics, no matter what platform they're viewed on |                                   | The best resolution each computer can offer and the greatest flexibility in content and platform coverage |   |
| Acrobat for Workgroups   | <b>Catalog</b>                    | Manage large volumes of information on a network  | Automatically building on-line indexes of all PDF documents                                     |
| Acrobat Catalog  |                                   |   |   |

Figure 7: An overview of the Adobe Acrobat product family

### 4.1 Acrobat Exchange (included in all Acrobat products)

The Acrobat Exchange program gives you the power to exchange documents with other Adobe Acrobat users. With it, you can create, view, collate, navigate and print PDF documents. PDF Writer creates PDF files from any application by 'printing' to a file when you select Print from the application's File menu. Included in Acrobat 2.0 is Acrobat

Search, which provides full-text search capabilities for collections of PDF documents. Using the Search software, you can quickly search indexed PDF documents for single words or terms, phrases, or arbitrary character patterns specified with wildcard characters. You can also search for documents that contain combinations of words and phrases.

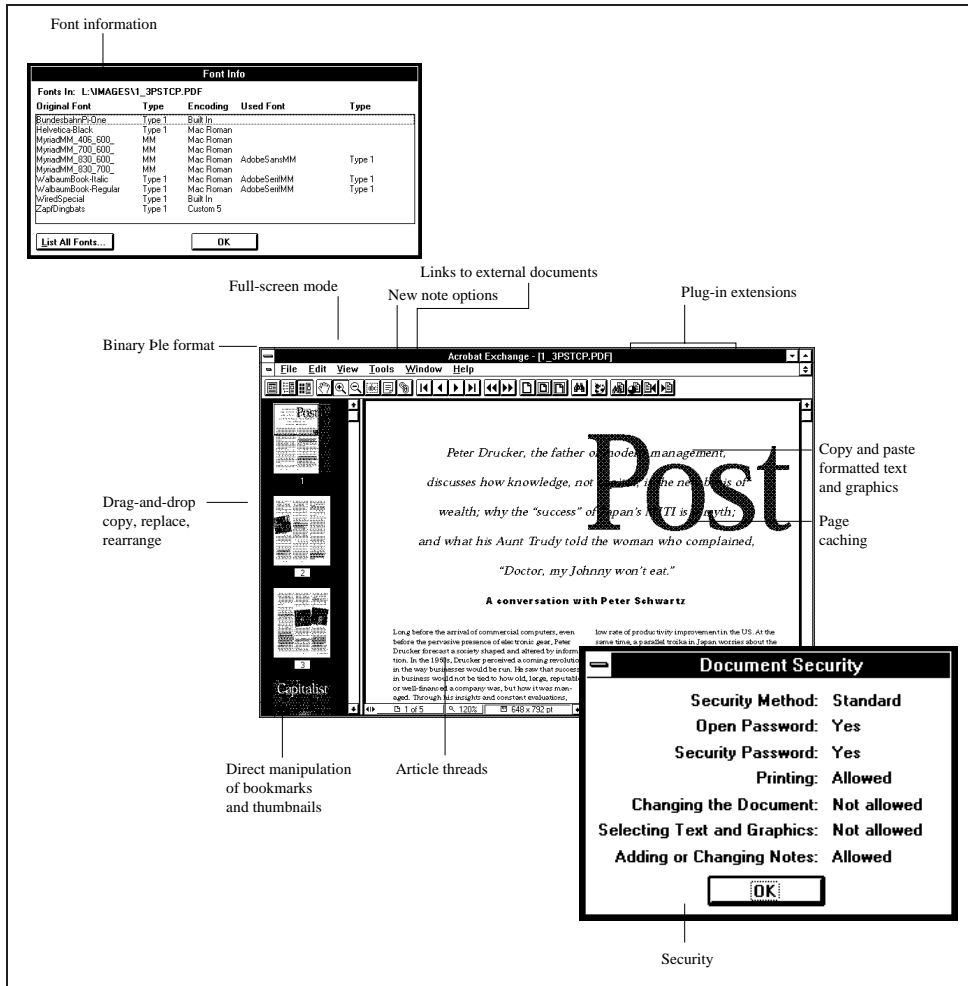


Figure 8: Acrobat 2.0 at a glance.

#### 4.2 Acrobat Search (included with Acrobat 2.0)

Acrobat Search software gives you full-text search capabilities for collections of PDF documents that have been indexed with the Acrobat Catalog program. Acrobat Search

uses full-text indexes to find words and terms in the documents quickly, without having to open the documents.

Using Acrobat Search, you can quickly find indexed PDF documents for single words or terms, phrases or arbitrary character patterns specified with wildcard characters. You can also perform Boolean searches for documents that contain combinations of words and phrases. Unlike most other full-text search products, Acrobat Search software can find words and terms in illustrations, graphs and formatted tables. It can even find words that are rotated or attached to a curved line.

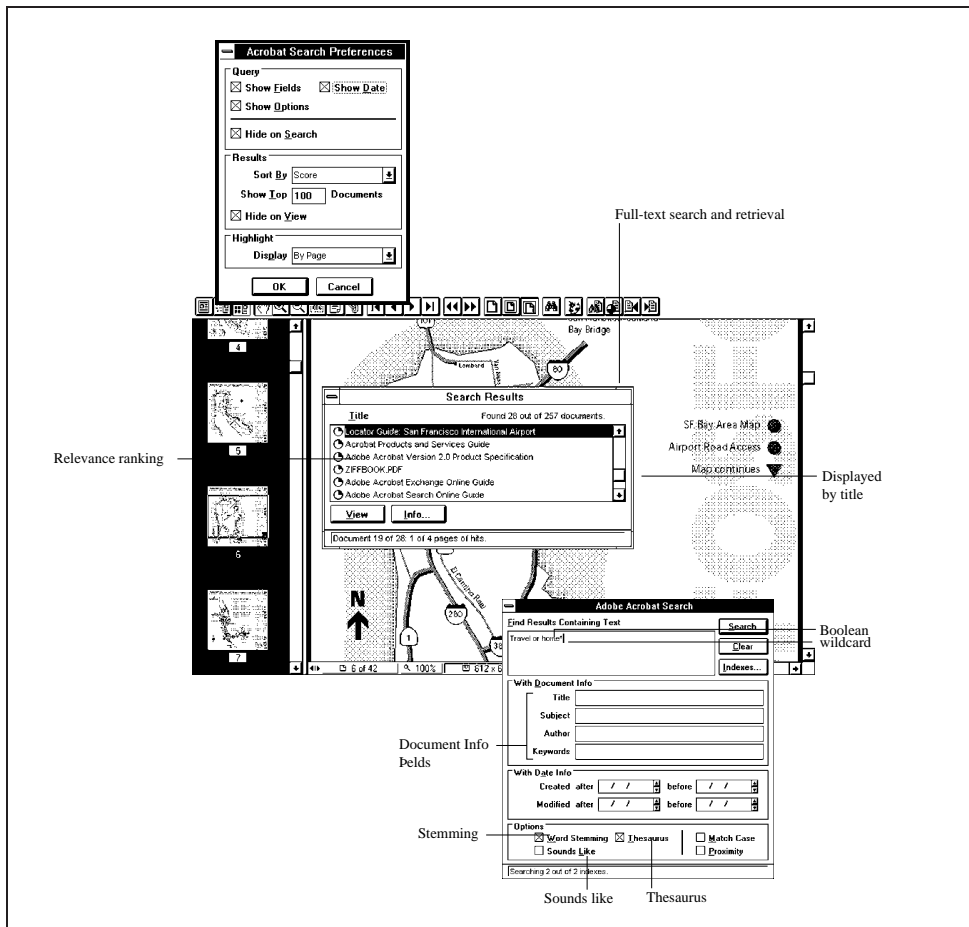


Figure 9: Acrobat Search provides powerful data access.

### 4.3 Acrobat Distiller (included with Acrobat Pro and Acrobat for Workgroups)

The Acrobat Distiller program creates PDF files from virtually any document that has first been saved as a PostScript language file. Distiller is recommended for high-quality reproduction of EPS artwork, 24-bit images and documents that take advantage of features (such as blends) that are only available on Adobe PostScript printers.

### 4.4 Acrobat Catalog (included with Acrobat for Workgroups)

The Acrobat Catalog program creates full-text indexes for collections of PDF documents. A full-text index (also referred to as an 'inverted word list') is an alphabetized list of all the words and terms that are used in a collection of documents. You can, for example, build an index for all the PDF documents on a CD-ROM. You can also point Acrobat Catalog at your largest network file server and automatically build an on-line index for all the PDF documents. As documents are added, modified or removed, the index is updated incrementally to ensure that you always search against the files currently on the network. When used with indexes built for large PDF document collections, Acrobat Search enables users to search hundreds or thousands of documents in seconds.

## 5 Glossary

**article threads** Documents in which text is in columns or otherwise separated and can be 'threaded' so that the reader can follow the flow. Acrobat Exchange automatically scrolls, centers the view and travels to additional pages in the thread.

**bookmarks** Used to mark parts of a document for quick access. Bookmarks are listed in the overview area of the Exchange window to locate hard-to-find or often-used information, or to create a custom outline of a document. Clicking a bookmark displays the location marked by that bookmark. Bookmarks can have the same actions as links (see that entry).

**CCITT** An abbreviation for the International Coordinating Committee for Telephony and Telegraphy standards body.

**CCITT Group 3** A lossless compression method used by most fax machines that compresses monochrome bitmaps one row at a time.

**CCITT Group 4** A lossless compression method used by fax machines and applications that compresses groups of monochrome bitmaps.

**downsampling** Deletes pixel information in an image to decrease resolution and reduce file size.

**Encapsulated PostScript (EPS)** An EPS file contains PostScript page description language information and maintains the full image quality across applications and output devices.

**font encoding** Characters in fonts are referenced in different ways depending on the computer platform. The way Windows 3.1 finds a lowercase 'a' in a font is different

from the way Macintosh or Sun™ workstations find the lowercase 'a' in the same font.

**font formats** Include Type 1 fonts, Type 3 fonts, multiple master fonts, TrueType fonts.

**font metrics** Specify character widths so applications can determine line lengths. There are two general types: integer metrics and fractional metrics. Font metrics also store kerning information. Kerning is an optional adjustment factor for the spacing between two characters. A positive kerning value moves characters apart; a negative value moves characters closer together.

**font substitution** PDF files carry information about the fonts used in a document without actually including the font. Acrobat substitutes a multiple master font to maintain the look and feel of the original document.

**full-text index** An alphabetical list of all the words and terms used in a collection of documents. Also referred to as an inverted word list.

**JPEG (Joint Photographic Expert Group)** Provides significant compression of color and grayscale images. It is a lossy compression method; data is removed from the image to produce the compression.

**ligature** Two or more letters tied into a single character. The sequences 'fi' and 'fl', for example, form ligatures in most serif typefaces.

**links** 'Hot' areas or text on a document page that the user clicks to travel to an associated destination. Links can go to another view or page in the document or another PDF document; open another file or program; or perform an arbitrary action defined by a plug-in.

**LZW (Lempel-Ziv-Welch)** A lossless compression method that is useful for data containing repeating patterns.

**multiple master fonts** Allow automatic copy fitting by starting with predetermined base designs and manipulating width, weight and optical scaling to create all other occurrences of the font.

**page caching** Storing already viewed page images in memory to improve display performance.

**Portable Document Format (PDF)** The key to cross-platform functionality of Adobe Acrobat products is a unique PostScript language-based file format. PDF is an open standard that Adobe Systems documents and publishes for use by software developers.

**proximity** The Proximity search option changes the way found documents are assigned a relevance ranking. With the Proximity option selected, the closer the words are together in a document, the higher the relevance ranking.

**Run Length Encoding** A compression method that produces the best results for images containing large areas of solid white or black.

**sounds like** An Acrobat Search option that finds incorrect spellings of a search word. Searching for misspelling, for example, also finds misspelling.



- stopwords** Terms that are excluded from a full-text index. Common examples are articles, conjunctions and prepositions.
- thesaurus** An Acrobat Search option that finds words that have the same meaning as the search word. Searching for *crypt*, for example, also finds *mausoleum*, *sepulcher* and *tomb*.
- thumbnails** Miniature pages in the overview area of the Acrobat Exchange window that allow users to jump quickly to a page; adjust the view of the current page; and move, copy and replace pages in a PDF document.
- TrueType fonts** Come in two forms on the Macintosh: bitmap and outline in one unit, or bitmap only in one unit. They are converted to Type 1 or Type 3 fonts by the PostScript printer driver when a PostScript language file is generated.
- Type 1 fonts** Actually PostScript language programs, they were the first outline fonts. They are called outline fonts because each character is described mathematically as a collection of lines and curves that form the character's outline.
- Type 3 fonts** Usually bitmap format instead of outline format. They are usually not hinted and tend to have lower quality than Type 1 fonts. Type 3 bitmaps are included in the PDF file. Type 3 fonts are PostScript fonts that do not work with ATM; they allow use of the full PostScript language, and ATM is not a full PostScript interpreter. Type 3 fonts are not hinted, resulting in poorer quality for screen display and when printing at small point sizes, and can exist in bitmap or outline form. They are useful for complex or ornamental fonts or logos, but they require more time for a printer to image.
- wildcard characters** Characters used in a search to find all the words that contain a word fragment, or all the words and terms that match an arbitrary character pattern. The wildcard characters are the asterisk, which matches zero, one or more characters; and the question mark, which matches any one character.
- word stemming** An Acrobat Search option that finds all the words with a common stem. With word stemming enabled, searching for *manager* also finds *manage*, *managed* and *managing*.

Adobe, the Adobe logo, Acrobat, the Acrobat logo, Adobe Type Manager, ATM, Carta, Distiller, PostScript, SuperATM and Wild Type are trademarks of Adobe Systems Incorporated which may be registered in certain jurisdictions. ITC Cheltenham is a registered trademark of International Typeface Corporation. Apple, ImageWriter and Macintosh are registered trademarks and AppleScript, QuickDraw and TrueType are trademarks of Apple Computer, Inc. FileMaker and HyperCard are registered trademarks of Claris Corporation. Microsoft is a registered trademark and Windows is a trademark of Microsoft Corporation. UNIX is a registered trademark in the United States and other countries, licensed exclusively through X/Open Company, Ltd. Sun is a trademark of Sun Microsystems, Inc. QuarkXPress is a registered trademark of Quark, Inc. CompuServe is a registered trademark of CompuServe Incorporated. Lotus Notes is a registered trademark of Lotus Development Corporation. All other brand or product names are trademarks or registered trademarks of their respective holders.

|                            |                            |
|----------------------------|----------------------------|
| Adobe Systems Incorporated | Adobe Systems Benelux B.V. |
| 1585 Charleston Road       | Europlaza                  |
| P.O. Box 7900              | Hoogoorddreef 54a          |
| Mountain View              | 1101 BE Amsterdam Z.O.     |
| California 94039-7900      | The Netherlands            |
| USA                        |                            |

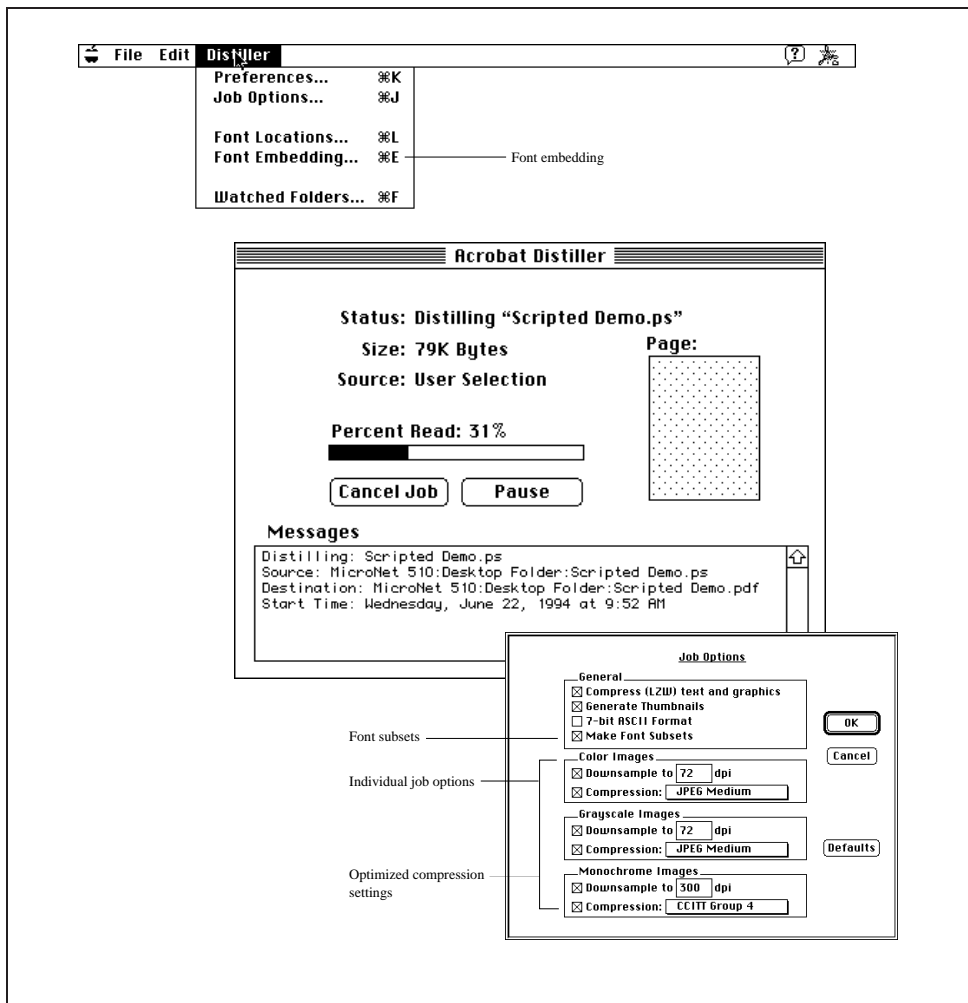


Figure 10: Acrobat Distiller creates PDF files from virtually any document – created on DOS, Windows, Macintosh, UNIX or mainframe machines.

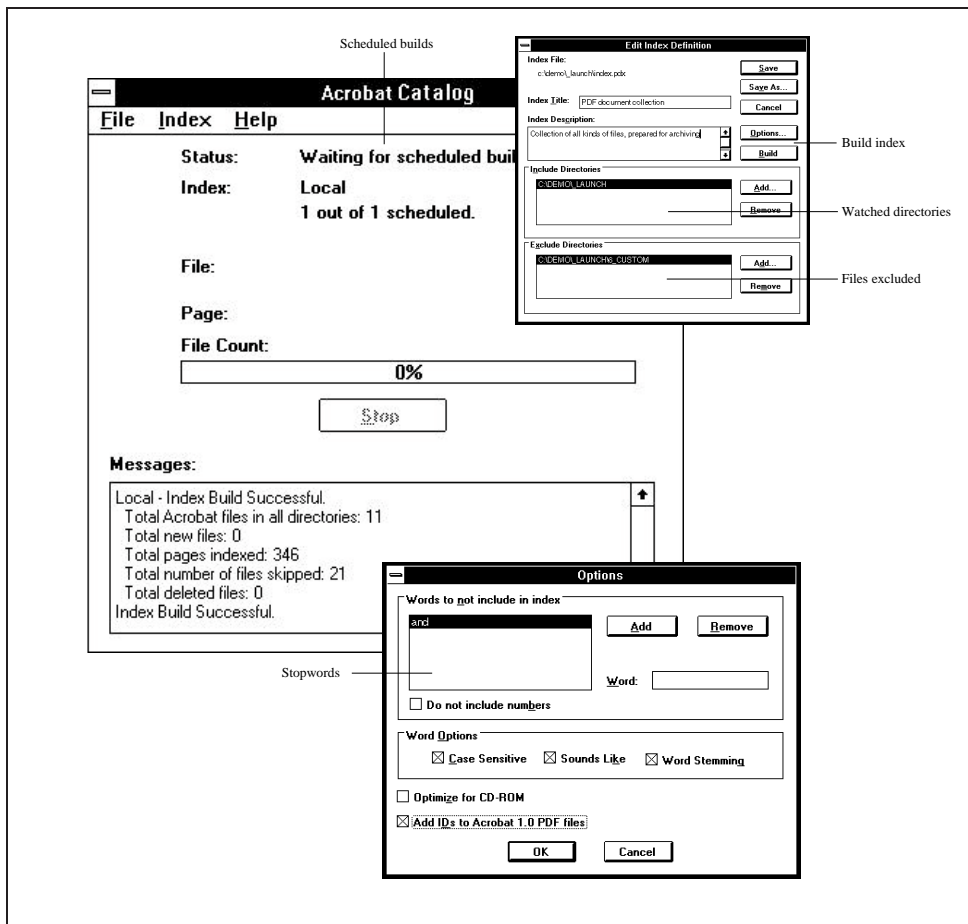


Figure 11: Acrobat Catalog manages large volumes of information on a network.