

# Portable Document Format (PDF): Standardizing Document Files for Publication

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## Abstract

Just a few years ago, publishers used to send camera-ready copies of their manuscripts to printers who then used process cameras to copy those pages onto film, make proofs, create plates, and print the books. That scenario has now completely changed. Publishers are presently sending what would be considered 'print-ready' manuscripts files on diskettes or CD-ROMs or uploading the files electronically to commercial printing companies. The printing companies work with those files in creating proofs and producing the final products. In this scenario, the Portable Document Format (PDF) is playing a significant role in the production and distribution of both electronic and printed books. The PDF is emerging as a stable standard file format for the publishing industry.

## 1. INTRODUCTION

One of the problems with electronic document files is that publishers tend to use a variety of platforms, multiple word-processing, layout, and graphics softwares in creating their press-ready files. Examples of the platforms include Windows, Macintosh, and Unix operating systems. Word-processing software include Microsoft Word or Corel WordPerfect; layout software includes PageMaker, Adobe FrameMaker, QuarkXPress, etc.; graphics software include Adobe Photoshop; and illustration software include Adobe Illustrator and Macromedia FreeHand, etc. This complexity is compounded by the fact that different publishers are likely to have different updates or versions of these tools. In addition, publishers employ virtually unlimited hardware configurations, which include different computer processors, computers, printers, and associated peripherals.

Such complexity creates headaches for the printers. Some of the print-ready files, for instance, behave differently with different

hardware—e.g., page breaks may occur at different places than intended or the images may be misaligned. Because of these problems, there is a need for standardising the print files that will remain robust when loaded into different computer platforms and configurations.

One of the solutions for this dilemma is the development of a standardised and stable file format that facilitates the management of information. One of these stable file format standards is the Portable Document Format (PDF) file. PDF was developed in 1985 by Adobe Systems, Inc. as a means to produce electronic documents that are device independent. The PDF was derived from another Adobe innovation, PostScript, a page description language. PDF is highly effective as a prepress tool for managing files for printing production.

PDF files are created from Acrobat Distiller or PDF Writer. Once a PDF file is created, it can be distributed electronically via the web or as a file accessible from storage media. The file can then be opened in Acrobat

Reader, a program that can be downloaded free from Adobe (<http://www.adobe.com>). In contrast, Acrobat Distiller, PDF Writer (both of which are used to produce PDF files), and Exchange (a PDF editing program) are licensed programs. Purchasing the full version of Acrobat presently costs about \$180 or more for a single license. For educators and students, the current price is slightly over \$100. The package also includes an easy to follow tutorial.

Version 5 is the most recent version of Adobe Acrobat. This version includes Acrobat Distiller, which is used to produce PDF 1.4. The source of the PDF file can originate from a word-processed document, a desktop published document, a CAD drawing or a graphic image file and PDF maintains the quality of the original form containing text and pictures.

The PDF file facilitates publishing in a number of ways. These include document or book production, eBook production, archiving, and exchange by e-mail or fax. Another capability of PDF documents is in adding hyperlinks to extend the content options. For instance, in a technical document containing specific terms or references to other documents, the reader would have the option of using a mouse to point to the hyperlink. The browser icon (in the shape of a hand)

appears on the computer screen when the mouse pointer cursor passes over the hyperlink. Clicking on the link would take the reader to a web page, a presentation, a video, another PDF file or any file that is compatible with Acrobat's system of access.

## 2. DOCUMENT PRINTING OR BOOK PRODUCTION

Commercial printing companies have specific expectations in the preparation of files. The condition of the file must be 'print-ready' or 'press-ready'. Ideally, that means having a file prepared with all of the fonts and graphics included. The state or condition of the file should be in a completed form so that it can be RIPed (where RIP is a Raster Image Processor, a hardware that digitally produces the layout directly on film, plate or press) without additional files. Most printing companies prepare guides that provide recommendations for electronic document preparation for printed reproduction when using Adobe Acrobat Distiller.

When distilling a file in page layout programs, there are optimization options for the preparation of files for printed reproduction. By choosing the Job Options command in the Settings menu, preset options from Adobe or customized settings can be applied to the distilled file. (Figure 1)



**Figure 1. Dialog box after starting Adobe Distiller and clicking on the Settings menu command—Job Options.**

Figure 1 displays the dialog box that appears after starting Adobe Distiller and clicking on the Settings menu command, Job Options. The other options—Press, Print, Print-Book, and Screen are pre-set by the software manufacturer. Custom settings can be applied based on the equipment being used at the printing plant.

### **3. DOCUMENT DISTRIBUTION AS eBOOKS**

Acrobat, version 5.0.2, also provides an option for the production of eBooks, thus making it possible to store electronic publications. When producing a document using page layout applications such as QuarkXPress, Adobe PageMaker, Adobe InDesign, or Adobe FrameMaker, options for converting the document file into an eBook file (or other PDF files) are present since Acrobat Distiller is included in the software package. The Acrobat version 5.0.2 prepares documents for access from Palm Pilots computer technology also.

The portability and storage of eBook documents provide enormous flexibility to the publishers, authors, users, and libraries. eBooks allow the publishers to save on printing costs especially on books containing fast-changing information. For instance, it is expensive to anticipate the demand for manufacturers' catalogs, print thousands of paper copies, and distribute them by mail. Typically, information contained in those catalogs is outdated by the time they are printed. On the other hand, making those catalogs available as eBooks allows the manufacturers to keep their catalogs current. The same is true with book publishers. Book publishing is risky from the perspective of anticipating the demand. More often than not, publishers overestimate the demand for the publications and end up having to discard unsold copies of their books. eBooks help the publishers avoid that problem. In addition, at a nominal cost, the eBooks can be updated in terms of changing obsolete information and correcting errors. For the authors, eBooks provide an independent avenue of making their publications available to the public. They

can load the files on their own websites and make them available for free or for a fee.

eBooks offer significant benefits to the libraries also. Some of these benefits are:

- Reduced need for physical infrastructure in the form of buildings and square footage for ever-growing print information
- Accessibility of information to users on twenty-four-hours-a-day and seven-days - a-week (24/7) basis
- Ability to access information from remote location by internet—i.e., freedom from having to be present in a physical location
- Improved search and retrieval capabilities
- Improved ability on the part of users to integrate the information from multiple sources (cut and paste of information)
- Flexibility in meeting the needs of library clientele. For instance, specific content could be made available to the users on internet.

### **4. DOCUMENT SHARING THROUGH E-MAIL AND FAXING**

Many libraries offer document delivery services to their clientele such as mailing or faxing journal article or book chapters. Likewise, many corporations and governmental organisations need to share their documents with their customers. For instance, US taxpayers have a need to access US Internal Revenue Service forms at the tax-filing time. PDF allows individuals and institutions to make such documents easily accessible to those who need them. In many instances, fill-in-the-blanks forms are available on the internet making it easy to fill-in the forms and mail or e-mail them to the appropriate offices.

PDF files containing high quality text and graphics can be sent as efficiently as an e-mail attachment and just as easily as a fax. Anyone who has access to Adobe Acrobat Reader can easily open the PDF e-mail attachment. Upon opening the PDF file in Acrobat Reader, he or she may read it on the screen or print it directly. Notably, the versatility of the PDF file is evident in viewing it from a web browser. This efficiency of

preparing and sending PDF files as an attachment to e-mail messages, in fact, supersedes the necessity of sending them by fax.

Once a person receives a PDF file, it is viewable from Acrobat Reader directly or viewable from a web browser containing Acrobat Reader as a plug-in. (The plug-ins are additional files that extend the capabilities of the existing software program.) When viewing on a Web browser, such as Microsoft Explorer or Netscape Navigator, the Acrobat Reader plug-in becomes active, allowing the person viewing the document to read it on-screen, save it as a file or print it on paper. Organisations, such as the Digital Printing & Imaging Association (DPIA) are distributing news to their members on the web as a PDF file. Archives of past issues are also available as PDF files that show the layout, text, graphics and color as they appeared in print.

## 5. CREATING PDF FILES

Following are the three methods for generating PDF files:

- (a) Generation from the application directly
- (b) Creation from a Postscript file, and
- (c) Printing to a PDF printer driver.

Some of the softwares needed for producing PDF such as Acrobat Distiller and PDF Writer must be installed on the computer hard drive. PDF files can also be produced from Web browsers such as Microsoft Internet Explorer and Netscape, Computer-Aided Design (CAD) software, and word and image processing applications. Any program that features a Print command can produce a PDF file.

For preparing a PDF file, the following three methods can be used:

### 5.1 Adobe PageMaker

- (a) PageMaker has a useful plug-in for quick imposition of book layout files. Located in the Utilities menu, the Build Booklet command can be used to apply book imposition settings. Once the book file is prepared and ready for conversion to PDF, the Build Booklet utility can be applied to

the book layout file. If the production is done in-house, customised or specific settings that are necessary to achieve high quality must be determined through a series of pre-production tests. Using the most recent version of PageMaker (version 7), save the completed layout file and choose, from the File menu, the Export command.

- (b) The Export command launches Acrobat Distiller—an application that will generate the PageMaker layout into a PDF file. It should be noted that in the dialog box, we will see a Save command button. Be alert for the drive and directory our PDF file will be saved to. This makes it easy to locate the PDF file when sending it as an e-mail attachment.
- (c) The Distiller dialog box opens.
- (d) Preview the PDF version of our page layout in Acrobat Reader to make sure that our document is formatted properly.

### 5.2 Adobe InDesign

Adobe InDesign features the quickest solution to producing a PDF file.

- (a) Choose the Export command from the File menu.
- (b) Point and click on the PDF option. This will produce the PDF file directly without having to have Acrobat Distiller. Notice the drive and directory where the PDF file is saved.
- (c) Preview the PDF version of InDesign layout in Acrobat Reader.

### 5.3 QuarkXPress

- (a) While the Quark document is open, click open the Chooser dialog box from the Apple System's menu.
- (b) Point and click on the Acrobat PDF Writer printer driver icon in the Chooser dialog box. Doing this will make PDF Writer the active printer driver whenever choosing the Print command from QuarkXPress.
- (c) Choose the Print command and examine the contents of the Print dialog box. We can see an Acrobat PDF Writer dialog box appear over the QuarkXPress Print dialog box.

- (d) Decisions about the number of pages needed and options such as automatically launching Acrobat reader to view the PDF file or naming it using the DOS file naming conventions are presented in the PDF Writer dialog box. The DOS file naming conventions are useful when sending files from the Macintosh to Windows users.
- (e) After naming the PDF file and saving it to the hard drive, open the file in Acrobat reader to make sure the document formatted properly. Then we can close QuarkXPress and send the PDF file as an e-mail attachment.

## 6. PRODUCING PDF FILES

For the time being, PDF files produced today are distributed and accessed in a variety of methods—downloads from a web server or accessed from CD-ROM.

The Job Options setting in Acrobat Distiller presents four options: eBook, Press, Print, and Screen. Each has Adobe's recommended settings that are accessible from the Distiller menu bar by choosing the Job Options menu. The first step in preparing PDF files for use as an eBook is set the Acrobat Distiller Job Options section of the Distiller dialog box. Adobe recommends using the eBook PDF Job Options setting instead of the Screen option for a higher quality display setting.

Once we have installed Acrobat, producing a PDF file becomes quite easy using tools that are part of our daily routine. Most of us are using word processors, desktop publishing programs, drawing programs, or other applications running on graphical systems such as Windows or Macintosh. PageMaker features an Export command that will launch Acrobat distiller to produce a PDF file. Adobe's latest page layout program, InDesign, produces a PDF file directly when using the Export command without having to have Acrobat Distiller. Adobe also has FrameMaker 7.0. This page layout application has been around since 1987 and offers WYSIWYG authoring as found in current publishing applications. It is designed for commercial publishers that produce extensive documents for the web, print, CD-ROM and

PDA. Since FrameMaker is an Adobe product, PDF file generation is included as an option.

Quark includes a PDF file option available with QuarkXPress (versions 5 and 6). This is indicative of the trend that other software manufacturers outside of Adobe are accepting PDF as a file format standard.

Aside from archiving documents as a purpose for producing PDF files, the PDF files would be a source to pull files from archives for the production of books as needed. The concept of on-demand printing works hand-in-hand with the PDF file. Frequent revisions of books or overstocked inventories contributed to high expense areas that can be minimized by storing books as PDF files.

## 7. CONCLUSION

The PDF file is an effective method of preparing documents that are independent from the original program used to create them. For instance, a file, which was originally created in PageMaker, when distributed as a PDF version, can be viewed and printed without having access to the PageMaker program.

Moreover, the PDF format provides researchers a means to store, retrieve, and distribute reports and increases the efficiency of electronic document handling.

As Acrobat matures, it will be useful in reproducing high quality colour documents for the printing industry. It is currently effective for soft proofing colour page layouts from the computer monitor or highly effective for archiving and distributing books. Another application is in the production of documents for cross media publishing. This is an emerging segment of the printing and publishing industry. For example, softwares such as InDesign, FrameMaker, or XPress not only are capable of producing PDF documents but also are capable of preparing files for web distribution by having Extensible Markup Language (XML) as an option. The repurposing of electronic documents for cross media publishing as a means for distribution using print on paper, CD-ROM, PDA, and

web, is now in place in the software design of each of these major page layout programs.

There are user groups that deal with such issues as providing digital content from the web. Open eBook Forum is an excellent resource for those managing digital content.

However, the question persists—will the PDF file created today be readable from computer systems in the future? The answer to this question is dependent on Adobe maintaining a system that recognizes generations of PDFs with a ‘fail safe’ plan that will maintain the integrity of historical electronic documents and publications for future viewing and printing.

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