REQUIREMENTS FOR CREATING PDF DOCUMENTS FOR IEEE XPLORE® FOR CONFERENCE ORGANIZERS AND VENDORS

INCLUDING A
TECHNICAL APPENDIX

VERSION 3.2

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IEEE CONTENT ENGINEERING

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15 December 2003	Final	3.2	Divided into two parts. The first part is for authors. It defines compatible PDF files The second part is for conference organizers and vendors. It defines the requirements for compliant PDF files. This section also defines the requirements for PDF version 1.5 (Acrobat 6) and the settings (job options) file.
6 August 2003	Final	3.1	Defines requirements for PDF version 1.5 (Acrobat 6) files.
25 June 2003	Final	3.0	Combines author and technical documentation into a single specification. The technical information is in an appendix. Includes screen captures for Acrobat 5. Adjusts Acrobat 5 Compression settings. Summarizes requirements for links and bookmarks.
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18 May 2001	Final	2.1	Summarizes PDF parameter settings; describes the requirements for scanned PDFs.
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DOCUMENT OVERVIEW

The purpose of this document is to define the requirements for creating IEEE Xplore® compatible PDF files. The main audience is conference organizers and vendors. Authors with a technical understanding of PDF creation may find this document useful as well.

Part I, author's guide, provides a summary for creating IEEE Xplore® compatible PDF files. Part II, detailed requirements, shows other settings that improve the overall quality of the PDF file. An appendix provides more detail and suggests ways of verifying the files. IEEE tests all PDF files *only* for IEEE Xplore® compatibility.

Most conference vendors are particularly interested in verification of the PDF files. They realize the only place to fix PDF files is in authoring stage. By the time the files reach IEEE, authors frequently no longer have the manuscript file and graphics so fixing the file is not possible.

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One commonly available tool is Adobe Acrobat. This document uses it as an example of how to create acceptable PDF files. Other tools can create similar quality PDF files.

The requirements set forth in this document change infrequently. When they change, it is usually due to including a new PDF version or describing new services. If in doubt about whether this document is up-to-date check www.ieee.org/confpubcenter.

PART I:
Author's Guide for Creating PDF Files For IEEE Xplore®

SIMPLIFIED REQUIREMENTS FOR CREATING PDF FILES FOR IEEE XPLORE®

Introduction

This document summarizes how to create IEEE Xplore® compatible PDF files. To create these files requires attention to (1) how the manuscript is created, (2) how the files are converted to PDF (Acrobat is used as an example), and (3) how the fonts are embedded and subsetted.

Tips for Creating the Manuscript

Graphics

- The manuscript's graphics should have resolutions of 600dpi for monochrome, 300 dpi for grayscale, and 300 dpi for color.
- Graphics should be inserted into the manuscript file rather than using cutting and pasting.
- Do not link to a graphic. Instead, insert the graphic into the manuscript.

Fonts

- The manuscript must use fonts that allow embedding and subsetting (including the base fonts). Failure to embed and subset fonts is the biggest obstacle to PDF compliance with IEEE Xplore®.
  - All Type 1 fonts are embeddable.
  - Only some TrueType fonts are embeddable. See the next page for more information.
- Do not embed fonts in a graphic file.

Tips for Creating PDF Files for IEEE Xplore

- An electronic file containing the complete Distiller job options (settings) files for Acrobat 6, Acrobat 5, and Acrobat 4 can be downloaded from www.ieee.org/confpubcenter. The download includes instructions for installing the job options files.
- **DO NOT** use password protection in the PDF file.
- All fonts, including the standard (base) fonts, must be embedded and subsetted in the PDF. *If using one of the job options files from* www.ieee.org/confpubcenter *a PDF file is not created unless all the fonts are embedded and subsetted.*
- In "Settings ->Job Options ->Compression" of Distiller set the downsampling resolution to 600 dpi for monochrome, 300 dpi for grayscale, and 300 dpi for color[1].

NOTE: *PDF files created with the setting file from* www.ieee.org/confpubcenter *and Acrobat 6 Distiller are acceptable. Once the PDF file is created it must* ***not*** *be saved with either Acrobat 6 or Acrobat 6 Reader.*

[1] The complete compression settings are as follows. For grayscale and color images: (1) Resampling: Bicubic downsampling at 300 dpi, (2) Compression: JPEG, and (3) Quality: Medium. For monochrome images: (1) Resampling: Bicubic downsampling at 600dpi, and (2) Compression: CCITT Group 4.

How to Check the Fonts

Adobe Acrobat users can check for font embedding and subsetting by following the steps below. Failure to embed and subset fonts is the biggest obstacle to PDF compliance with IEEE Xplore®.

Using Acrobat or the Acrobat Reader[2]

Follow the steps below with either Acrobat or the Acrobat Reader to check if all the fonts are successfully embedded and subsetted.

1. (*Skip this step if using the Acrobat Reader)* Under the View menu, be sure that "Use local fonts" is not checked.
2. On the Print panel, check "Print to file". This will cause Acrobat to try to assign fonts to all the fonts in the document.
3. Print the file.
4. Go to Document Properties > Fonts
5. Click on the "List all fonts" button
6. *(Note: Each column in the screen shots below is numbered. The numbers aid in understanding the following description.)* In the Font Info panel, column one gives the original font name. Column two gives the font type (i.e., Type 1 or TrueType). Column three is not relevant to this check. In column four ("Used Font"), it should say "Embedded Subset". Column five ("Type") must match column two.

Sample Screen: Fonts are OK

*Sample Screen: Fonts are **NOT** OK*

Fonts are **NOT** OK

Fonts are **NOT** OK

Reason: Fonts are embedded but not subsetted.

Reason: Fonts are not embedded and subsetted.

[2] The free Acrobat Reader is available at www.adobe.com/products/acrobat/readstep2.html.

PART II:
DETAILED REQUIREMENTS FOR CREATING PDF FILES FOR IEEE XPLORE®

1. SUMMARY OF PDF SETTINGS

This document specifies the requirements for IEEE Xplore® compliant PDF files. Whenever possible the PDF files must be created from either the application (e.g., Microsoft Word) or PostScript files. A summary of the PDF settings is below.

> *If Acrobat Distiller is used to create the PDF files the job options (settings) files are located at* www.ieee.org/confpubcenter. *Settings are available for Acrobat 6, Acrobat 5, and Acrobat 4. The download includes installation instructions. The job options file* **does not** *create PDF files unless all the fonts can be embedded and subsetted.*

1.1 PDF Settings for PDF Files Created from Application or PostScript Files (PDF Versions 1.3 and 1.4)

Compatibility: PDF version 1.3 (Acrobat 4) preferred. PDF version 1.4 (Acrobat 5) is acceptable.
File Format: Binary
Optimize PDF: Yes
Generate Thumbnails: Yes
Resolution: 600 dpi

Color Images: Bicubic Downsampling at 300dpi
Compression for Color Images: JPEG/Medium Quality

Grayscale Images: Bicubic Downsampling at 300dpi
Compression for Grayscale Images: JPEG/Medium Quality

Monochrome Images: Bicubic Downsampling at 600dpi
Compression for Monochrome Images: CCITT Group 4

Compress Text and Line Art: Yes

Subset all Font if less than 100% of the Font is used. Otherwise, embed the entire Font.

Color Management: No. All colors remain in the original color space or model.
Preserve any Overprint, Under Color Removal (UCR), Black Generation, and Halftone information from the application or PostScript files.

Preserve the PostScript Level 2 copypage Semantics. Preserving this setting gives maximum flexibility when viewing and printing the PDF file.

In general, the PostScript code must not override the PDF creation settings. If the PostScript files override the PDF creation settings the resultant files must fully comply with this specification.

Security: All security settings must be turned off. No passwords must be assigned.

Links and Bookmarks: Neither links nor bookmarks are allowed.
Note: If PostScript or application files are unavailable the pages may be scanned. See Appendix, Section 3.

1.2 Additional settings for PDF 1.5 (Acrobat 6) Files

All of the settings in 1.1 apply. The following settings must also be changed.

General: Turn off "Object Level Compression" and "Auto-Rotate Pages".

Fonts: Makes sure the "Always Embed" and "Never Embed" list are empty.

Color: No settings file is used. The "Intent" is default.

Advanced: Select "Preserve overprint settings", "Save Adobe PDF settings inside PDF file", and "Save original JPEG images in PDF if possible."

Note: PDF files created with Acrobat 6 Distiller and the settings file from www.ieee.org/confpubcenter are acceptable. Once the PDF file is created it must **not** be saved with either Acrobat 6 or Acrobat 6 Reader.

2. SCREEN CAPTURES OF ACROBAT DISTILLER 6.X

2.1 General Options

2.2 Image Options

2.3 Font Options

2.4 Color Options

2.5 Advanced Options

2.6 PDF/X Options

3. SCREEN CAPTURES OF ACROBAT DISTILLER 5.X

3.1 General Options

3.2 Compression Options

3.3 Font Options

3.4 Color Options

3.5 Advanced Options

4. SCREEN CAPTURES OF ACROBAT DISTILLER 4.X

4.1 General Options

4.2 Compression Options

4.3 Font Options

4.4 Color Options

4.5 Advanced Options

TECHNICAL APPENDIX—DETAILED DESCRIPTION OF DISTILLER SETTINGS

1. OVERVIEW

This appendix describes in more technical detail the required settings for creating Adobe Acrobat PDF (Portable Document Format) files for IEEE Xplore®. It is intended for use by content providers with knowledge and experience in the wholesale production of PDF files. IEEE Xplore® content providers are responsible for ensuring that PDFs delivered are IEEE Xplore® compatible.

The settings described are intended to optimize PDF file size and produce reasonable quality files that download quickly. This is accomplished through a combination of graphic compression settings, downsampling settings, font embedding strategies, and optimization of the PDF file.

PDF files are acceptable as long as they are either compliant with or compatible with this specification.

- **Compliant PDF** files meet all the requirements of the PDF specification.
- **Compatible PDF** files do not have any problems that prevent IEEE from processing the file.[1] Such a file might have low-resolution graphics, be a non-optimized PDF, missing thumbnails, the PDF content stored as ASCII instead of binary format, etc.

PDF files created with the downloadable joboptions (settings) produce compatible PDF files.

The simplest way for creating compliant PDF files is to download the joboptions (settings) file from www.ieee.org/confpubcenter. The joboptions (settings) follow the screen captures in Part II, Section 2 (PDF 1.5), Part II, Section 3 (PDF 1.4), and Part II, Section 4 (PDF 1.3). *The joboptions (settings) file* **does not** *create PDF files if all the fonts can't be embedded and subsetted.*

Other means for producing PDFs are acceptable provided the resultant files comply with all the requirements set forth in this specification. In all cases, the PDF files must be compliant with Acrobat 5 (PDF 1.4) specification or earlier. If using an application other than Acrobat please refer to Part II, Sections 1.1 and 1.2; and Appendix, Sections 2 and 3.

2. GENERAL REQUIREMENTS FOR APPLICATION, POSTSCRIPT, AND PDF FILES

2.1 General Page Characteristics (Application, PostScript, and PDF Files)

The pages in a PDF file must not contain crop marks, registration marks, date stamps, time stamps, or any other mark that does not appear in the published version. Page size must be 8.5″ x 11″.

2.2 Fonts (Application, PostScript, and PDF Files)

PDF files must contain only embeddable PostScript or TrueType fonts or a combination of the two. In order for the PDF files to match the printed version all fonts must be properly embedded. There are generally two ways to accomplish this. The first way is for the application to include all the fonts used when the PostScript file is created. The second way is to give Acrobat access to the fonts at the time the PostScript file is converted to PDF.

Including fonts within a PostScript file depends on the application and the printer driver chosen. Since each computer is different, please refer to the appropriate operating system and application documentation for more information.

Giving Acrobat access to the fonts takes only a little bit of effort. Typical installations of Acrobat do not look in the system's font folder after the completion of installation. To get Acrobat to do so choose "Settings→Folder

[1] Compatible PDF files have these characteristics: (1) are Acrobat 5 (PDF 1.4) or earlier, (2) all fonts are embedded, (3) all fonts are subsetted, and (4) uses no passwords.

Options". Click on "Add" to select the folder that contains the system's fonts. Choosing "Settings→Folder Options" will show which folders, Acrobat currently looks at for font information.

To properly embed fonts the following items in the Acrobat "Fonts" tab must be selected (i.e., checked):

1. Embed All Fonts
2. Subset All Embedded Fonts Below
3. If the fonts are not included in the PostScript file Acrobat Distiller must be given access to the fonts. Please refer to the Acrobat documentation for more information.

Refer to the Acrobat documentation for specific information regarding accessing fonts.

2.3 Graphics and Figures (Application Files)

Graphics used in the source application work best when the resolution matches or exceeds the resolutions given in Section 1.1.

2.4 Security

Do not assign any passwords.

2.5 Links and Bookmarks

Neither links nor bookmarks are allowed.

3. REQUIREMENTS FOR PDF FILES CREATED FROM SCANS (SCANNED PDFS)

PDF files that are created from scans are image only files (the text is not searchable). For this reason "Scanned PDFs" are created only when the original application or PostScript files are not available. Each page is scanned at 300dpi and in the proper image mode. For instance, if a group of pages do not contain color the resultant PDF file will download faster and is much smaller if the pages are scanned as black and white instead of as color.

It is assumed that the "Import→Scan" command in Adobe Acrobat 4 is used to create a "Scanned PDF" file. If other means for producing Scanned PDFs are used the resultant files must be the same as those provided by "Import→Scan" command of Adobe Acrobat 4. Such a file is simply a series of images stored in a single file. As long as there is no additional information in the PDF file, no specific settings are required other than scanning at the proper resolution and mode.

4. REQUIREMENTS FOR PDF VERSION 1.5 (ACROBAT 6) FILES

PDF files must be compatible with PDF version 1.4 (Acrobat 5) or earlier. Any PDF creation application is acceptable as long as the PDF files produced are compatible with version 1.4 or earlier. If using Acrobat Distiller, the settings file is available at www.ieee.org/confpubcenter. *The settings file* **does not** *create PDF files unless all the fonts can't be embedded and subsetted.*

Note: PDF files created with Acrobat 6 Distiller and the settings file from www.ieee.org/confpubcenter are acceptable. Once the PDF file is created it must **not** be saved with either Acrobat 6 or Acrobat 6 Reader.

5. CHECKING PDF FILES FOR COMPLIANCY

Internally IEEE uses PitStop Server from Enfocus Software (www.enfocus.com) to check all PDF files. The settings used are downloadable from http://www.ieee.org/confpubcenter.