PDF Specification for IEEE Xplore®

VERSION 4.01A

FEBRUARY 2007

IEEE CONTENT ENGINEERING

TABLE OF CONTENTS

DOCUMENT STATUS RECORD

Release Date	Status	Version	Amendment / Purpose
February 2007	Final	4.01A	Addresses PitStop's ability to check Acrobat 8 files.
November 2006	Final	4.01	Addresses PDF 1.7 (Acrobat 8) issues.
October 2006	Final	4.0	Consolidates PDF specifications and addendum. Replaces the concepts of compliant or compatible PDF files with a simpler set of requirements. Addresses Acrobat 7 issues.
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.
14 April 2003	Final	2.2B	Adjusted graphics settings to provide print production quality graphics. Clarifies how to embed fonts.
21 January 2002	Final	2.2	Summarizes requirements for Acrobat 5 compatible PDF files.
18 May 2001	Final	2.1	Summarizes PDF parameter settings; describes the requirements for scanned PDFs.
30 April 2001	Final	2.0	Initial release

INTRODUCTION

This document defines the PDF requirements for creating PDF files for IEEE Xplore®. The goal of this specification is creating PDF files that are viewable on a broad range of computers and download reasonably quickly regardless of connection speed. This document replaces earlier versions of the PDF specification and the addendum.

Other IEEE products such as print on demand or creating PDF files for traditional printing are not covered by this specification. The requirements for these PDF files may be more stringent than this specification (e.g., graphics quality and fonts).

The document's organization is different from previous versions of the specification. PDF files are **no longer** viewed as compliant or compatible. Instead the PDF files must have all the required characteristics. In addition, "recommended" and "suggested" settings are defined.

PDF files that are compatible or compliant with version 3.2 and/or its addendum must be saved as PDF 1.4 (Acrobat 5) or later to meet the requirements for version 4.01 of the PDF specification.

The transition to PDF 1.4 (Acrobat 5) or later will take place in phases to allow content providers time to adjust and test their systems. In phase 1 support for PDF 1.0 thru 1.2 (Acrobat 1 thru 3) will end on 30 June 2007. In phase 2 support for PDF version 1.3 (Acrobat 4) will end on 31 December 2007.

Please see Section 1 for a summary of the PDF settings in table form. A general document overview follows the summary in Section 2.

Scanned PDF files are generally not permitted. The exceptions are described in Section 7.

This specification refers to both PDF distiller and Acrobat Distiller. For clarity, the terms are defined below.

PDF distiller is any program or collection of programs that creates PDF files by first converting them to PostScript format. In some cases the PostScript file is created virtually. For example, a virtual PostScript file is created when "Convert to Adobe PDF" is clicked in Microsoft Word.

Acrobat Distiller is a PDF distiller from Adobe Systems Inc. It is referenced in this document because it is a relatively common tool for creating PDF files.

1. SUMMARY OF PDF SETTINGS

As noted in the introduction, PDF characteristics are divided into "required", "recommended', and "suggested" groups. For all tables in Section 1, required PDF characteristics are lightly shaded, recommended PDF characteristics are medium shaded, and suggested PDF characteristics are darkly shaded.

PDF files that are compatible or compliant with version 3.2 and/or its addendum must be saved as PDF 1.4 (Acrobat 5) or later to meet the requirements for version 4.01 of the PDF specification.

The transition to PDF 1.4 (Acrobat 5) or later will take place in phases to allow content providers time to adjust and test their systems. In phase 1 support for PDF 1.0 thru 1.2 (Acrobat 1 thru 3) will end on 30 June 2007. In phase 2 support for PDF version 1.3 (Acrobat 4) will end on 31 December 2007.

If a PDF characteristic is "required" the PDF file must have this characteristic and allowable value to be processed by IEEE.

If it is "recommended" or "suggested" the PDF characteristic does not have to appear in the PDF file. For "recommended" or "suggested" types any valid value is allowed. This includes not setting a value (where allowed by the Adobe PDF specification and PDF distiller).

A "recommended" characteristic generally improves the quality of the PDF file. A "suggested" characteristic may not always be under the full control of the publishing entity or the suggested value may not always be appropriate.

For more details on "Required", "Recommended", or "Suggested" types, please see Sections 3.1, 3.2, and 3.3 respectively.

The table below summarizes various PDF characteristics and their allowable value or usage. If a PDF characteristic is missing in the table then any valid value is allowed. For example, page size is not specified in the table or in this document–therefore any page size is allowed.

PDF Characteristic	Allowed Value or Usage
PDF Version *(Support for PDF version 1.7 [Acrobat 8] is expected in 3 months. Until then please provide PDF version 1.6 [Acrobat 7] or earlier files).*	PDF 1.4 (Acrobat 5) or later
Use Passwords or Security?	No
Use PDF Distiller?	Must use
Use Bookmarks or Links?	No
Allow Crop Marks, Registration Marks, or Other Marks?	No
PostScript Code Override Settings File?	No
Embed **All** Fonts[1]	Yes[2]
Contains Merged Files or Packaged PDF	No
Contains Attachments	No
Latest Version of Fonts	Yes
Open Type Fonts	OK[3]
Fast Web View (Linearized)	Yes
Work with Early PDF Viewers	Yes, if PDF 1.4 compatibility

(Continues at top of next page)

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[1] For best results do not embed or subset fonts in graphics files.
[2] Embedded subset fonts are also allowed.
[3] For compatibility with PDF version 1.5 (Acrobat 6) and earlier avoid using Open Type fonts.

(Continued from previous page)

PDF Characteristic	Allowed Value or Usage
Work with Older Printer Support	Yes, if PDF 1.4 compatibility
Color Images	Resolution: 300dpi Downsampling: Bicubic Compression: JPEG/Medium
Grayscale Images	Resolution: 300dpi Downsampling: Bicubic Compression: JPEG/Medium
Monochrome Images	Resolution: 600dpi Downsampling: Bicubic Compression: CCITT Group 4 Anti-alias: Off
Thumbnail in PDF	Yes

1.1 Summary PDF Characteristics for Different Kinds of Publications

The content delivered by IEEE Xplore® can generally be divided into: (1) transactions and journals, (2) magazines, (3) conferences, and (4) standards. The table below shows the PDF characteristics of typical content for each of these types of publications. Remember all PDF files must have the required PDF characteristics listed in the table on pages 2 and 3.

PDF Characteristic	Transactions & Journals	Magazines	Conferences	Standards
PDF Version	Yes	Yes	Yes	Yes
No Passwords or Security	Yes	Yes	Yes	Yes
PDF Distiller Used	Yes	Yes	Yes	Yes
No Bookmarks or Links	Yes	Yes	Yes	Yes
No Crop Marks, Registration Marks, or Other Marks	Yes	Yes	Yes	Yes
PostScript Code Does Not Override Settings File	Yes	Yes	Yes	Yes
Embed **All** Fonts	Yes	Yes	Varies	Yes
Merged or Packaged PDF	No	No	No	No
PDF Contains Attachments	No	No	No	No
Latest Version of Fonts	Yes	Yes	No	Varies
Open Type Fonts	No	No	No	Varies
Fast Web View (Linearized)	Yes	Yes	Yes	No
Work with Early PDF Viewers	Might Not	Might Not	Might Not	Might Not
Work with Older Printers	Might Not	Might Not	Might Not	Might Not
Color Images	Yes	Yes	Varies	Varies
Grayscale Images	Yes	Yes	Varies	Varies
Monochrome Images	Yes	Yes	Varies	Varies
Thumbnail in PDF	Yes	Yes	No	No

For more details on "Required", "Recommended", or "Suggested" types, please see Sections 3.1, 3.2, and 3.3 respectively. Acrobat Distiller settings files and PitStop profiles may be downloaded from http://www.ieee.org/confpubcenter Also see Section 5 for more information about the sample Acrobat Distiller settings.

2. DOCUMENT OVERVIEW

This document is organized differently from previous versions and replaces earlier versions of the PDF specification and the addendum.

PDF files are **no longer** viewed as compliant or compatible. Instead the PDF files must have all the required characteristics. From a practical perspective this means that *at a minimum* the files must be created using a PDF distiller, **all** fonts are embedded, must not have any form of security, and must not contain bookmarks, links, or multiple files in a single PDF file.

IEEE will accept PDF files that have either higher or lower quality than those described in the recommendations and suggestions sections. Doing so may cause long download times or produce lower quality PDF files. So please try to follow the recommendation and suggestions sections.

The remainder of this document is divided into the following sections:
1. PDF Characteristics (Section 3)
    - Requirements (Section 3.1)
    - Recommendations (Section 3.2)
    - Suggestions (Section 3.3)
2. PDF Searching (Section 4)
3. Sample Settings Files (Section 5)
4. Checking PDF Files (Section 6)
5. Scanned PDF Exceptions (Section 7)
6. Acrobat 7 and 8 Distiller Image Policy (Appendix A)
7. Other Acrobat Distiller Settings (Appendix B)
8. Checking Font Embedding in Acrobat 5 or Earlier (Appendix C)

IEEE will only load PDF files to IEEE Xplore® if they meet all the requirements in Section 3.1. PDF files that do not meet one or more recommendations (Section 3.2) or suggestions (Section 3.3) will be loaded to IEEE Xplore®.

NOTE: Using some of the newer PDF features such as layers or Open Type fonts may cause the files not to display correctly in earlier viewers or not print correctly on older printers. Making use of these features is a decision for the content providers.

All PDF files must be text searchable and meet the IEEE Xplore® PDF requirements. Section 4, PDF Searching, explains the importance of submitting searchable PDF files. It provides guidance on how to accomplish this.

For those using Acrobat Distiller sample settings files are available for download as described in Section 5. Appendix B describes the other settings set in the samples.

The Checking PDF files section describes how IEEE checks submitted PDF files.

The Scanned PDF Exceptions section describes the only conditions where scanned PDF files are permitted. In all other cases scanned PDF files will not be posted to IEEE Xplore®.

One commonly available PDF creation tool is Adobe Acrobat. It is used as an example of how to create acceptable PDF files (Sections 3 and 4). Other tools may create similar quality PDF files.

This document changes infrequently. When it does it is usually due to new PDF features or new services offered by IEEE. If in doubt about whether this document is up-to-date please check http://www.ieee.org/confpubcenter.

3. PDF CHARACTERISTICS

This section describes the characteristics of PDF files for IEEE Xplore®. It is divided into three parts.

The first, "requirements", describes the minimum characteristics of a PDF file. If a file does not meet this part of the specification, then it will not be included in IEEE Xplore®. So it is important that the PDF files meet all requirements before they are submitted[4].

The second, "recommendations", describes the PDF characteristics that IEEE believes are important for PDF quality, but may make the PDF file not viewable on some computers or may cause files not to print on some printers.

The third, "suggestions", describes the PDF characteristics that the content provider may not have complete control over, may not always be suitable, or only minimally impact PDF usability.

PDF files that are compatible or compliant with version 3.2 and/or its addendum must be saved as PDF 1.4 (Acrobat 5 or later) to meet the requirements for version 4.01 of the PDF specification.

The transition to PDF 1.4 (Acrobat 5) or later will take place in phases to allow content providers time to adjust and test their systems. In phase 1 support for PDF 1.0 thru 1.2 (Acrobat 1 thru 3) will end on 30 June 2007. In phase 2 support for PDF version 1.3 (Acrobat 4) will end on 31 December 2007.

3.1 Requirements

Each PDF for IEEE Xplore® must have all of these characteristics.
1. Be PDF 1.4 (Acrobat 5) or later. *Please continue providing PDF files up to and including version 1.6 (Acrobat 7). IEEE is currently testing PDF version 1.7 (Acrobat 8) and expects to be able to take these file in about 3 months*.
2. Must be created with a PDF distiller[5]. Scanning is not permitted.
3. Embeds all fonts[6,7]. Doing so helps makes sure that the mathematics appears as intended and improves text searching in the PDF (Section 4). *Please note some TrueType fonts have a setting added by the font designer that prevents the font from being embedded and should be avoided* [8].
4. Does not have a password or other security settings.
5. Does not contain any bookmarks or links[9]. Links are supported now **only** by using a summary file and a readme file. They appear in the IEEE Xplore® TOC as multimedia.

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[4] Technical Activities has made special arrangements to process problem conference files.
[5] For conferences, Technical Activities has established a process to convert January 2005 and forward files that do not meet the requirements to IOHT (image over hidden text) PDF. Doing so however results in a delay in posting the entire conference and causes a chargeback for the additional processing.
[6] To embed all fonts may require informing the PDF distiller about the location of the fonts. Please see the PDF distiller help files or documentation for more information. In addition, for best results do not embed or subset fonts in graphics files.
[7] If desired, subset (embedded subset) fonts may be used.
[8] Once IEEE receives a PDF file without embedded fonts nothing can be done. Using these fonts may delay posting the issue or possibly cause the paper not to be included in IEEE Xplore®.
[9] There are plans to support this in the future.

6. Does not contain crop marks, registration marks, date stamp, time stamp, or any other mark that does not appear in the official version of the publication.
7. Does not contain any PostScript that overrides the settings file.
8. Does not use PDF attachments.
9. Does not consist of a PDF Package or Merged PDF, a PDF 1.7 (Acrobat 8) feature.

Please note that the last seven requirements are not fully under the Acrobat Distiller's control. Once the PDF file is created the characteristics can change. For example, Acrobat can add passwords or bookmarks.

In addition to the requirements above all PDF files must be text searchable. Please see Section 4 for details.

3.2 Recommendations (Optional)

When a PDF file is created IEEE recommends the following.
1. Whenever possible update your fonts to the most recent version. This will eliminate many font problems.
2. Optimize the file for fast web viewing. This allows the beginning of a PDF file to be viewed prior to downloading the entire PDF[10].
3. For broadest usability of PDF files avoid using Open Type fonts, which are not always viewable in older PDF viewers.

3.3 Suggestions (Optional)

The following settings may be worthwhile considering.
1. If there is reason to believe that users have not upgraded to the most recent PDF viewers, consider saving the files with PDF 1.4 (Acrobat 5) compatibility[11].
2. PDF files with version 1.4 compatibility (Acrobat 5) are more likely to print on older printers.
3. The graphics settings below are chosen to produce good quality graphics that will download quickly in most cases. These settings may be adjusted to suit other needs.

Image Type	Resolution	Downsampling	Compression	Ant-Alias
Color	300dpi	Bicubic	JPEG/Medium	Not applicable
Gray	300dpi	Bicubic	JPEG/Medium	Not applicable
Monochrome	600dpi	Bicubic	CCITT Group 4	Off

If using Acrobat 7 or 8, please see Appendix A regarding image features specific to these versions.
4. Since older PDF viewers do not automatically create thumbnails, include thumbnails in the PDF.

4. PDF SEARCHING

PDF text searching is a requirement because it improves discoverability online and electronically. The best way to ensure this is if the PDF contains embedded fonts. Doing so also helps ensure that the mathematics appear correctly. Such fonts must use one of the following standard PDF font encodings.
1. MacRoman or Roman
2. WinAnsi or Ansi
3. MacExpert or Expert
4. Built-in
5. Standard
6. PDFDoc

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[10] Do not confuse fast web view with the PDF optimizer. The PDF optimizer can add fast web viewing but may also create PDF files that no longer meet the requirements specified in this document. For example it may, unembed fonts or reduce the graphic's resolution.

[11] PDF version 1.4 does not support layers, page size larger than 200 inches (508cm) in either direction, Open Type fonts, or JPEG 2000 but will work with most PDF viewers and older printers.

If using Acrobat version 5 or earlier please see Appendix C to check the font encoding. Otherwise, PDF files can be checked by viewing the Fonts tab of the Document Properties screen in Acrobat.

PDF files created with TeX, LaTeX, and PostScript Type 3 fonts are generally not searchable[12]. So it is best to use these fonts only when necessary. However, text created with TeX or LaTeX is usually searchable in PDF format.

5. SAMPLE SETTINGS FILES

IEEE provides Acrobat Distiller settings files, designed for specific purposes, on the Web at: http://www.ieee.org/confpubcenter. Please note that these files set other PDF characteristics (See Appendix B) because Acrobat Distiller requires it. A content provider is free to change these other settings as necessary.

Please note that no changes are needed to the version 4.0 settings to meet the required, recommended, and suggested settings in version 4.01.

The downloadable sample settings are summarized in the table below. Each PDF characteristic described in this document is shown in the first column. The subsequent columns show how the "required", "recommended" and "suggested" Acrobat Distiller settings are set-up, respectively. Please see the next page for the rest of the table and the footnotes.

In the last three columns:
1. **Yes** means that the example Acrobat Distiller setting sets the PDF characteristic.
2. **No** means that the example Acrobat Distiller setting does not set the PDF characteristic.
3. **User Set** means that user and not the example Acrobat Distiller settings control the PDF characteristic.

PDF Characteristic	Required	Recommended	Suggested
Available for PDF version(s)[1,2]	1.4, 1.5, 1.6, and 1.7	1.4, 1.5, 1.6, and 1.7	1.4, 1.5, 1.6, and 1.7
No Passwords or Security Allowed	User Set	User Set	User Set
PDF Distiller	Yes	Yes	Yes
No Bookmarks or Links	User Set	User Set	User Set
No Crop Marks, Registration Marks, or Other Marks	User Set	User Set	User Set
No PostScript Code Overriding Settings File	User Set	User Set	User Set
Embed **All** Fonts	Yes/User Set	Yes/User Set	Yes/User Set
Merged or Packaged PDF	User Set	User Set	User Set
PDF Contains Attachments	User Set	User Set	User Set
Latest Version of Fonts	User Set	User Set	User Set
Open Type Fonts	User Set	User Set	User Set
Fast Web View (Linearized)	No	Yes	Yes
Broadest use	No	No	Yes
Older Printer Support	No	No	Yes

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[12] PostScript Type 1 versions of these fonts are readily available on the web at CTAN (Comprehensive TeX Archive Network).

PDF Characteristic	Required	Recommended	Suggested
Color Images[3]	Yes	Yes	Yes
Grayscale Images[3]	Yes	Yes	Yes
Monochrome Images[3]	Yes	Yes	Yes
Thumbnail in PDF	No	No	Yes

Footnotes:
1. For "required" and "recommended" settings PDF version 1.4 always gives broadest use and older printer support.
2. For "suggested" settings the files for PDF versions 1.5, 1.6 , and 1.7 are stored in PDF 1.4 (Acrobat 5) compatibility. Editing or opening the files afterward may change the PDF version.
3. Settings intended to be reasonable in most cases. Settings may be changed as needed.

6. CHECKING PDF FILES

Internally, IEEE uses PitStop Server from Enfocus Software (www.enfocus.com) to check all PDF files. The settings are used in PDF eXpress and for internal QA by IEEE and are available at http://www.ieee.org/confpubcenter.

Unlike earlier IEEE supplied profiles the new one is not locked (password protected). If the profile is edited care must be taken not to change the original values in the profile. Otherwise the profile may no longer detect problems in the PDF file.

7. SCANNED PDF EXCEPTIONS IN IEEE XPLORE®

Scanned PDF files are not allowed in IEEE Xplore unless they fall into one of the exceptions below.

1. If the publication is a journal, magazine, or standard published prior to 1988.
2. If the publication is a conference held prior to 2005.
3. If the publication is part of an IEEE recognized digitization project.

In all other cases the files will not be loaded into IEEE Xplore®.

APPENDIX A:
ACROBAT DISTILLER VERSION 7 AND 8 AND IMAGE POLICY

Image Policy was introduced in Acrobat 7 Distiller. It applies when an image is below the resolution (e.g., dots per inch or points per inch) defined in the main Images dialog box. This appendix explains how to set the Policy for images in Acrobat Distiller. Please note that PDF Maker or selecting "Adobe PDF→Convert to Adobe PDF" *ignores the image policy set*. Since this is a relatively new feature, other applications might ignore or not implement image policy.

To set the image policy, follow the steps below.
1. From the "Settings" menu select "Edit Adobe PDF Settings…"
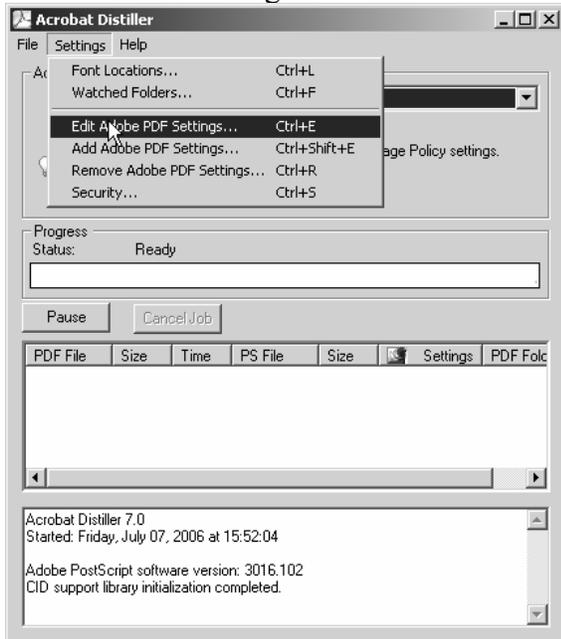
2. Click on the "Images" folder.
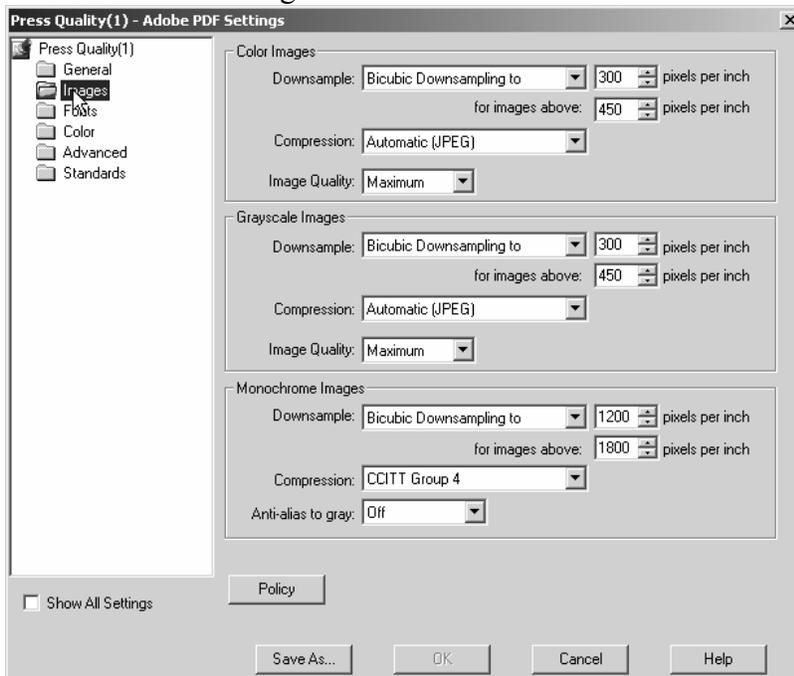
3. Click on the "Policy" button to access the "Adobe PDF-Image Policy" dialog box.

4. The screen below sets Acrobat Distiller's behavior when images lower than the set resolution are encountered.
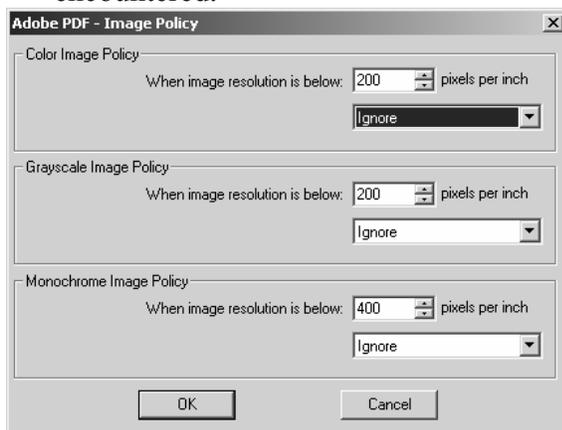
Best practice is setting the desired image resolution (e.g., pixels per inch) when initially creating the image.

There are three options available in the drop down menus.
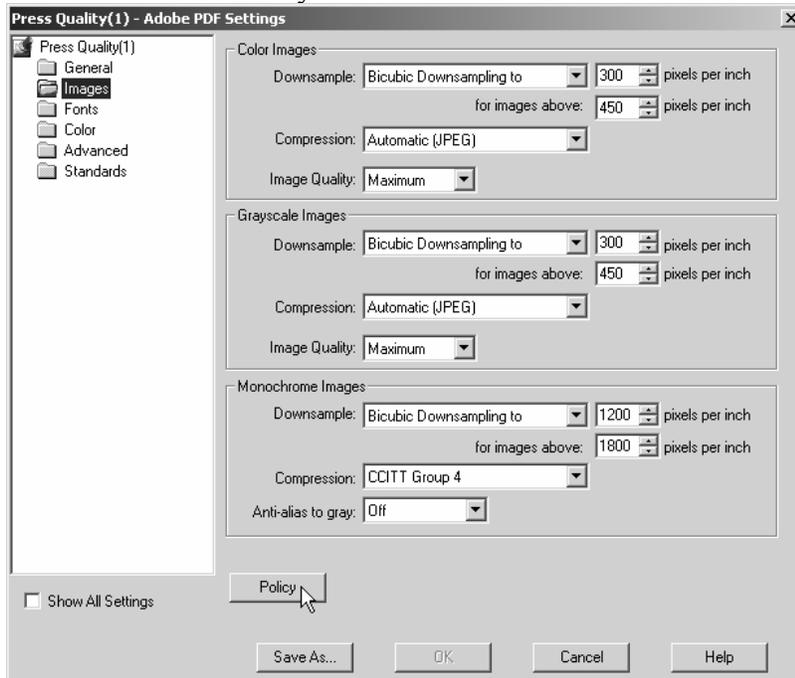1. *Ignore*. Processes all images regardless of their resolution.
2. *Warn and continue*. Warns if any image is lower than the resolution set in the dialog box. Unfortunately, any Type 3 fonts are treated as images, so this option potentially can generate many warnings not related to images. Type 3 fonts are common in TeX or LaTeX but are not limited to these programs.
3. *Cancel job*. Causes Acrobat Distiller to stop creating the PDF file. If a partial PDF was created it is deleted.

For each type of image (color, grayscale, and monochrome) IEEE suggests setting the policy to "Ignore". If there is a reason to choose an option other than "Ignore", consider setting the resolution in the image policy screen to at least two-thirds the image resolution shown in step 2. For example, if the desired color image resolution is 300ppi, then the "Color Image Policy" value is 200ppi (300*2/3).

APPENDIX B:
OTHER ACROBAT DISTILLER SETTINGS

This appendix describes the other Acrobat Distiller settings that are set in samples in Section 5. *Please note that no changes are needed to the version 4.0 settings to meet the required, recommended, and suggested settings in version 4.01.* The shaded boxes shows changes from the "Required" settings file. Any setting described in this appendix may be changed as needed.

Adobe Acrobat Distiller 8.x Settings

Setting Location and Name	Required	Recommended	Suggested
GENERAL TAB			
Object Level Compression	Off	Off	Off
Auto-Rotate Pages	Off	Off	Off
Binding	Left	Left	Left
Resolution	600	600	600
All Pages (Radio Button)	Selected	Selected	Selected
Embed Thumbnails	Not checked	Not checked	Checked
Optimize for fast web view	Not checked	Checked	Checked
Default Page Size	Desired size	Desired size	Desired size
IMAGES TAB			
Anti-alias to gray	Off	Off	Off
Policy	See Appendix B	See Appendix B	See Appendix B
FONTS TAB			
Embed All Fonts[1]	Checked	Checked	Checked
Embed Open Type Fonts[2]	Not checked	Not checked	Not checked
Subset embedded fonts when percent of characters used is less than[3]	Not checked	Not checked	Not checked
When Embedding Fails	Warn and Continue	Warn and Continue	Warn and Continue
Always Embed	All fonts in font folder(s)	All fonts in font folder(s)	All fonts in font folder(s)
Never Embed	Empty	Empty	Empty
COLOR TAB			
Settings File	None	None	None
Color Management Policies	Leave Color Unchanged	Leave Color Unchanged	Leave Color Unchanged
Document Rendering Intent	Preserve	Preserve	Preserve
Working Spaces	Dimmed	Dimmed	Dimmed
Preserve under color removal and black generation	Checked	Checked	Checked
When transfer functions are found	Remove	Remove	Remove
Preserve halftone Information	Checked	Checked	Checked

Setting Location and Name	Required	Recommended	Suggested
ADVANCED TAB			
Convert gradients to smooth shades	Checked	Checked	Checked
Preserve Level 2 copypage semantics	Checked	Checked	Checked
Preserve overprint settings	Checked	Checked	Checked
Save Adobe PDF settings inside PDF file	Checked	Checked	Checked
Save original JPEG images in PDF if possible	Checked	Checked	Checked
All other choices in Options[4]	Not checked	Not checked	Not checked
All Document Structuring Conventions (DSC)	Not checked	Not checked	Not checked
STANDARDS TAB			
Compliance Standard	None	None	None
Default Value if Not Specified in the Document	Dimmed	Dimmed	Dimmed

Footnotes:

1. Subset (Embedded Subset) fonts are permitted.
2. This is not checked because Open Type support is a PDF 1.6 and 1.7 (Acrobat 7 and 8) only feature.
3. If the option is checked, the suggested percentage is 100%.
4. Never check (select) "Use Prologue.ps and Epilogue.ps" or "Allow PostScript file to override Adobe PDF settings" (or both). *Doing so violates the requirement that the PostScript code does not override the settings or job options file.*

Adobe Acrobat Distiller 7.x Settings

Setting Location and Name	Required	Recommended	Suggested
GENERAL TAB			
Object Level Compression	Off	Off	Off
Auto-Rotate Pages	Off	Off	Off
Binding	Left	Left	Left
Resolution	600	600	600
All Pages (Radio Button)	Selected	Selected	Selected
Embed Thumbnails	Not checked	Not checked	Checked
Optimize for fast web view	Not checked	Checked	Checked
Default Page Size	Desired size	Desired size	Desired size
IMAGES TAB			
Anti-alias to gray	Off	Off	Off
Policy	See Appendix B	See Appendix B	See Appendix B
FONTS TAB			
Embed All Fonts[1]	Checked	Checked	Checked
Embed Open Type Fonts[2]	Not checked	Not checked	Not checked
Subset embedded fonts when percent of characters used is less than[3]	Not checked	Not checked	Not checked
When Embedding Fails	Warn and Continue	Warn and Continue	Warn and Continue
Always Embed	All fonts in font folder(s)	All fonts in font folder(s)	All fonts in font folder(s)
Never Embed	Empty	Empty	Empty
COLOR TAB			
Settings File	None	None	None
Color Management Policies	Leave Color Unchanged	Leave Color Unchanged	Leave Color Unchanged
Document Rendering Intent	Preserve	Preserve	Preserve
Working Spaces	Dimmed	Dimmed	Dimmed
Preserve under color removal and black generation	Checked	Checked	Checked
When transfer functions are found	Remove	Remove	Remove
Preserve halftone Information	Checked	Checked	Checked
ADVANCED TAB			
Convert gradients to smooth shades	Checked	Checked	Checked
Preserve Level 2 copypage semantics	Checked	Checked	Checked
Preserve overprint settings	Checked	Checked	Checked
Save Adobe PDF settings inside PDF file	Checked	Checked	Checked
Save original JPEG images in PDF if possible	Checked	Checked	Checked
All other choices in Options[4]	Not checked	Not checked	Not checked
All Document Structuring Conventions (DSC)	Not checked	Not checked	Not checked

Setting Location and Name	Required	Recommended	Suggested
STANDARDS TAB			
Compliance Standard	None	None	None
All other options	Dimmed	Dimmed	Dimmed

Footnotes:

1. Subset (Embedded Subset) fonts are permitted.
2. This is not checked because Open Type support is a PDF 1.6 and 1.7 (Acrobat 7 and 8) only feature.
3. If the option is checked, the suggested percentage is 100%.
4. Never check (select) "Use Prologue.ps and Epilogue.ps" or "Allow PostScript file to override Adobe PDF settings" (or both). *Doing so violates the requirement that the PostScript code does not override the settings or job options file.*

Adobe Acrobat Distiller 6.x Settings

Setting Location and Name	Required	Recommended	Suggested
GENERAL TAB			
Object Level Compression	Off	Off	Off
Auto-Rotate Pages	Off	Off	Off
Binding	Left	Left	Left
Resolution	600	600	600
All Pages (Radio Button)	Selected	Selected	Selected
Embed Thumbnails	Not checked	Not Checked	Checked
Optimize for fast web view	Not checked	Checked	Checked
Default Page Size	Desired size	Desired size	Desired size
IMAGES TAB			
Anti-Alias to gray	Off	Off	Off
FONTS TAB			
Embed All Fonts[1]	Checked	Checked	Checked
When Embedding Fails	Warn and Continue	Warn and Continue	Warn and Continue
Subset embedded fonts when percent of characters used is less than[2]	Not checked	Not checked	Not checked
Always Embed	All fonts in font folder(s)	All fonts in font folder(s)	All fonts in font folder(s)
Never Embed	Empty	Empty	Empty
COLOR TAB			
Settings File	None	None	None
Color Management Policies	Leave Color Unchanged	Leave Color Unchanged	Leave Color Unchanged
Intent	Default	Default	Default
Working Spaces	Dimmed	Dimmed	Dimmed
Preserve under color removal and black generation	Checked	Checked	Checked
When transfer functions are found	Remove	Remove	Remove
Preserve halftone Information	Checked	Checked	Checked
ADVANCED TAB			
Convert gradients to smooth shades	Checked	Checked	Checked
Preserve Level 2 copypage Semantics	Checked	Checked	Checked
Preserve overprint settings	Checked	Checked	Checked
Save Adobe PDF settings inside PDF file	Checked	Checked	Checked
Save original JPEG images in PDF if possible	Checked	Checked	Checked
All other choices in Options[3]	Not checked	Not checked	Not checked
All Document Structuring Conventions (DSC)	Not checked	Not checked	Not checked
PDF/X TAB			
PDF/X-1a	Not checked	Not checked	Not checked
PDF/X-3	Not checked	Not checked	Not checked

Footnotes begin on the next page.

1. Subset (Embedded Subset) fonts are permitted.
2. If the option is checked, the suggested percentage is 100%.
3. Never check (select) "Use Prologue.ps and Epilogue.ps" or "Allow PostScript file to override Adobe PDF settings" (or both). *Doing so violates the requirement that the PostScript code does not override the settings or job options file.*

Adobe Acrobat Distiller 5.x Job Options

Setting Location and Name	Required	Recommended	Suggested
GENERAL TAB			
Optimize for Fast Web View	Not checked	Checked	Checked
Embedded Thumbnails	Not checked	Not checked	Checked
Auto-Rotate Pages	Not checked	Not checked	Not checked
Page Range	All	All	All
Binding	Left	Left	Left
Resolution	600	600	600
Default Page Size	Desired size	Desired size	Desired size
COMPRESSION TAB			
Anti-Alias to gray	Not checked	Not checked	Not checked
Compress Text and Line Art	Checked	Checked	Checked
FONTS TAB			
Embed All Fonts[1]	Checked	Checked	Checked
When Embedding Fails	Warn and Continue	Warn and Continue	Warn and Continue
Subset embedded fonts when percent of characters used is less than[2]	Not checked	Not checked	Not checked
Always Embed	Base 14 Fonts	Base 14 Fonts	Base 14 Fonts
Never Embed	Empty	Empty	Empty
COLOR TAB			
Settings File	None	None	None
Color Management Policies	Leave Color Unchanged	Leave Color Unchanged	Leave Color Unchanged
Intent	Default	Default	Default
Working Spaces	Dimmed	Dimmed	Dimmed
Preserve Overprint Settings	Checked	Checked	Checked
Preserve Under Color Removal and Black Generation Settings	Checked	Checked	Checked
Transfer Functions	Remove	Remove	Remove
Preserve Halftone Information	Checked	Checked	Checked
ADVANCED TAB			
Preserve Level 2 copypage Semantics	Checked	Checked	Checked
All other choices in Options[3]	Not checked	Not checked	Not checked
All Document Structuring Conventions (DSC)	Not checked	Not checked	Not checked

Footnotes:
1. Subset (Embedded Subset) fonts are permitted.
2. If the option is checked, the suggested percentage is 100%.
3. Never check (select) "Use Prologue.ps and Epilogue.ps" or "Allow PostScript file to Override Job Options" (or both). *Doing so violates the requirement that the PostScript code does not override the settings or job options file.*

APPENDIX C:
HOW TO CHECK FONT EMBEDDING AND ENCODING IN ACROBAT 5 OR EARLIER

The steps below explain how to check for font embedding and encoding as required by this specification using Acrobat or Acrobat Reader.

Using Acrobat or the Acrobat Reader[13] to Check the Fonts

To check if all the fonts are embedded, subset, or substituted follow the steps below.

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: Columns in the screen shots below are numbered to aid in understanding the Font Info screen).* In the Font Info panel, column one gives the original font name. Column two gives the original font type (i.e., Type 1 or TrueType). Column three is not relevant to this check[14]. If the font is embedded column four ("Used Font") will say "Embedded". If the font is subset column four will say "Embedded Subset." In either case, column five ("Type") will match column two. If font substitution occurs then column four will not match column 1. In addition, column five may or may not match column two.

Sample Screen Showing Required Font Embedding

Font Info

Fonts In: example.pdf

Original Font ①	Type ②	Encoding ③	Used Font ④	Type ⑤
ArialBlack	TrueType	Windows	Embedded	TrueType
Helvetica	Type 1	Windows	Embedded	Type 1
Tahoma	TrueType	Windows	Embedded	TrueType
Times-Roman	Type 1	Windows	Embedded	Type 1

[List All Fonts...]   [OK]

Sample Screen Showing Embedded and Not Embedded Fonts

Fonts are OK. Original Fonts are subset.

Fonts are **NOT** OK. Original fonts are not embedded.

Font Info

Fonts In: example.pdf

Original Font ①	Type ②	Encoding ③	Used Font ④	Type ⑤
ArialBlack	TrueType	Windows	Embedded Subset	TrueType
Helvetica	Type 1	Windows	Embedded Subset	Type 1
Tahoma	TrueType	Windows	Embedded Subset	TrueType
Times-Roman	Type 1	Windows	Embedded Subset	Type 1
ArialBlack	TrueType	Windows	Adobe Sans MM	Type 1
Helvetica	Type 1	Windows	ArialMT	Type 1
Tahoma	TrueType	Windows	Adobe Sans MM	Type 1
Times-Roman	Type 1	Windows	TimesNewRomanPSMT	Type 1

[List All Fonts...]   [OK]

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[13] The free Acrobat Reader is available at www.adobe.com/products/acrobat/readstep2.html.
[14] See Section 4, PDF Searching.