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**PDF Specification for IEEE Xplore<sup>®</sup>**  
*(Part C-Creating and Checking PDFs)*

**VERSION 4.10**

**DECEMBER 2008**

**IEEE CONTENT ENGINEERING**



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## DOCUMENT STATUS RECORD

Release Date	Status	Version	Amendment / Purpose
December 2008	Final	4.10	Describes the sample Acrobat settings, how IEEE checks PDFs, and how to check font embedding in PDF 1.4.
July 2008	Final	4.02	Provides initial instructions for “PDF 1.7, Adobe Extension Level 3” (Acrobat 9) files.
May 2007	Final	4.01B	Announces the ability to test PDF 1.7 (check Acrobat 8 files.
February 2007	Final	4.01A	Addresses PitStop’s ability to check Acrobat 8 files. Announces the phase out of support of PDF versions 1.0 thru 1.3 (Acrobat 1 thru 4) during 2007.
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

## 1. INTRODUCTION

This document describes the settings used to create PDFs for IEEE Xplore<sup>®</sup>. It also provides the profile used to check PDF files. The profile that is used is the same for IEEE’s internal QA and PDF eXpress. The document “PDF Specification for IEEE Xplore<sup>®</sup>” also includes (1) [core requirements](#) and (2) [additional PDF features](#).

## 2. SAMPLE SETTINGS FILES

IEEE provides Acrobat Distiller settings files, designed for specific purposes, online at [iee.org](http://iee.org). Please note that these files set other PDF characteristics (See Section 4) 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 or later.*

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) <sup>1,2</sup>	1.4, 1.5, 1.6, 1.7, and Acrobat 9	1.4, 1.5, 1.6, 1.7, and Acrobat 9	1.4, 1.5, 1.6, 1.7, and Acrobat 9
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 or Subset 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
Color Images <sup>3</sup>	Yes	Yes	Yes
Grayscale Images <sup>5</sup>	Yes	Yes	Yes
Monochrome Images <sup>3</sup>	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.

**3. CHECKING PDF FILES**

Internally, at the time of this writing, IEEE uses PitStop Server version 4.02 from Enfocus Software ([www.enfocus.com](http://www.enfocus.com)) to check all PDF files. The settings that are used in PDF eXpress and for internal QA by IEEE and are available online at [iee.org](http://iee.org).

Unlike earlier IEEE supplied profiles the new ones are 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.

**4. OTHER ADOBE DISTILLER SETTINGS**

This section describes the other Acrobat Distiller settings that are set in samples in Section 2. *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 section may be changed as needed.

*Adobe Acrobat Distiller 9.x Settings*

Setting Location and Name	Required	Recommended	Suggested
<b>GENERAL TAB</b>			
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
<b>IMAGES TAB</b>			
Anti-alias to gray	Off	Off	Off
Policy	See Part B- Additional PDF Features	See Part B- Additional PDF Features	See Part B- Additional PDF Features
<b>FONTS TAB</b>			
Embed or Subset All Fonts	Checked	Checked	Checked
Embed Open Type Fonts <sup>1</sup>	Not checked	Not checked	Not checked
Subset embedded fonts when percent of characters used is less than <sup>2</sup>	Not checked	Not checked	Not checked
When Embedding Fails	Warn and Continue	Warn and Continue	Warn and Continue
Always Embed	All fonts in	All fonts in	All fonts in

Setting Location and Name	Required	Recommended	Suggested
	font folder(s)	font folder(s)	font folder(s)
Never Embed	Empty	Empty	Empty
<b>COLOR TAB</b>			
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
<b>ADVANCED TAB</b>			
Convert gradients to smooth shades	Checked	Checked	Checked
Preserve Level 2 cypage 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 <sup>3</sup>	Not checked	Not checked	Not checked
All Document Structuring Conventions (DSC)	Not checked	Not checked	Not checked
<b>STANDARDS TAB</b>			
Compliance Standard	None	None	None
Default Value if Not Specified in the Document	Dimmed	Dimmed	Dimmed

**Footnotes:**

1. This is not checked because Open Type support is a PDF 1.6 and 1.7 (Acrobat 7 and 8) only feature.
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 8.x Settings*

<b>Setting Location and Name</b>	<b>Required</b>	<b>Recommended</b>	<b>Suggested</b>
<b>GENERAL TAB</b>			
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
<b>IMAGES TAB</b>			
Anti-alias to gray	Off	Off	Off
Policy	See Part B- Additional PDF Features	See Part B- Additional PDF Features	See Part B- Additional PDF Features
<b>FONTS TAB</b>			
Embed or Subset All Fonts	Checked	Checked	Checked
Embed Open Type Fonts <sup>1</sup>	Not checked	Not checked	Not checked
Subset embedded fonts when percent of characters used is less than <sup>2</sup>	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
<b>COLOR TAB</b>			
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
<b>ADVANCED TAB</b>			
Convert gradients to smooth shades	Checked	Checked	Checked
Preserve Level 2 cypage 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 <sup>3</sup>	Not checked	Not checked	Not checked

<b>Setting Location and Name</b>	<b>Required</b>	<b>Recommended</b>	<b>Suggested</b>
All Document Structuring Conventions (DSC)	Not checked	Not checked	Not checked
<b>STANDARDS TAB</b>			
Compliance Standard	None	None	None
Default Value if Not Specified in the Document	Dimmed	Dimmed	Dimmed

**Footnotes:**

1. This is not checked because Open Type support is a PDF 1.6 and 1.7 (Acrobat 7 and 8) only feature.
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 7.x Settings*

<b>Setting Location and Name</b>	<b>Required</b>	<b>Recommended</b>	<b>Suggested</b>
<b>GENERAL TAB</b>			
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
<b>IMAGES TAB</b>			
Anti-alias to gray	Off	Off	Off
Policy	See Part B- Additional PDF Features	See Part B- Additional PDF Features	See Part B- Additional PDF Features
<b>FONTS TAB</b>			
Embed or Subset All Fonts	Checked	Checked	Checked
Embed Open Type Fonts <sup>1</sup>	Not checked	Not checked	Not checked
Subset embedded fonts when percent of characters used is less than <sup>2</sup>	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
<b>COLOR TAB</b>			
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
<b>ADVANCED TAB</b>			
Convert gradients to smooth shades	Checked	Checked	Checked
Preserve Level 2 cypage 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 <sup>3</sup>	Not checked	Not checked	Not checked

Setting Location and Name	Required	Recommended	Suggested
All Document Structuring Conventions (DSC)	Not checked	Not checked	Not checked
<b>STANDARDS TAB</b>			
Compliance Standard	None	None	None
All other options	Dimmed	Dimmed	Dimmed

**Footnotes:**

1. This is not checked because Open Type support is a PDF 1.6 and 1.7 (Acrobat 7 and 8) only feature.
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 6.x Settings*

<b>Setting Location and Name</b>	<b>Required</b>	<b>Recommended</b>	<b>Suggested</b>
<b>GENERAL TAB</b>			
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
<b>IMAGES TAB</b>			
Anti-Alias to gray	Off	Off	Off
<b>FONTS TAB</b>			
Embed or Subset All Fonts	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 <sup>1</sup>	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
<b>COLOR TAB</b>			
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
<b>ADVANCED TAB</b>			
Convert gradients to smooth shades	Checked	Checked	Checked
Preserve Level 2 cypage 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 <sup>2</sup>	Not checked	Not checked	Not checked
All Document Structuring Conventions (DSC)	Not checked	Not checked	Not checked
<b>PDF/X TAB</b>			
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. If the option is checked, the suggested percentage is 100%.
2. 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*

<b>Setting Location and Name</b>	<b>Required</b>	<b>Recommended</b>	<b>Suggested</b>
<b>GENERAL TAB</b>			
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
<b>COMPRESSION TAB</b>			
Anti-Alias to gray	Not checked	Not checked	Not checked
Compress Text and Line Art	Checked	Checked	Checked
<b>FONTS TAB</b>			
Embed or Subset All Fonts	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 <sup>1</sup>	Not checked	Not checked	Not checked
Always Embed	Base 14 Fonts	Base 14 Fonts	Base 14 Fonts
Never Embed	Empty	Empty	Empty
<b>COLOR TAB</b>			
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
<b>ADVANCED TAB</b>			
Preserve Level 2 cypage Semantics	Checked	Checked	Checked
All other choices in Options <sup>2</sup>	Not checked	Not checked	Not checked
All Document Structuring Conventions (DSC)	Not checked	Not checked	Not checked

**Footnotes:**

1. If the option is checked, the suggested percentage is 100%.
2. 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.*

## 5. HOW TO CHECK FONT EMBEDDING AND ENCODING IN ADOBE 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.

### 5.1 Using Acrobat or the Acrobat Reader<sup>1</sup> 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. 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

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

Sample Screen Showing Embedded and Not Embedded Fonts

Fonts are OK.  
Original Fonts are subset.

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

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

<sup>1</sup> The free Acrobat Reader is available at [www.adobe.com/products/acrobat/readstep2.html](http://www.adobe.com/products/acrobat/readstep2.html).