



# Acrobat® Implementation of the PDF Specification

April 2007

**Adobe® Acrobat SDK**

Version 8.1

© 2007 Adobe Systems Incorporated. All rights reserved.

Adobe® Acrobat SDK Implementation of the PDF Specification

Edition 1.0, April 2007

If this guide is distributed with software that includes an end user agreement, this guide, as well as the software described in it, is furnished under license and may be used or copied only in accordance with the terms of such license. Except as permitted by any such license, no part of this guide may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, recording, or otherwise, without the prior written permission of Adobe Systems Incorporated. Please note that the content in this guide is protected under copyright law even if it is not distributed with software that includes an end-user license agreement.

The content of this guide is furnished for informational use only, is subject to change without notice, and should not be construed as a commitment by Adobe Systems Incorporated. Adobe Systems Incorporated assumes no responsibility or liability for any errors or inaccuracies that may appear in the informational content contained in this guide.

Please remember that existing artwork or images that you may want to include in your project may be protected under copyright law. The unauthorized incorporation of such material into your new work could be a violation of the rights of the copyright owner. Please be sure to obtain any permission required from the copyright owner.

Any references to company names, company logos and user names in sample material or sample forms included in this documentation and/or software are for demonstration purposes only and are not intended to refer to any actual organization or persons.

Adobe, the Adobe logo, and Acrobat are either registered trademarks or trademarks of Adobe Systems Incorporated in the United States and/or other countries.

Adobe Systems Incorporated, 345 Park Avenue, San Jose, California 95110, USA.

Notice to U.S. Government End Users. The Software and Documentation are "Commercial Items," as that term is defined at 48 C.F.R. §2.101, consisting of "Commercial Computer Software" and "Commercial Computer Software Documentation," as such terms are used in 48 C.F.R. §12.212 or 48 C.F.R. §227.7202, as applicable. Consistent with 48 C.F.R. §12.212 or 48 C.F.R. §§227.7202-1 through 227.7202-4, as applicable, the Commercial Computer Software and Commercial Computer Software Documentation are being licensed to U.S. Government end users (a) only as Commercial Items and (b) with only those rights as are granted to all other end users pursuant to the terms and conditions herein. Unpublished-rights reserved under the copyright laws of the United States. Adobe Systems Incorporated, 345 Park Avenue, San Jose, CA 95110-2704, USA. For U.S. Government End Users, Adobe agrees to comply with all applicable equal opportunity laws including, if appropriate, the provisions of Executive Order 11246, as amended, Section 402 of the Vietnam Era Veterans Readjustment Assistance Act of 1974 (38 USC 4212), and Section 503 of the Rehabilitation Act of 1973, as amended, and the regulations at 41 CFR Parts 60-1 through 60-60, 60-250, and 60-741. The affirmative action clause and regulations contained in the preceding sentence shall be incorporated by reference.

---

# Contents

---

<b>Preface .....</b>	<b>4</b>
What's in this guide? .....	4
Who should read this guide? .....	4
Related documentation .....	4
<b>1 Transitioning the PDF Specification to ISO .....</b>	<b>5</b>
<b>2 Extensions to the PDF Specification.....</b>	<b>6</b>
3D annotations and PRC .....	6
3D annotations and Universal 3D File Format.....	8
Field dictionary specification of rich text conventions.....	9
Other additions .....	10
<b>3 Implementation Notes .....</b>	<b>11</b>
9.4, "Alternate Presentations" .....	11

---

# Preface

---

The Portable Document Format (PDF) is a file format for representing documents in a manner independent of the application software, hardware, and operating system used to create them and of the output device on which they are to be displayed or printed.

## What's in this guide?

This guide describes PDF features supported in the Adobe® Acrobat® 8.1 family of products but not yet reflected in the PDF specification. The PDF specification is currently represented by the *PDF Reference, sixth edition, version 1.7* (Nov. 2006) and the *PDF Redaction: Addendum to the PDF Reference, sixth edition, version 1.7*.

## Who should read this guide?

This guide is intended for developers of applications that consume or produce PDF content intended for use with the Adobe Acrobat 8.1 family of products.

## Related documentation

The resources in this table can help you understand the material in this document. These resources are contained in the PDF package that also contains this guide.

For information about	See
PDF specification	<i>PDF Reference, sixth edition, version 1.7</i>
PDF specification for redaction annotations	<i>PDF Redaction: Addendum to the PDF Reference, sixth edition, version 1.7</i>
Corrections to the PDF specification	<i>Errata for the PDF Reference, sixth edition, version 1.7</i>

Adobe is working to transition responsibility for the PDF specification to the International Standards Organization (ISO). The PDF specification is currently represented by the *PDF Reference, sixth edition, version 1.7* (Nov. 2006) and the *PDF Redaction: Addendum to the PDF Reference, sixth edition, version 1.7*. These documents represent the last PDF specification produced by Adobe.

Adobe will continue producing the *Errata for the PDF Reference, sixth edition, version 1.7* until ISO re-issues the PDF specification or otherwise assumes responsibility for documenting errors in the PDF specification.

After ISO assumes responsibility for the PDF specification, the language extensions described in this guide may be submitted to ISO as proposed changes to the PDF specification. ISO may or may not accept these Adobe extensions. If accepted, the exact syntax and semantics of the ISO version of these extensions may differ from that described in this guide.

This section describes extensions to the PDF specification. These extensions are described relative to the *PDF Reference, sixth edition, version 1.7*, which is contained in the PDF package that also includes this guide.

This guide uses italics to identify information not intended for inclusion in the PDF specification.

## 3D annotations and PRC

*Starting with Acrobat 8.1, 3D annotations can specify streams that conform to the PRC file format. PRC is a new highly-compressed CAD visualization format.*

### 9.5 3D Artwork

#### Page 790

*Append the indicated sentence to the bullet that begins, “3D stream contain ...” Unchanged content is shown in gray.*

The following sections describe the major PDF objects that relate to 3D artwork, as well as providing background information on 3D graphics:

- 3D annotations provide a virtual camera through which the artwork is viewed. (see Section 9.5.1, “3D Annotations”).
- 3D streams contain the actual specification of a piece of 3D artwork (see Section 9.5.2, “3D Streams”). This specification supports the standard ECMA-363, Universal 3D file format developed by the 3D Industry Forum (see Bibliography). Acrobat 8.1 extends PDF to support the PRC file format [see [Bibliography](#)].

#### 9.5.2 3D Streams

#### Page 797

*In table 9.35, “Entries in a 3D stream dictionary” modify the Subtype entry as shown below.*

KEY	SUBTYPE	DESCRIPTION
Subtype	name	<i>(Required)</i> A name specifying the format of the 3D data contained in the stream. The following valid values are supported:  U3D, which specifies the Universal 3D file format.  PRC, which specifies the PRC file format. This value is an extension supported by Acrobat 8.1.

#### Page 798

*Delete the sentence that begins “The only valid value ...” in the following paragraph. The material in that sentence is covered in table 9.35, as amended by this guide.*

The `Subtype` entry specifies the format of the 3D stream data. The only valid value is `U3D`, which indicates that the stream data conforms to the Universal 3D File Format specification (see Bibliography). PDF consumer applications must be prepared to encounter unknown values for `Subtype` and recover appropriately, which usually means leaving the annotation in its inactive state, displaying its normal appearance.

## 9.5.3 3D Views

### Page 804

In table 9.39, “Entries in a 3D view dictionary”, modify the `MS` entry as shown below.

KEY	SUBTYPE	DESCRIPTION
<code>MS</code>	<code>name</code>	<p>(Optional) A name specifying the entry to use for the 3D camera-to-world transformation matrix. The following values are supported:</p> <ul style="list-style-type: none"> <li><code>M</code> indicates that the <code>C2W</code> entry specifies the matrix</li> <li><code>U3D</code> indicates that the <code>U3DPath</code> entry in the 3D stream object is used for the matrix. This value reflects the sole supported value of the <code>Subtype</code> entry in the 3D stream dictionary.</li> </ul> <p><b>Note:</b> There is no corresponding <code>MS</code> field value for the PRC file format, that would correspond to a 3D stream object of type <code>PRC</code>. <code>M</code> is the only valid entry for 3D stream objects of type <code>PRC</code> (or it may be omitted).</p> <p>If omitted, the view specified in the 3D artwork is used.</p>

## Page 829

In table 9.47, “Entries in a 3D node dictionary”, modify the *N* entry as shown below.

KEY	SUBTYPE	DESCRIPTION
N	text string	<p>(Required) The name of the node being described by the node dictionary. Interpretation of this entry depends upon the 3D format specified in the <i>Subtype</i> entry in table 9.35, as described below:</p> <ul style="list-style-type: none"><li>• U3D. If the <i>Subtype</i> of the corresponding 3D Stream is <i>U3D</i>, this entry corresponds to the field Node block name, specified in the Universal 3D File Format (see Bibliography).</li><li>• PRC. If the <i>Subtype</i> of the corresponding 3D Stream is <i>PRC</i>, this entry is constructed from fields stored in the PRC stream. For information on deriving names from PRC fields, see the documentation module “Naming PRC entities for outside PDF referencing” in the <i>PRC Format</i> (see <a href="#">Bibliography</a>).</li></ul> <p><b>Note:</b> When comparing this entry to node names for a particular convention (such as the Universal 3D File Format), PDF viewer applications must translate between the PDF text encoding used by PDF and the character encoding specified in the 3D stream.</p>

## Bibliography

### Resources from Adobe Systems Incorporated

#### Page 1151

Add the following documents to the Bibliography:

PRC specification: The following documents collectively provide the PRC file format specification. These documents are available at [www.adobe.com/go/acrobat3d\\_developer](http://www.adobe.com/go/acrobat3d_developer):

- *PRC Format*
- *Geometry Compression Level 2*
- *Tesselation Compression Level 2*

## 3D annotations and Universal 3D File Format

PDF 1.6 and greater provided support for ECMA-363, Universal 3D file format, edition 1. Acrobat 8.1 extends this support to ECMA-363, Universal 3D file format, 3rd Edition.



## Bibliography

### Other Resources

#### Page 1154

Replace the following Ecma reference. This change reflects a correction documented in the Errata for the PDF Reference, sixth edition, version 1.7.

Ecma International, Standard ECMA-363, *Universal 3D File Format, 1st Edition*. This document is available at [www.ecma-international.org](http://www.ecma-international.org).

With this:

Ecma International. The following standards are available through [<www.ecma-international.org>](http://www.ecma-international.org).

- ECMA-363, *Universal 3D File Format, 1st Edition*.
- ECMA-363, *Universal 3D File Format, 3rd Edition*.

## Field dictionary specification of rich text conventions

Acrobat 8.1 extends support for the rich text conventions described in XML Forms Architecture (XFA) version 2.5. This specification is available at [www.adobe.com/go/devnet](http://www.adobe.com/go/devnet).

### 8.6.2 Field dictionaries: Rich Text Stringsoys

#### Page 682

In Table 8.73, “Attributes of the <body> element”, Acrobat 8.1 adds support for the rich text specified in XML Forms Architecture (XFA), versions 2.5 and 2.6. The following entry reflects the clarified description from the Errata for the PDF Reference, sixth edition, version 1.7, available at [www.adobe.com/go/acrobat\\_developer](http://www.adobe.com/go/acrobat_developer). (Select the “Documentation” tab.) Unchanged content is shown in gray.

ATTRIBUTE	DESCRIPTION
<code>xfa:spec</code>	<p>The version of the XML Forms Architecture (XFA) specification to which the rich text string complies. The following are valid values:</p> <ul style="list-style-type: none"><li>• 2.0, which specifies XFA version 2.0. PDF 1.5 supports this version.</li><li>• 2.2, which specifies XFA version 2.2. PDF 1.6 supports this version and the earlier versions back to XFA version 2.0.</li><li>• 2.4, which specifies XFA version 2.4. PDF 1.7 supports this version and the earlier versions back to XFA version 2.0.</li><li>• 2.5, which specifies XFA version 2.5. This value is an extension added in Acrobat 8.1.</li><li>• 2.6, which specifies XFA version 2.6. This value is an extension added in Acrobat 8.1. (Acrobat 8.1 adds support for both 2.5 and 2.6.)</li></ul>

## Bibliography

### Resources from Adobe Systems Incorporated

*Add the new entry shown below. Unchanged text appears in gray.*

Adobe XML Architecture specifications, available at [www.adobe.com/go/xf\\_a\\_ref\\_24\\_bibliography](http://www.adobe.com/go/xf_a_ref_24_bibliography).

- XML Architecture, XML Forms Architecture (XFA) Specification, version 2.6
- XML Architecture, XML Forms Architecture (XFA) Specification, version 2.5
- XML Architecture, XML Forms Architecture (XFA) Specification, version 2.4
- Adobe XML Architecture, Forms Architecture (XFA) Specification, version 2.2

**Note:** Beginning with XFA 2.2, the XFA specification includes the Template Specification, the Config Specification, the XDP Specification, and all other XML specifications unique to the XML Forms Architecture (XFA).

- Adobe XML Architecture, XML Data Package (XDP) Specification, version 2.0
- Adobe XML Architecture, Template Specification, version 2.0
- Adobe XML Architecture, XML Forms Data Format Specification, version 2.0 (Draft)

## Other additions

### 8.2.4 Collections

#### Page 588

*In the first paragraph of this section, add the phrase “or a PDF package” to the second sentence, as shown below. This modification indicates the term PDF package is equivalent to the term portable collection.*

Beginning with PDF 1.7, PDF documents can specify how a viewer application’s user interface presents collections of file attachments, where the attachments are related in structure or content. Such a presentation is called a *portable collection* or a *PDF package*. The intent of portable collections is to present, sort, and search collections of related documents, such as email archives, photo collections, and engineering bid sets. There is no requirement that files in a collection have an implicit relationship or even a similarity; however, showing differentiating characteristics of related documents can be helpful for document navigation.

This chapter amends the implementation notes in Appendix H, “Compatibility and implementation Notes” of *PDF Reference, sixth edition, version 1.7* to describe changes introduced in Acrobat 8.1.

This guide uses italics to identify information not intended for inclusion in the PDF specification.

### 9.4, “Alternate Presentations”

#### Page 1124

*Modify Implementation Note 156 as shown below. Unchanged content is shown in gray.*

156. Beginning with Acrobat 8.1, Acrobat no longer provides support for SVG slideshows.

Acrobat 5.1 through 8.0 support SVG slideshows (MIME content type `image/svg+xml`). Those versions of Acrobat support the Scalable Vector Graphics (SVG) 1.0 Specification defined by the W3C (see the Bibliography). Implementation notes on support of SVG by Adobe products are available at [<http://www.adobe.com/svg/>](http://www.adobe.com/svg/).

All resources must be either image XObjects (see Section 4.8.4, “Image Dictionaries”) or embedded file streams (see Section 3.10.3, “Embedded File Streams”).

- Image XObjects used for slideshows must use the DCTDecode filter and an RGB color space. Color profile information must be specified in the image XObject dictionary as well as embedded within the JPEG stream.
- Embedded audio files must be of type `.wav` (supported on Windows only, MIME type `audio/x-wav`) or `.mp3` (MIME type `audio/mpeg`, documented at [<http://www.chiariglione.org/mpeg/index.htm>](http://www.chiariglione.org/mpeg/index.htm)).
- Embedded video must be QuickTime-compatible files of type `.avi` (MIME type `video/ms-video`) or `.mov` (MIME type `video/quicktime`, documented on Apple’s Developer Connection site at [<http://developer.apple.com>](http://developer.apple.com)). To play video, a QuickTime player (version 3 or later) must be installed.