

*The future: re-imagining the best
possible definition of PDF*



PDF Days Europe 2022 | Berlin

*Specifications, standards,
agility, correctness and
the reliability imperative*

Why?





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Language

Reference Manual

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Includes Detailed Programming
Information on the
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POSTSCRIPT

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POSTSCRIPT

Language

Tutorial and Cookbook

Adobe Systems
Incorporated

PDF Reference

SECOND EDITION
version 1.3

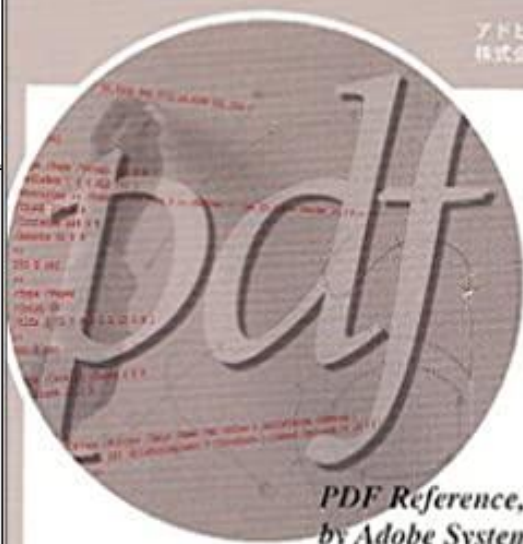


Adobe

PDFリファレンス 第2版

Adobe Portable Document Format Version 1.3

アドビシステムズ＝著
株式会社ドキュメントシステム＝訳



PDF Reference, Second Edition
by Adobe Systems Incorporated



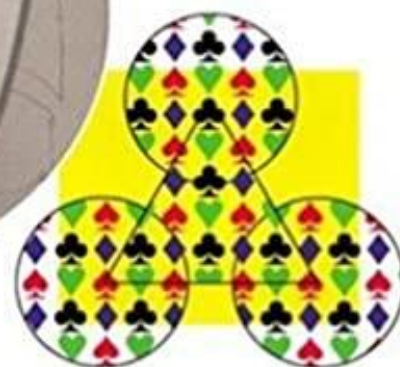
ピアソン・エデュケーション

PDF Reference

THIRD EDITION
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- New transparent imaging model
- Accessibility support for disabled users
- Format used by Adobe® Acrobat® 5



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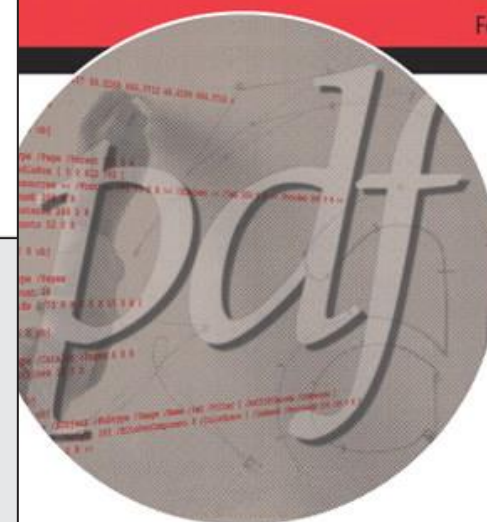


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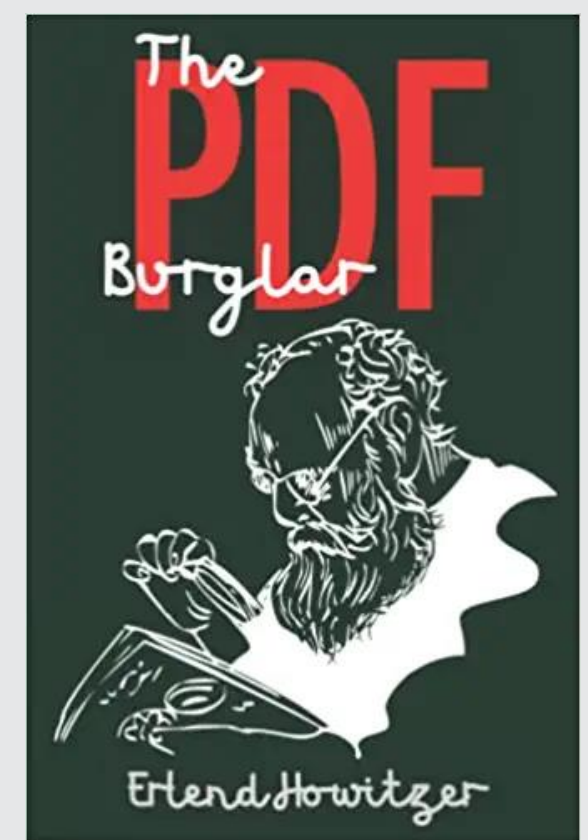
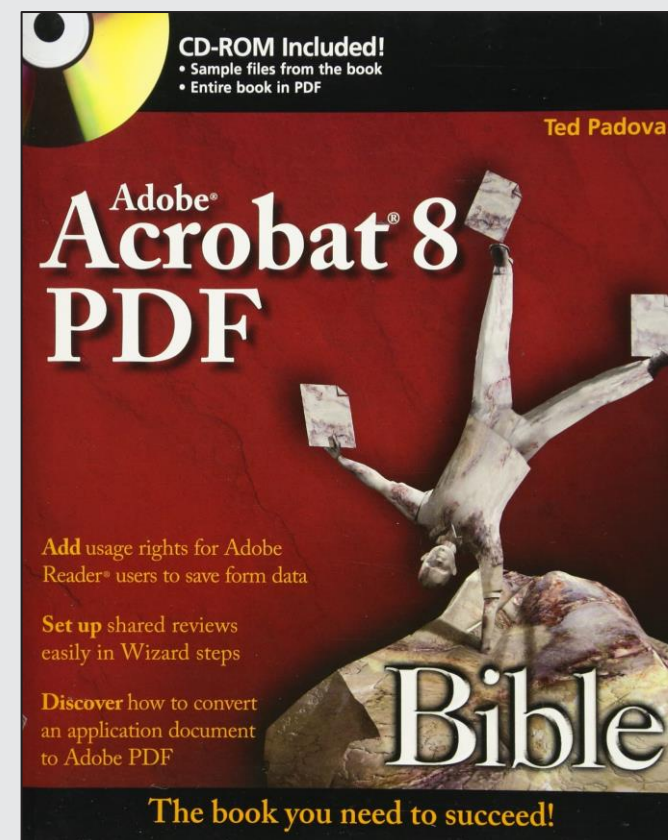
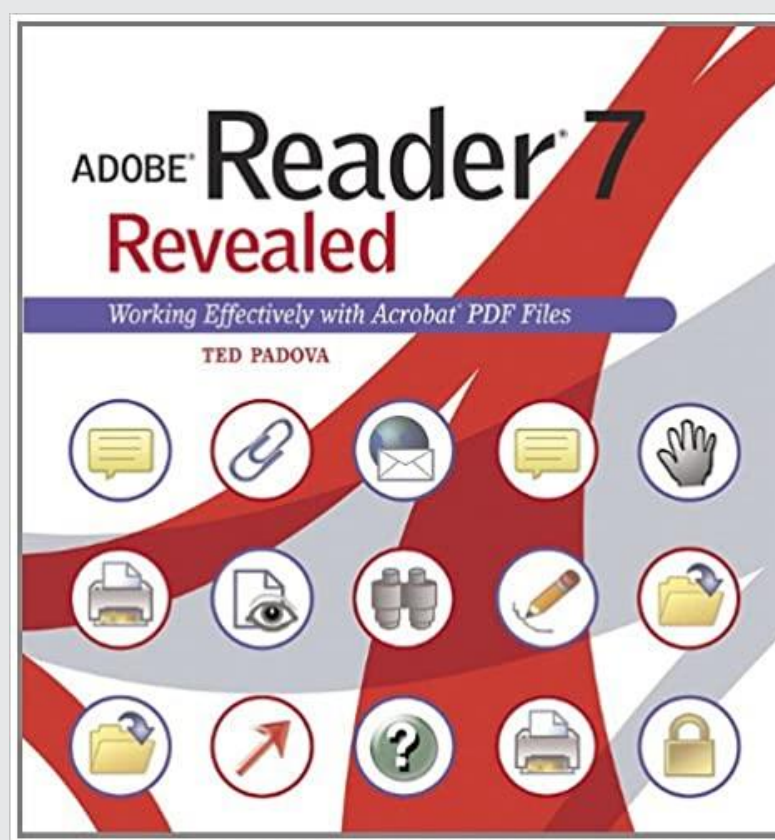
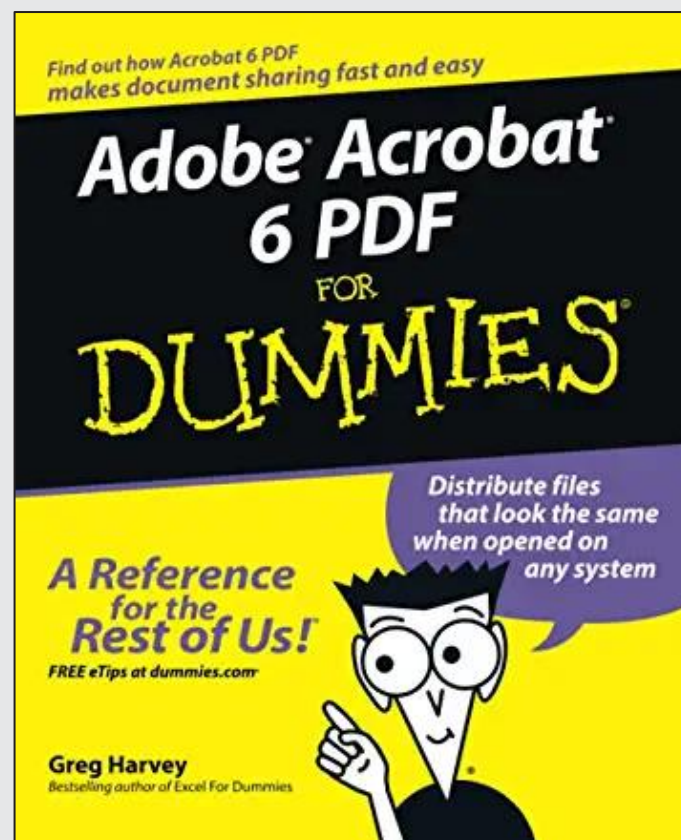
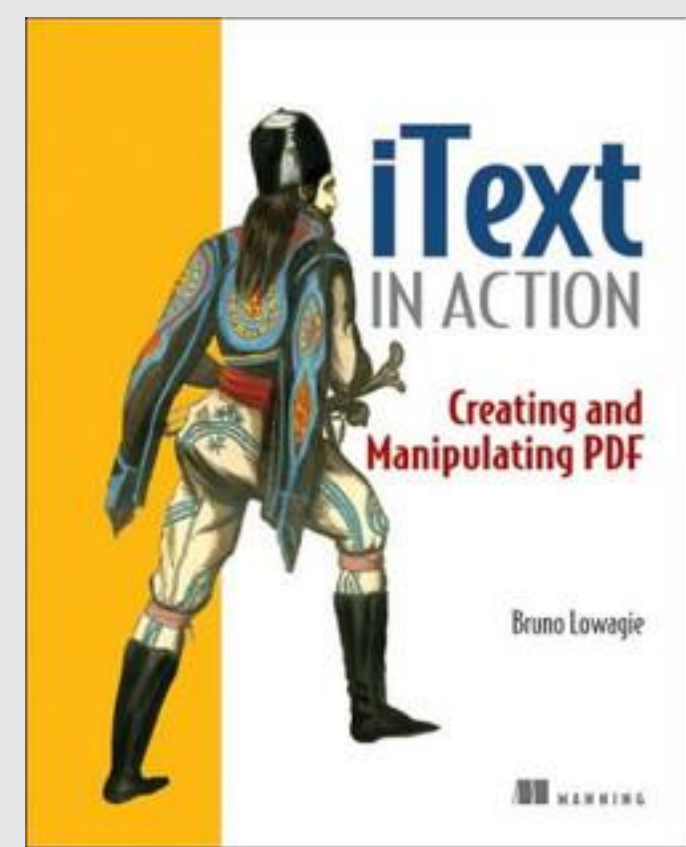
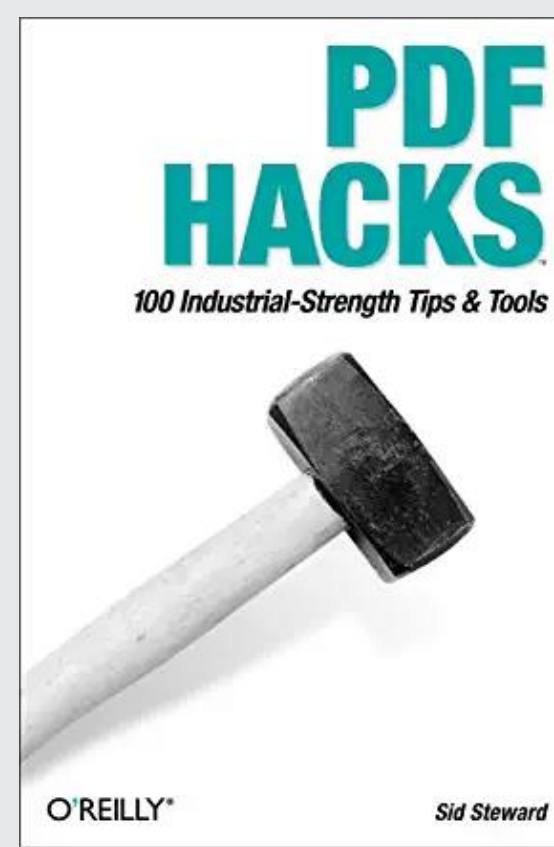
PDF Reference

FIFTH EDITION
version 1.6

Format used by Adobe® Acrobat® 7



Adobe





INTERNATIONAL
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ISO
32000-1

First edition
2008-07-01

Document management — Portable
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2010-08-15

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couleurs» utilisant le PDF 1.4 (PDF/X-1a)

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using PDF 1.4 (PDF/X-3)

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(PDF/X-3)

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Second edition
2019-08

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images traitées —
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format du fichier du document électronique pour l'accessibilité —
Partie 1: Utilisation de l'ISO 32000-1 (PDF/UA-1)

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ISO
21812-1

First edition
2019-06

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metadata for PDF files —

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for metadata

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pour les fichiers PDF —
Partie 1: Architecture et exigences principales pour les métadonnées

INTERNATIONAL
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21757-1

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INTERNATIONAL
STANDARD

ISO
19005-4

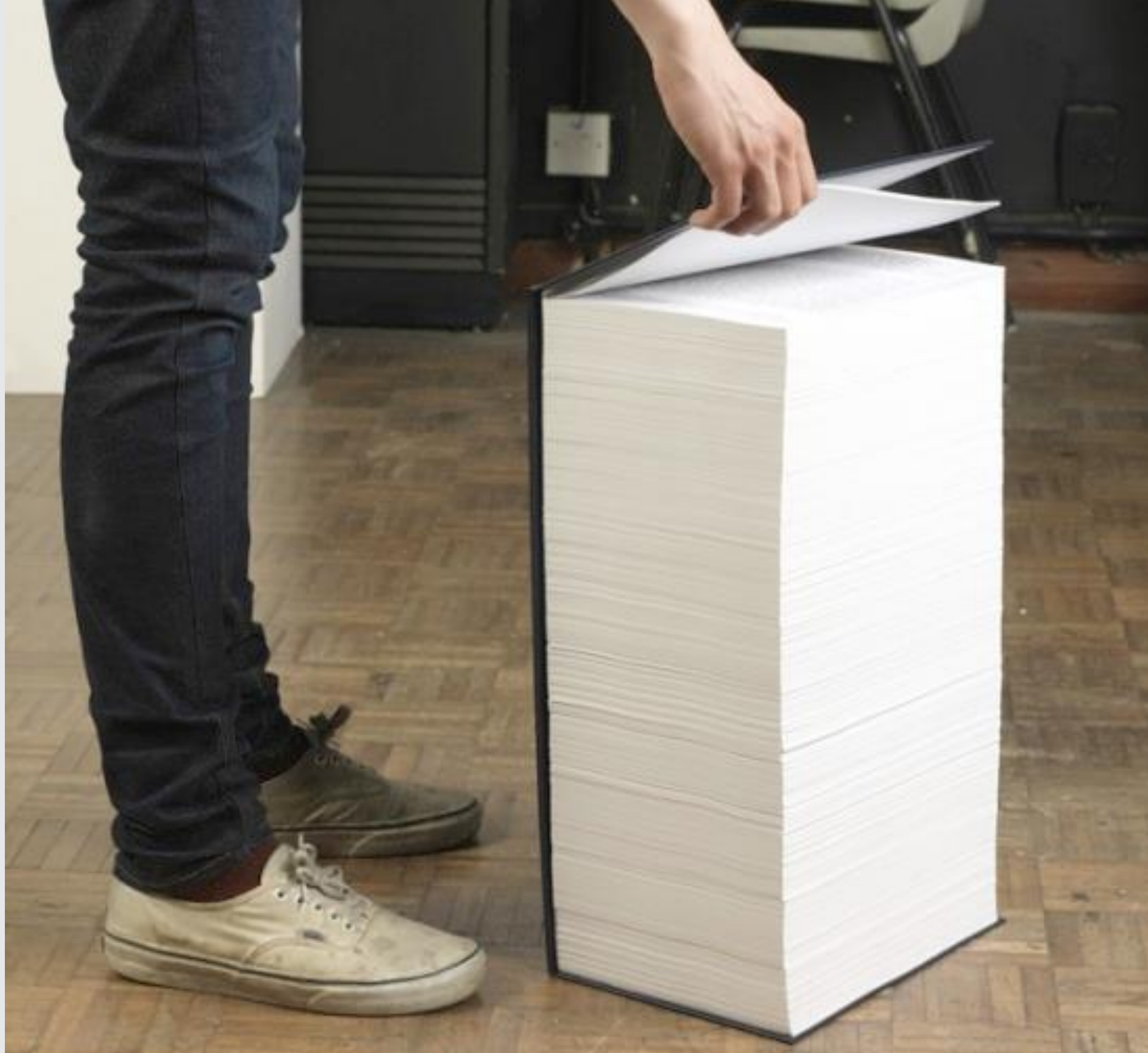
First edition
2020-11

Document management — Electronic
document file format for long-term
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Part 4:
Use of ISO 32000-2 (PDF/A-4)

Gestion de documents — Format de document portable —
Partie 4: Utilisation de l'ISO 32000-2 (PDF/A-4)

8



The word cloud visualizes the 15 dimensions of the CLEAR-PDF framework. The dimensions are: Clear, Accurate, Unambiguous, Precise, Accessible, Error-free, Formalized, Informative, Relevant, Usable, Exact, Indexable, Machine-readable, Referenceable, Educational, Meaningful, Explanatory, Searchable, Maintained, Illustrative, Unusable, Inaccurate, Ambiguous, Imprecise, Inaccessible, Error-prone, Informal, Uninformative, Irrelevant, and Unusable. The words are arranged in a circular pattern, with 'Clear' and 'PDF' being the largest and most central. Other prominent words include 'Accurate', 'Unambiguous', 'Precise', 'Accessible', 'Error-free', 'Formalized', 'Informative', 'Relevant', 'Usable', 'Exact', 'Indexable', 'Machine-readable', 'Referenceable', 'Educational', 'Meaningful', 'Explanatory', 'Searchable', 'Maintained', 'Illustrative', 'Unusable', 'Inaccurate', 'Ambiguous', 'Imprecise', 'Inaccessible', 'Error-prone', 'Informal', 'Uninformative', 'Irrelevant', 'Unusable'.

Key	Type	Value
Dests	dictionary	(Optional; PDF 1.1; shall be an indirect reference) ...
Outlines	dictionary	(Optional; shall be an indirect reference) ...
Threads	array	(Optional; PDF 1.1; shall be an indirect reference) ...
Lang	text string	<p>(Optional; PDF 1.4) A language identifier that shall specify the natural language of all text in the document except where overridden by language specifications in structure elements or marked-content (see 14.9.2, "Natural language specification"). If this entry is absent <u>or invalid (see 14.9.2, "Natural language specification")</u>, the language shall be considered unknown.</p> <p><u>NOTE All text in a document includes PDF text strings (see 7.9.2.2 "Text string type") as well as textual content.</u></p>

5. Otherwise, the body element is null, but there's a document element. Append the new value to the document element.

ISO/IEC 14492:2019, Information technology – Lossy/lossless coding of bi-level images. <https://www.iso.org/standard/75396.html>

NOTE The ISO/IEC 14492 dated reference for JBIG2 was updated in the 2020 dated revision of PDF 2.0.

ISO/IEC 14496-22:2019, Information technology – Coding of audio-visual objects — Part 22: Open Font Format. <https://standards.iso.org/ittf/PubliclyAvailableStandards/index.html>

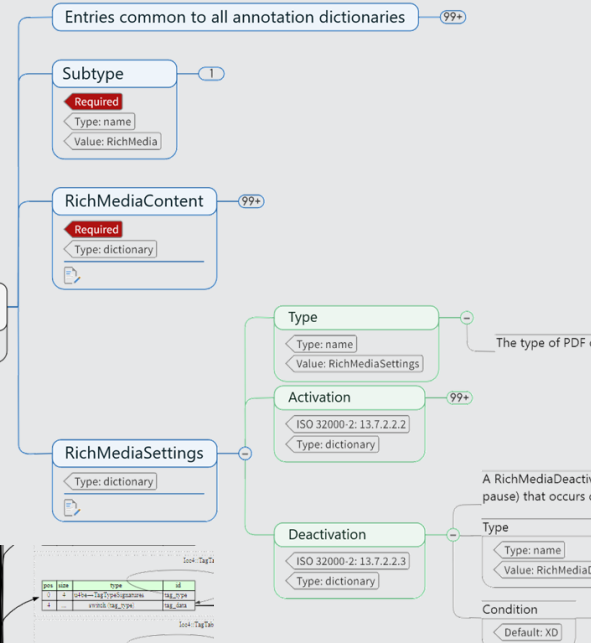
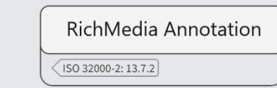
NOTE The ISO/IEC 14496-22 dated reference was updated in the 2020 dated revision of PDF 2.0.

ISO 14739-1, Document management – 3D use of Product Representation Compact (PRC) format — Part 1: PRC 10001. <https://www.iso.org/standard/54948.html> (This is an undated reference in PDF 2.0, but the URL here is to the ISO 2014 published edition. ISO TC 171 WG 5 is currently working on a PRC dated revision to fix errata so the URL will updated when PRC achieves DIS/FDIS status)

ISO 15076-1, Image technology colour management – Architecture, profile format and data structure — Part 1: Based on ICC.1:2010. <https://www.iso.org/standard/54754.html>

NOTE **Errata #181** changed ISO 15076-1 to an undated reference for all ICC profiles that contain an ICC header profile version of 4.x. This supports the dated revision of ISO 15076 that is in progress with ISO TC 130. An equivalent specification is already available at <https://www.color.org/specification/ICC.1-2022-05.pdf>.

ISO/IEC 15444-1:2019, Information technology — JPEG 2000 image coding system: Core coding system. <https://www.iso.org/standard/78221.html>



5. Otherwise, [the body element](#) is null, but there's a [document element](#). [Append](#) the new value to the [document element](#).

Note
The value returned by the `body` getter is not always the one passed to the setter.

Example

In this example, the setter successfully inserts a `body` element (though this is non-conforming since SVG does not allow a `body` as child of `SVG svg`). However the getter will return null because the document element is not `html`.

```
<svg xmlns="http://www.w3.org/2000/svg">
<script>
document.body = document.createElementNS("http://www.w3.org/1999/xhtml", "body");
console.assert(document.body === null);
</script>
</svg>
```

For web developers (non-normative)

```
document.images
    Returns an HTMLCollection of the img elements in the Document.

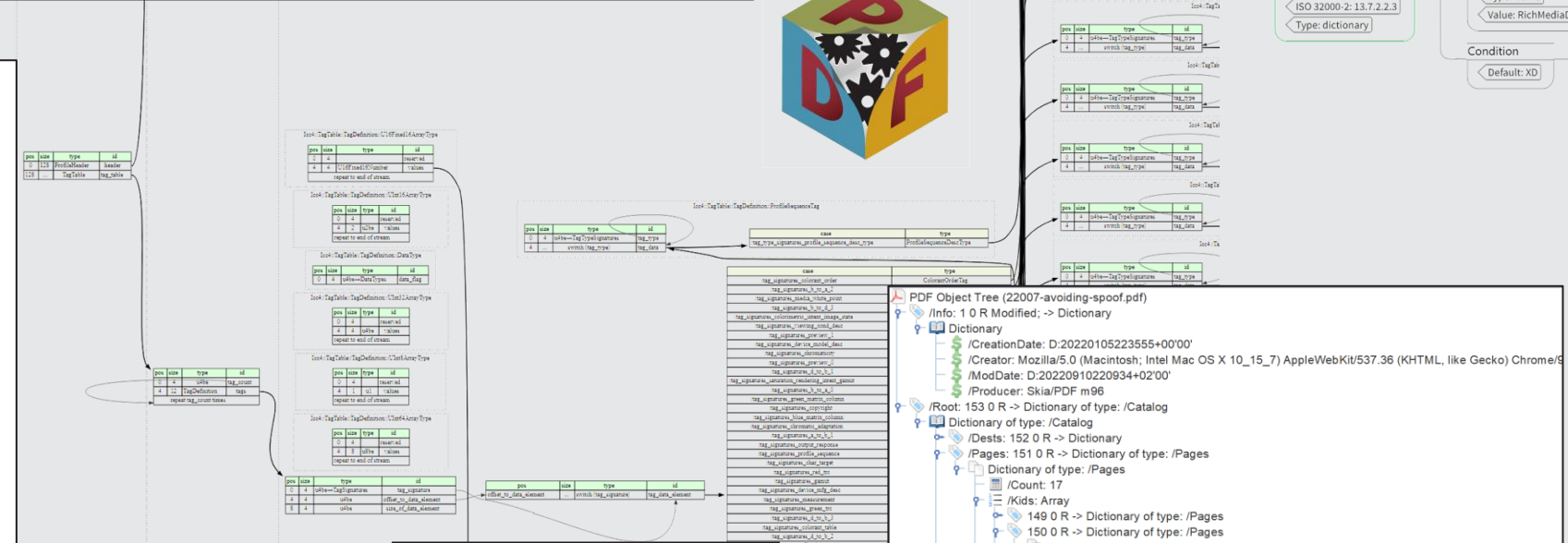
document.embeds
document.plugins
    Returns an HTMLCollection of the embed elements in the Document.

document.links
    Returns an HTMLCollection of the a and area elements in the Document that have href attributes.
```

Document/images

Support in all current engines.

Firefox	✓ MDN
Safari	✓ MDN
Chrome	✓ MDN
Opera	12.1+
Edge	
Edge (Legacy)	✓ MDN
Internet Explorer	4+
Firefox Android	
Safari iOS	✓ MDN
Chrome Android	?
WebView Android	?
Samsung Internet	✓ MDN
Opera Android	



• PostScript is an **interpreted programming language** with an implicit global state, so instructions accompanying the description of a document must be processed to determine the correct appearance of a given page, whereas each page in a PDF document is initially processed before being able to display the destination page.

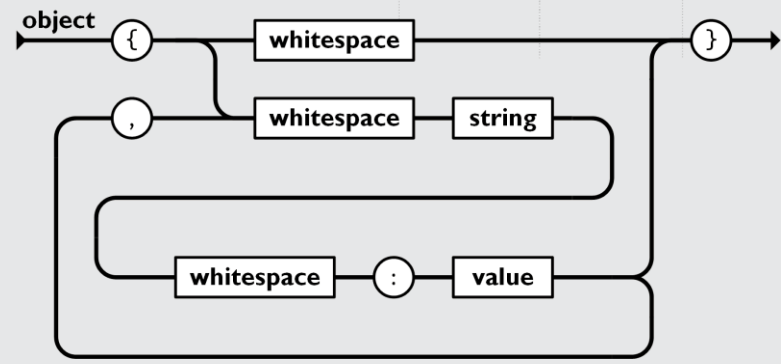
In computer science, an **array type** is a data type that contains a collection of elements, each identified by an index or key. In most languages, arrays can be indexed starting from zero. 3D drawings can be embedded using **U3D** or **PRC** formats.

In computer science, an **array type** is a data type that represents a collection of *elements*, each selected by one or more indices that can be computed at run time during program execution. Such a collection is usually called an **array variable**, **array value**, or simply **array**. By analogy with the mathematical

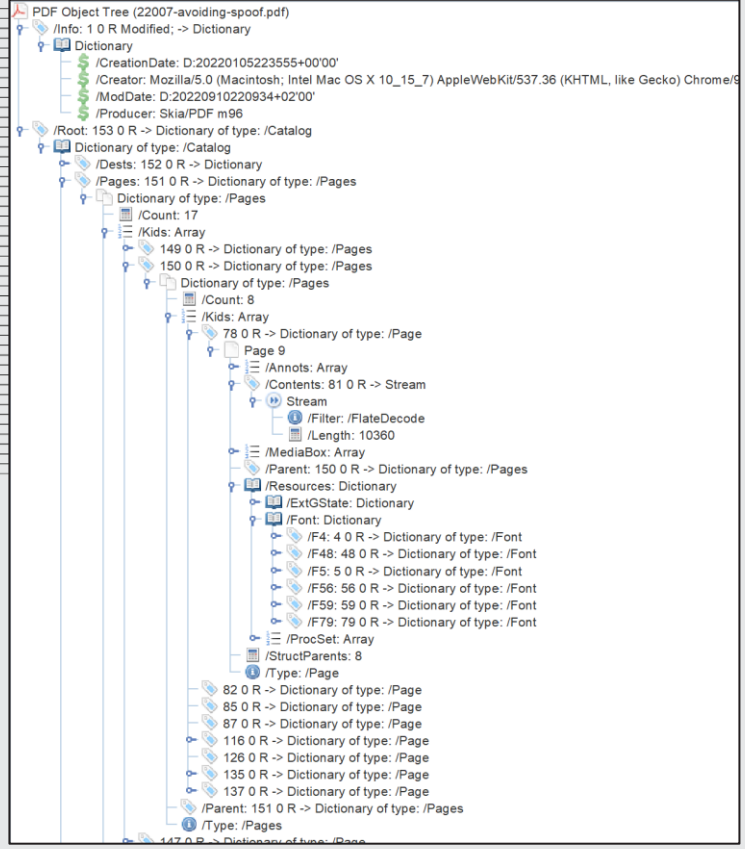
- **Arrays**, ordered collections of objects enclosed within square brackets (`[...]`)
- **Dictionaries**, collections of objects indexed by names enclosed within double angle brackets (`<<...>>`)
- **Streams**, usually containing large amounts of optionally compressed binary data, preceded by a dictionary and enclosed between `<<...>>`
- The **null** object

Furthermore, there may be comments, introduced with the percent sign (%). Comments may contain 8-bit characters.

Objects may be either *direct* (embedded in another object) or *indirect*. Indirect objects are numbered with an *object number* and a *group number*.

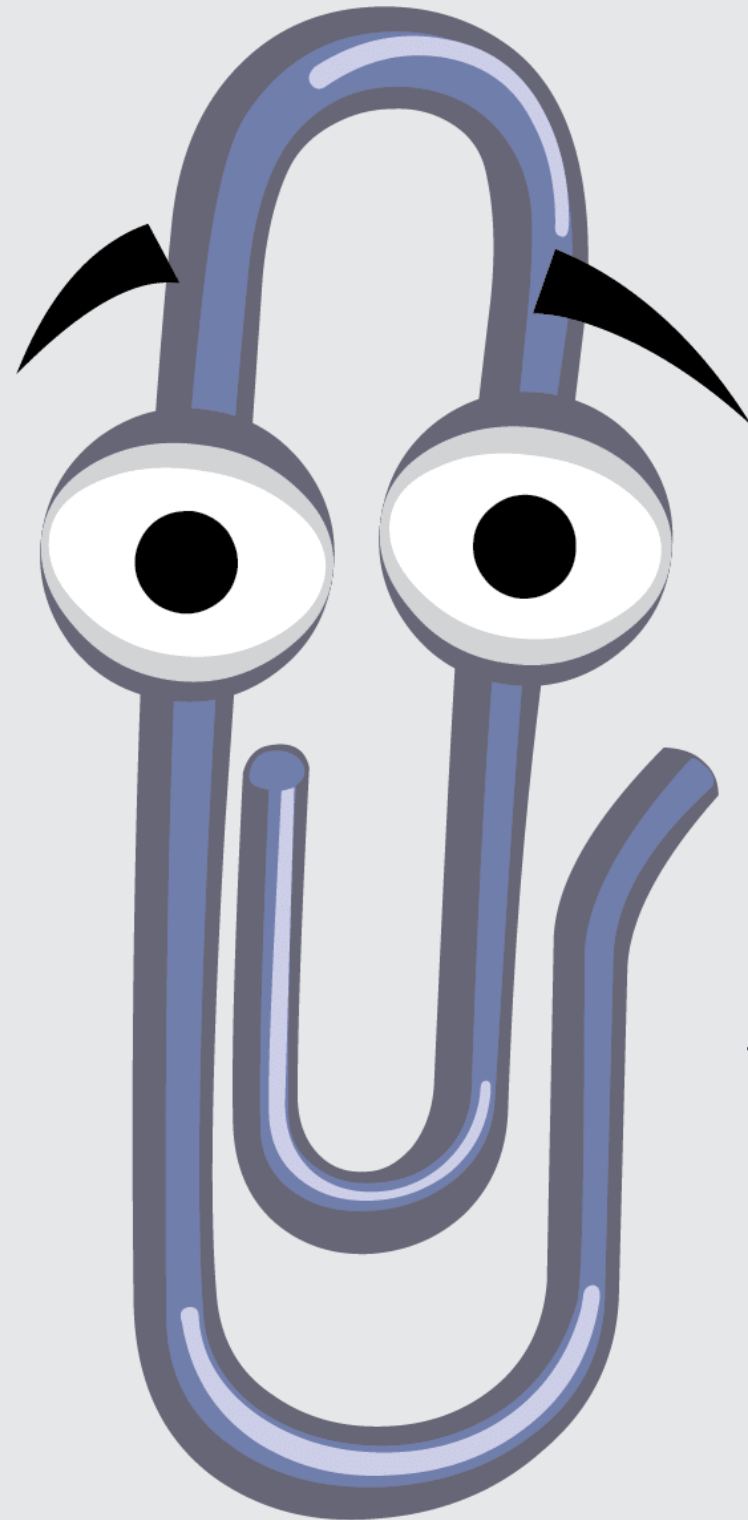


7.2266083 0 Td <01EC> Tj
ET
BT
/F4 17.33 Tf
1 0 0 -1 183.68973 113.454666 Tm
<072A> Tj
ET
0 0 0 RG 0 0 0 rg
BT
/F5 16 Tf
1 0 0 -1 96 142.731995 Tm
<072A> Tj
0 0 Td <06F7> Tj
5.29599 0 Td <0062> Tj
10 719986 0 Td <000E> Tj









It looks like there are errors and inconsistencies in the PDF specification. Would you like help with that?



Why now?



Thank you



PDF Days Europe 2022 | Berlin

Peter Wyatt
CTO, PDF Association
peter.wyatt@pdfa.org