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Document management applications — Electronic document file format enhancement for accessibility — Part 2: Use of ISO 32000-2 (PDF/UA-2)

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ISO/DIS 14289-2:2023(E)

Applications de la gestion de documents — Amélioration de format du fichier du document électronique pour l'accessibilité — Partie 2: Titre manque

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

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This document was prepared by Technical Committee ISO/TC 171, *Document management applications*, Subcommittee SC 2, *Document file formats, EDMS systems and authenticity of information*.

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A list of all parts in the ISO 14289 series can be found on the ISO website.

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Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

The Portable Document Format (PDF) is a digital format for representing documents. PDF files can be created natively in PDF form, converted from other electronic formats, or digitized from paper. Businesses, governments, libraries, archives, and other institutions and individuals around the world use PDF to represent considerable bodies of important information. These PDF files should be made accessible to users with disabilities.

The primary purpose of the ISO 14289 series of documents, known as PDF/UA, is to define how electronic files in the PDF format can be represented in a manner that allows them to be accessible. The accessibility of a PDF document depends on the inclusion of a variety of semantic information such as (but not limited to):

- machine-readable text presented in a declared language;
- appropriate semantic structures for elements such as paragraphs, lists, tables and headings;
- the organization of semantic structures in logical reading order;
- descriptive metadata, such as alternate descriptions for images.

This document is intended as a companion standard to be used in conjunction with ISO 32000-2 (PDF-2.0). Other standards can also be relevant for the purpose of achieving accessibility.

This document does not replace ISO 14289-1. ISO 14289-1 provides normative guidance based on ISO 32000-1; this document provides normative guidance based on ISO 32000-2.

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Document management applications — Electronic document file format enhancement for accessibility — Part 2: Use of ISO 32000-2 (PDF/UA-2)

1 Scope

This document specifies how to use the Portable Document Format (PDF) specified in ISO 32000-2 to construct accessible digital documents using PDF technology.

This document does not specify:

- ~~Processes~~ processes for converting paper or electronic documents to the PDF/UA format;
- technical design, user interface, implementation, or operational details of presentation;
- physical methods of storing these documents such as media and storage conditions;
- required computer hardware and/or operating systems;
- requirements specific to content (beyond facilitating programmatic access and textual representation);
- requirements applying to specific classes (e.g., invoices, reports, etc.) of documents.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 14289-1, Document management applications — Electronic document file format enhancement for accessibility — Part 1: Use of ISO 32000-1 (PDF/UA-1)

ISO 32000-2:2020, Document management — Portable document format — Part 2: PDF 2.0

ISO/TS 32005, Document management — Portable Document Format — PDF 1.7 and 2.0 structure namespace inclusion in ISO 32000-2

W3C, Digital Publishing WAI-ARIA Module 1.0 (DPUB-ARIA), W3C Recommendation, 14 December 2017, <https://www.w3.org/TR/dpub-aria-1.0/>

PDF Association, PDF Declarations, September 5, 2019, <https://www.pdfa.org/resource/pdf-declarations/>

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3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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ISO and IEC maintain terminology databases for use in standardization at the following addresses;

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— ISO Online browsing platform: available at <https://www.iso.org/obp>

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— IEC Electropedia: available at <https://www.electropedia.org/>

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3.1 assistive technology { AT }

hardware or software added to, or incorporated within, a system that increases accessibility for an individual

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3.2

PDF-1.7 namespace

standard structure namespace for PDF-1.7

[SOURCE ISO/TS 32005:2023, 3.1]

3.3

PDF-2.0 namespace

standard structure namespace for PDF-2.0

[SOURCE ISO/TS 32005:2023, 3.2]

3.4

real content

graphics objects, annotations and form fields representing material intentionally introduced by a document's author and necessary for an *assistive technology* (3.1) user to understand that document's content

Note 1 to entry: -Text, images and paths are all examples of "graphics objects" in PDF files.

Note 2 to entry: -The purpose of distinguishing between real and other content is to identify specific objects that the author intended for consumption by a human.

3.5

structure attribute

entry containing additional information contained within an attribute object

Note 1 to entry: -This term is introduced in ISO 32000-2:2020, 14.7.6.

3.6

unique PDF-1.7 element

standard structure element whose type is defined solely in the *PDF-1.7 namespace* (3.2)

[SOURCE ISO/TS 32005:2023, 3.5]

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artifact marked content sequence
artifact defined solely by a marked content sequence, and not defined by a structure element

4 Notation

Token characters, text string characters, PDF operators, operands, PDF keywords, the names of keys in PDF dictionaries, and other predefined names are written according to the same convention as in ISO 32000-2:2020, clause 4, and as defined in ISO 32000-2:2020, 7.2 and 7.9.2 (token characters and text string characters, respectively).

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5 Version identification

The PDF/UA version of a file shall be specified in the value of the **Metadata** entry in the document catalog **dictionary** using the PDF/UA identification schema defined in this clause.

Table 1, “PDF/UA Identification Schema” defines the PDF/UA identifier using the namespace URI “<https://www.aiim.org/pdfua/ns/id/>”. The required schema namespace prefix is **pdfuaid**.

NOTE Namespace URIs are intended to be unique strings, and not expected to be resolved as URLs. This URI is retained for compatibility reasons.

Table 1.— PDF/UA identification schema

Property	Value type	Category	Description
pdfuaid:part	<i>Open choice of integer</i>	Internal	(Required) PDF/UA part identifier
pdfuaid:rev	<i>Open choice of integer</i>	Internal	(Required) Four-digit year of the date of publication or revision

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The value of **pdfuaid:part** shall be 2 for PDF files conforming with this document.

The value of **pdfuaid:rev** shall be the four digits of the year of publication or revision.

The values of the **pdfuaid:part** and **pdfuaid:rev** properties do not ~~by themselves~~ determine conformity with this document ~~by themselves~~; these criteria are specified in ~~clause 6~~ **clause 6**.

6 Conformity requirements

6.1 General

The ISO 14289 series of standards define a file format for representing electronic documents commonly known as “PDF/UA”. This document addresses the accessibility of PDF files conforming to ISO 32000-2 (PDF-2.0).

NOTE-1 The proper mechanism by which a file can presumptively identify itself as being a PDF/UA file of a given conformity level is described in ~~clause 5~~ **clause 5**.

NOTE-2 Regardless of the version number present in the conforming file, conformity requirements specified in this document are based on ISO 32000-2 (PDF-2.0).

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6.2 Conforming files

Beyond the requirements in ~~clause 8~~ Clause 8 and PDF/UA version identification as defined in ~~clause 5~~ Clause 5, conformity with this document requires that:

- ~~A~~ a file shall adhere to all requirements of ISO 32000-2;
- ~~A~~ a file shall adhere to all requirements of ISO/TS 32005;
- ~~A~~ a file should not contain any feature that is deprecated in ISO 32000-2;
- ~~A~~ a file may include any valid ISO 32000-2 feature that is not explicitly forbidden by this document;
- ~~A~~ a file should not contain features described in specifications prior to ISO 32000-2 which are not explicitly defined or identified in ISO 32000-2 or this document;
- ~~An~~ an embedded file, if necessary to the understanding of the document, shall be accessible according to applicable objectively verifiable standards, e.g. WCAG 2.1.^[5] If such an embedded file is a PDF file, it shall conform to the ISO 14289 series.

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NOTE-1 Embedded files referenced from the containing file, for use by a human reader, can be necessary to the understanding of the document. See 8.14. See 8.14.

NOTE-2 Discouraging deprecated features aligns this document with ISO 19005-4.

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NOTE-3 Conformance with ISO/TS 32005 is required because, while ISO 32000-2 did not deprecate any structure types defined in PDF-1.7, ISO 32000-2:2020, Annex-L provided containment rules only for structure types defined in the PDF-2.0 namespace. ISO/TS 32005 expands these containment rules to cover both the PDF-2.0 namespace and those elements unique to the PDF-1.7 namespace. By adhering to the requirements of ISO/TS 32005, it is possible to include both PDF-2.0 and PDF-1.7 structure types in files that conform to this document.

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A file may declare its support for and conformity with PDF extensions to ISO 32000-2:2020 by use of an Extensions dictionary as specified in ISO 32000-2:2020, 7.12.

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NOTE-4 Use of extensions can potentially negatively impact accessibility, compatibility and consistency of files when consumed by different processors.

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Although other accessibility standards may apply provide guidance on accessible content, this document deliberately avoids requirements related to content. Conformity to PDF/UA alone does not ensure that the content of a document is accessible. Cases not covered by PDF/UA include:

- where authors have used colour or contrast in an inaccessible manner;
- where ECMAScript present in the file can generate inaccessible results;
- where text content is potentially inaccessible to those with certain cognitive impairments;
- whether a particular content item is real content or artifact content.

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NOTE-5 Requirements governing author's creative choices, (e.g., requirements for plain language), or the use of specific degrees of colour-contrast, are out of scope for this document. For such requirements, authors can refer to WCAG-2.1.^[5] and other applicable standards such as ISO 24495-1.^[1]