

ISO/~~TS~~**DTS** 32005:~~202x~~**2023(E)**

ISO TC 171/SC 2/WG 9

Secretariat: ANSI

Date: 2023-02-21

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

~~DTS~~ stage

iTeh STANDARD PREVIEW

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Published in Switzerland.

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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 documents 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 2 (see www.iso.org/directives)).

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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.

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*.

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.

Introduction

ISO 32000-2 introduced the mechanism for defining namespaces within a logically structured PDF document; identified two ~~recognised~~recognized namespaces for tagged PDF documents; and provided strict hierarchical inclusion rules for the standard structure namespace for PDF-2.0.- However, ISO 32000-2 did not specify restrictions and inclusion rules for the standard structure namespace for PDF-1.7. This document extends the hierarchical inclusion rules to address both the standard structure namespace for PDF-2.0 and the standard structure namespace for PDF-1.7.

The primary purpose of this document is to extend the rules already defined within ISO 32000-2 to resolve any ambiguity.

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

1 Scope

This Technical Specification document specifies containment requirements for tagged PDF documents that use the PDF-1.7 namespace and the PDF-2.0 namespace. These containment requirements extend, but and entirely comply with, the rules and provisions already specified for tagged PDF documents within ISO 32000-2.

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-32000-1:~~2008~~, *Document management — Portable Document Format — Part 1: PDF-1.7*

ISO-32000-2:2020, *Document management — Portable Document Format — Part 2: PDF-2.0*

~~PDF-DECLARATIONS, P.D.F.~~ PDF Association, September 5, 2019, <https://www.pdfa.org/resource/pdf-declarations/><https://www.pdfa.org/resource/pdf-declarations/>

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 32000-2 and the following apply.

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

- ISO Online browsing platform: available at <https://www.iso.org/obp><https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org><https://www.electropedia.org/>

3.1

PDF-1.7 namespace

standard structure namespace for PDF-1.7

3.2

PDF-2.0 namespace

standard structure namespace for PDF-2.0

3.3

PDF-1.7 element

standard structure element type defined in the namespace for PDF-1.7

3.4

PDF-2.0 element

standard structure element type defined in the namespace for PDF-2.0

3.5

unique PDF-1.7 element

standard structure element whose type is defined solely in the PDF-1.7 namespace (3.1)

4 Declaration of ~~Conformance~~conformance

This document defines additional requirements that are fully compliant with ISO 32000-2. As such, a PDF document can conform to all the requirements of ISO 32000-2 and the requirements defined in this document, retaining compliance with both standards. However, not all files which are compliant with ISO 32000-2 will be compliant with this document.

To enable interchange and to identify that a given PDF document conforms to the requirements defined in this document, that PDF document may include a PDF ~~Declaration~~declaration of conformance with this document. When such a PDF ~~Declaration~~declaration is present, it shall conform to the requirements of the PDF ~~Declaration~~Declarations specification and that Such claim of conformance shall take the form described in ~~Table 1~~Table 1.

Table 1_1 — Declaration of ~~Conformance for documents conforming~~conformance to this standarddocument

Key	Type
URI identifier	https://pdfa.org/declarations#iso32005 https://pdfa.org/declarations#iso32005
Mandatory field(s)	none
Standard	ISO/ TS 32005
Version	1
URI	https://www.pdfa.org/resource/ISO-32005/ https://www.pdfa.org/resource/ISO-32005/
Level	N/A
Technology Reliance	ISO 32000-2

EXAMPLE Conformance ~~Declaration~~declaration for a PDF file conforming to this document:

```
<?xml version="1.0" encoding="utf-8"?>
  <rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
  <rdf:RDF xmlns:rdf="https://www.w3.org/1999/02/22-rdf-syntax-ns#"
  <rdf:Description rdf:about=""
  xmlns:pdfd="http://pdfa.org/declarations/">="https://pdfa.org/declarations/">
  <pdfd:declarations>
  <rdf:Bag>
  <!-- Declaration for conformity with standard "ISO_32005" --
  >
  <rdf:li rdf:parseType="Resource">
```

```

_____<pdfd:conformsTo> https://pdfa.org/declarations#iso32005</pdfd:conformsTo>
_____<pdfd:conformsTo>
https://pdfa.org/declarations#iso32005</pdfd:conformsTo>
_____</rdf:li>
_____</rdf:Bag>
_____</pdfd:declarations>
_____</rdf:Description>
</rdf:RDF>

```

5 Using the PDF_1.7 namespace with the PDF_2.0 namespace

5.1 General

ISO 32000-2 permits the use of both the PDF_1.7 namespace and the PDF_2.0 namespace but does not indicate how they are to be used together in the same document. The following clauses clarify this usage.

NOTE ISO 32000-2 does not restrict the interaction of the two namespaces.

PDF documents conforming to this document shall be versioned as PDF_2.0 using either the header or the value of the **Version** entry in the document's catalog dictionary (see ISO 32000-2:2020, 7.7.2).

5.2 PDF_1.7 as a standalone namespace

If all structure elements used in a given document are PDF_1.7 elements, either explicitly, through the default standard structure namespace or role mapped to an element in the default standard structure namespace, then the requirements of ISO 32000-1:2008 shall be used for their inclusion. In such cases, the use of namespaces shall not be required and those structure elements are exempt from the provisions specified in the following clauses 5.3, 5.4 and 5.5.

If any document has structure elements that use a namespace other than the PDF_1.7 namespace or the default standard structure namespace, then that document shall conform to the rules requirements specified in the following clauses 5.3, 5.4 and 5.5.

5.3 Elements defined in both the PDF_1.7 and PDF_2.0 namespace

A subset of the PDF_1.7 elements and the PDF_2.0 elements are common between the two namespaces. All structure elements whose type is common to both the PDF_1.7 namespace and the PDF_2.0 namespace, shall use the PDF_2.0 namespace and follow the inclusion rules defined in ISO 32000-2:2020, Annex-L, and in clause Clause 5 of this document (except as exempted by 5.2).5.2).

5.4 Elements defined solely in the PDF_2.0 namespace

PDF_2.0 elements shall explicitly declare their namespace using the PDF_2.0 namespace and may contain unique PDF_1.7 elements and PDF_2.0 elements, as defined in Clause 5.

NOTE ISO 32000-2:2020, Annex-M identifies the new elements that are solely defined for the PDF_2.0 namespace.

5.5 Elements defined solely in the PDF-1.7 namespace

5.5.1 General

Unique PDF-1.7 elements may be included in a document. -When such structure elements are included (except as exempted in ~~clause 5.2)5.2~~), those elements shall conform to the requirements defined in ~~clause-Clause~~ 5 and may be children of PDF-2.0 elements and may include unique PDF-1.7 elements or PDF-2.0 elements.

NOTE ISO 32000-2, "~~2020~~. Annex-M" identifies the elements that are solely defined for the PDF-1.7 namespace.

5.5.2 Permitted PDF-1.7 element types

5.5.2.1 General

ISO 32000-2 does not directly define the element types outside of the PDF-2.0 namespace, ~~instead referring. Instead, it refers~~ to the definition of those elements in ISO 32000-1:~~2008~~. To ensure consistency, unique PDF-1.7 elements (except as exempted by ~~clause 5.2)5.2~~) shall match the descriptions ~~in subsequent clauses~~ and follow the inclusion rules specified in ~~clause-Clause~~ 5.

5.5.2.2 Grouping structure elements

The unique PDF-1.7 elements that are a grouping element type are defined in ~~Table 2~~ Table 2 and shall be the only PDF 1.7 namespace grouping elements permissible in a document (except as exempted by ~~clause 5.2)5.2~~).

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Table 2.2 — Standard structure types for unique PDF-1.7 grouping elements

Structure type	Description
Art	(Article) A relatively self-contained body of text constituting a single narrative or exposition. Articles should be disjoint; that is, they should not contain other articles as constituent elements.
BlockQuote	<p>(Block quotation) A portion of content quoted from another source other than the surrounding content.</p> <p>NOTE-1 The BlockQuote structure element groups larger units of quoted content, see Quote (4.5.2.3, "") for inline quotation.</p> <p>NOTE-2 The BlockQuote structure element differs from the DocumentFragment structure element, in that DocumentFragment implies unchanged and contiguous portions of another document, whereas BlockQuote often include modification or contextualization. BlockQuote is permitted to both contain or be a child of DocumentFragment (see 7.2, "Hierarchical inclusion rules"-7.2).</p> <p>NOTE-3 The source for a BlockQuote can include content from the same document.</p>
TOC	<p>(Table of contents) A list made up of table of contents item entries (structure type TOCI) and/or other nested table of contents entries (TOC).</p> <p>A TOC entry that includes only TOCI entries represents a flat hierarchy. A TOC entry that includes other nested TOC entries (and possibly TOCI entries) represents a more complex hierarchy. Ideally, the hierarchy of a top-level TOC entry reflects the structure of the main body of the document.</p> <p>NOTE-4 Lists of figures and tables, as well as bibliographies, can be treated as tables of contents for purposes of the standard structure types.</p> <p>When parts of a TOC have descriptive text, that text shall use Caption to identify its purpose. When multiple parts of the TOC have descriptive text at the same level within that TOC, then Part shall be used to subdivide that TOC into the described (captioned) sub-parts, with each Part having its own Caption.</p>
TOCI	(Table of contents item) An individual entry within a table of contents (TOC).
Index	(Index) A sequence of entries containing identifying text accompanied by reference elements (structure type Reference ; see 5.5.2.3, "Inline-level structure elements"-5.5.2.3) that point out occurrences of the specified text in the main body of a document.
Private	(Private element) A grouping element containing private content belonging to the application producing it. The structural significance of this element type is unspecified and shall be determined entirely by the writer. Neither the Private element nor any of its descendants (including content) have defined semantic significance and may be ignored by processors, both when consuming the content and when exporting to other document formats.
NOTE The definitions in this table are taken from ISO 32000-1, but have been updated.	

5.5.2.3 Inline-level structure elements

The unique PDF-1.7 elements that are an inline-level element type are defined in [Table 3](#) and shall be [the only PDF 1.7 namespace inline-level structure elements](#) permissible in a document (except as exempted by [clause 5.2](#)).

Table 3-3— Standard structure types for unique PDF_1.7 inline-level structure elements

Structure type	Description
Quote	(Quotation) An inline portion of content quoted from another source other than the surrounding content. The quoted text should be contained inline within a single block-level unit of content. This differs from the block-level element BlockQuote (see 5.5.2.2, “Grouping structure elements”); 5.5.2.2), which consists of one or more complete paragraphs (or other elements presented as if they were complete paragraphs).
Note	(Note) An item of explanatory text, such as a footnote or an endnote, that is referred to from within the body of the document. It may have a label (structure type Lbl ; see ISO 32000-2:2020, Table_368, “General inline level structure types”) as a child. The note may be included as a child of the structure element in the body text that refers to it, or it may be included elsewhere (such as in an endnotes section) and accessed by means of a reference (structure type Reference). Tagged PDF does not prescribe the placement of footnotes in the page content order. They may be either inline or at the end of the page, at the discretion of the conforming writer.
Reference	(Reference) A citation to content elsewhere in the document.
BibEntry	(Bibliography entry) A reference identifying the external source of some cited content. It may contain a label (structure type Lbl ; see ISO 32000-2:2020, Table_368, “General inline level structure types”) as a child. Although a bibliography entry is likely to include component parts identifying the cited content’s author, work, publisher, and so forth, no standard structure types are defined at this level of detail.
Code	(Code) A fragment of computer program text.
NOTE The definitions in this table are taken from ISO 32000-1, but have been updated.	

5.6 Role mapping

Custom element types may be present in a document and shall have an explicitly defined namespace except as exempted by [clause 5.2.5.2](#).

6 Attributes

6.1 General

ISO 32000-2 defines a mechanism for applying structure attributes to structure elements (see ISO 32000-2:2020, 14.7.6).— While both ISO 32000-2 and ISO 32000-1 defined this mechanism, ISO 32000-2 extended it to additionally make use of namespaces (see ISO 32000-2:2020, Table_360). —Clause ~~6.6~~ specifies the requirements for a file containing structure attributes.

6.2 Attribute owners

Attribute owners (see ISO 32000-2:2020, Table_376) identify sets of attributes that are available for use with structure elements. ~~Attribute~~For each attribute, attribute owners also restrict ~~for each attribute which the~~ structure element type ~~with which~~ they may be used ~~with~~.

The attributes defined within the various attribute owners in ISO 32000-2 are a superset of those defined in ISO 32000-1. As such, regardless of whether a given structure element is a unique PDF_1.7 element or a PDF_2.0 element, that structure element may use any structure attribute defined in ISO 32000-2, as restricted by those attributes' definition.

6.3 Attribute namespaces

As an alternative to attribute owners, ISO 32000-2 defines a mechanism for identifying a namespace for a given set of attributes (see ISO 32000-2:2020, Table-360). Attribute objects identifying their owner as a namespace may occur on any structure element regardless of that structure element's namespace.

7 Parent-child relationships between the standard structure elements in the standard structure namespace for PDF_2.0 and PDF_1.7

7.1 General

ISO 32000-2 defines the standard structure element types within ISO 32000-2:2020, 14.8.4, "~~Standard structure types~~" and identifies the PDF_1.7 namespace and the PDF_2.0 namespace in ISO 32000-2:2020, 14.8.6, "~~Standard structure namespaces~~". ISO 32000-2:2020, Annex-L, "~~Parent-child relationships between the standard structure elements in the standard structure namespace for PDF 2.0~~", specifies the ~~normative~~ requirements for hierarchical inclusion of the PDF_2.0 elements.

~~7.2.0 elements.~~

~~7.2~~ extends the ~~requirements~~ rules for hierarchical inclusion^[1] of both the PDF_2.0 elements and PDF_1.7 elements.

NOTE A compact representation of the hierarchical inclusion rules defined in ~~clause~~ 7.2 can be found in Reference-[1].

7.2 Hierarchical inclusion rules

This ~~clausesubclause~~ defines the acceptable children of the standard structure elements defined in the PDF_1.7 namespace and the PDF_2.0 namespace. PDF_1.7 elements and PDF_2.0 elements shall not have child or parent PDF_1.7 elements or PDF_2.0 elements that are not explicitly listed in ~~Table 5~~ Table 5.

These containment requirements shall also apply to structure elements that are role mapped into the PDF_2.0 namespace or PDF_1.7 namespace (except as exempted by ~~clause 5.2~~ Table 4 Clause 5.2). Table 4 provides a legend for use in interpreting ~~Table 5~~ Table 5.

~~Note~~NOTE 1 The hierarchical inclusion rules included in this clause can also be found in an attached machine-readable format, with full correspondence between the two formats for the rules.

~~Note~~NOTE 2 The hierarchical rules included in this ~~clausesubclause~~ extend those found in ISO 32000-2, "~~2020, Annex-L~~", and can be considered complete for all elements permitted by this document. These extensions pertain to unique PDF_1.7 elements and their interaction with other PDF_1.7 elements and PDF_2.0 elements. These requirements fully conform to those found in ISO 32000-2 and associated errata for PDF_2.0 elements.

Table 4.4 — Legend for valid usage of structure types