

Technical Note

Reference structure elements containing links

TN-PDFUA1-002 v1.4

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PDF/UA-1

PDF/UA TWG

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Preface

This PDF/UA-1 Technical Note provides clarification on consuming **Reference** structure elements with link annotations. Information about this Technical Note can also be found at <https://pdfa.org/resource/tn-pdfua1-002>.

This document is non-normative and does not alter any existing requirements in [ISO 32000-1:2008] (PDF 1.7) or [ISO 14289-1:2014] (PDF/UA-1).

Notation

This document follows existing conventions for PDF specifications, as specified in [ISO 32000-1:2008], Clauses 5 to 6.

This document also uses tree-based diagrams to illustrate the hierarchical arrangement of structure elements. These diagrams have two columns:

- The left column illustrates the hierarchical arrangement of structure elements and related attributes that form part of a document's logical structure.
- The right column provides document content as “double quoted text” in a serif typeface, or descriptive comments.

The PDF Association provides [sponsored editions of many ISO standards](#) for no-cost.

1 Reference structure elements with link annotations

Reference structure elements are intended to enclose content that refers to other content elsewhere in the same document. **Reference** structure elements do not, by themselves, imply that interactive functionality is available. If interactivity is desired, link annotations are used.

PDF/UA-1 [ISO 14289-1:2014] requires that all link annotations are contained in **Link** structure elements. Due to this requirement, internal document links are commonly observed to be enclosed in both **Reference** and **Link** structure elements (see examples sub-section 1.1.2, Use of Reference within a P, interactive, Example and sub-section 1.1.3, Use of Reference in a TOC, interactive, Example below). This situation often results in duplicate announcements from AT, which is undesirable.

Typical cases for **Reference** structure elements include:

- A reference (commonly a superscript number) from body text to a footnote or endnote.
- A reference from a table of contents or index to the referenced content.

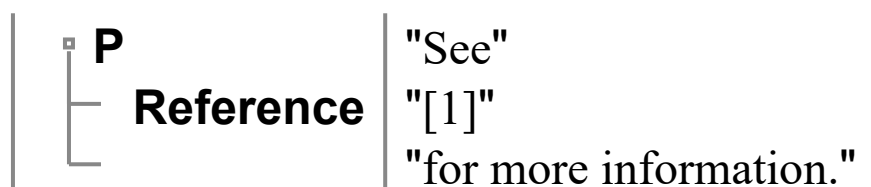
PDF 1.7 [ISO 32000-1:2008] and PDF/UA-1 [ISO 14289-1:2014] do not provide explicit guidance regarding the use of **Reference** structure elements with intra-document link annotations; these standards merely require that link annotations are tagged with **Link** structure elements.

1.1 Examples

1.1.1 Use of **Reference** within a **P**, non-interactive

EXAMPLE

FIGURE 1: PDF logical structure tree hierarchy

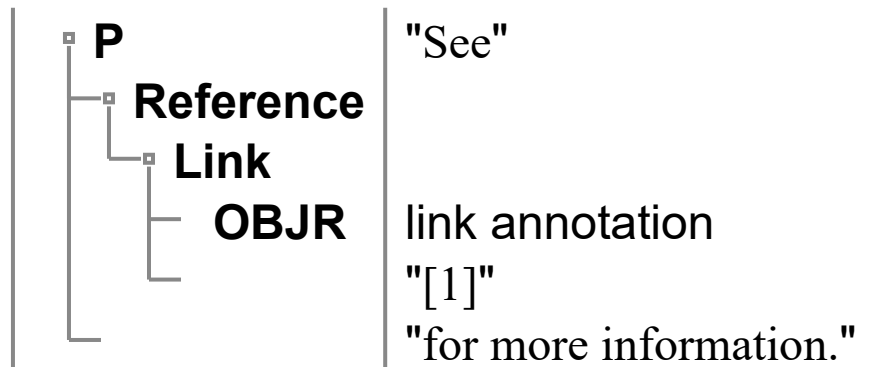


A functional PDF/UA-1 file containing this example is attached [📎](#).

1.1.2 Use of **Reference** within a **P**, interactive

EXAMPLE

FIGURE 2: PDF logical structure tree hierarchy

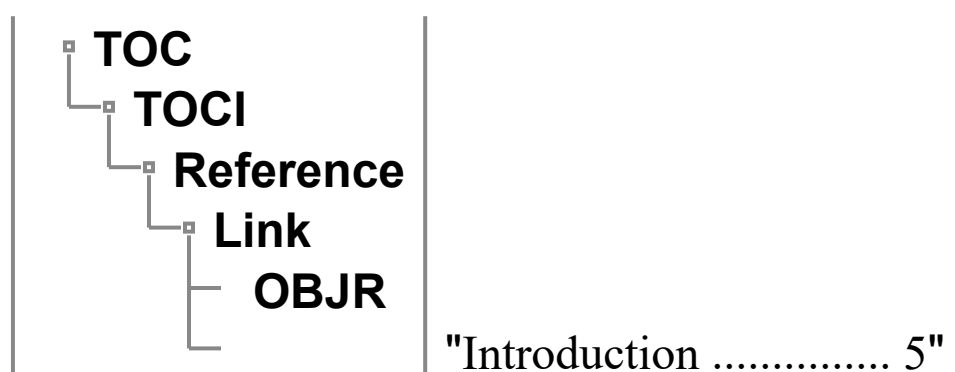


A functional PDF/UA-1 file containing this example is attached [📎](#).

1.1.3 Use of **Reference** in a **TOC**, interactive

EXAMPLE

FIGURE 3: PDF logical structure tree



A functional PDF/UA-1 file containing this example is attached [📎](#).

NOTE This example is similar to [BPG for Tagged PDF], Clause 4.1.4.1, Example A.

1.2 Link structure elements enclosed by Reference structure elements

Reference structure elements may enclose **Link** structure elements. APIs are expected to deliver both structure elements to AT. However, this fact does not imply that a link should be announced more than once. Accordingly, PDF viewer software that causes AT to announce “link” twice should be corrected.

Link structure elements are not required to contain link annotations. For example, page content representing a non-actionable URI will not include a link annotation but could be semantically represented with a **Link** structure element. This fact reinforces the importance of announcing link annotations irrespective of the **Link** structure element.

Consuming software encountering PDF 1.7 files should not announce or represent “Link” on the **Reference** structure element, as it is only in PDF 2.0 [ISO 32000-2] that PDF’s specification anticipated link annotations contained directly by **Reference** structure elements.

1.3 Looking forward to PDF 2.0

As noted above, PDF 2.0 [ISO 32000-2] allows link annotations as direct children of either **Link** structure elements or **Reference** structure elements. Accordingly, consuming software should accommodate both cases.

Bibliography

- [ISO 14289-1:2014] ISO 14289-1:2014, International Organization for Standardization (committee). *Document management applications—Electronic document file format enhancement for accessibility—Part 1: Use of ISO 32000-1 (PDF/UA-1)*. Second edition. 2014. Geneva: International Organization for Standardization. <https://www.iso.org/standard/64599.html>.
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