
**Information technology — Digital
publishing — EPUB3 —**

**Part 6:
EPUB Canonical Fragment Identifier**

Technologies de l'information — Publications numériques — EPUB3 —

Partie 6: Identificateurs de fragment canoniques EPUB

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The main task of the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

In other circumstances, particularly when there is an urgent market requirement for such documents, the joint technical committee may decide to publish an ISO/IEC Technical Specification (ISO/IEC TS), which represents an agreement between the members of the joint technical committee and is accepted for publication if it is approved by 2/3 of the members of the committee casting a vote.

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Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

ISO/IEC TS 30135 series were prepared by Korean Agency for Technology and Standards (as KS X 6070 series) with International Digital Publishing Forum and were adopted, under a special “fast-track procedure”, by Joint Technical Committee ISO/IEC JTC 1, Information technology, in parallel with its approval by the national bodies of ISO and IEC.

ISO/IEC TS 30135 consists of the following parts, under the general title *Information technology — Document description and processing languages — EPUB 3*:

- *Part 1: Overview*
- *Part 2: Publications*
- *Part 3: Content Documents*
- *Part 4: Open Container Format*
- *Part 5: Media Overlay*
- *Part 6: Canonical Fragment Identifier*
- *Part 7: Fixed-Layout Documents*

EPUB Canonical Fragment Identifier (epubcfi) Specification



Recommended Specification 11 October 2011

THIS VERSION

<http://www.idpf.org/epub/linking/cfi/epub-cfi-20111011.html>

LATEST VERSION

<http://www.idpf.org/epub/linking/cfi/epub-cfi.html>

PREVIOUS VERSION

<http://www.idpf.org/epub/linking/cfi/epub-cfi-20110908.html>

A diff of changes from the previous draft is available at [this link](#).

Please refer to the [errata](#) for this document, which may include some normative corrections.

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> 1 Overview

> 1.1 Purpose and Scope

This specification, EPUB Canonical Fragment Identifier (epubcfi), defines a standardized method for referencing arbitrary content within an EPUB® Publication through the use of fragment identifiers.

The Web has proven that the concept of hyperlinking is tremendously powerful, but EPUB Publications have been denied much of the benefit that hyperlinking makes possible because of the lack of a standardized scheme to link into them. Although proprietary schemes have been developed and implemented for individual Reading Systems, without a commonly-understood syntax there has been no way to achieve cross-platform interoperability. The functionality that can see significant benefit from breaking down this barrier, however, is varied: from reading location maintenance to annotation attachment to navigation, the ability to point into any Publication opens a whole new dimension not previously available to developers and Authors.

This specification attempts to rectify this situation by defining an arbitrary structural reference that can uniquely identify any location, or simple range of locations, in a Publication: the EPUB CFI. The following considerations have strongly influenced the design and scope of this scheme:

- The mechanism used to reference content should be interoperable: references to a reading position created by one Reading System should be usable by another.
- Document references to EPUB content should be enabled in the same way that existing hyperlinks enable references throughout the Web.
- Each location in an EPUB file should be able to be identified without the need to modify the document.
- All fragment identifiers that reference the same logical location should be equal when compared.
- Comparison operations, including tests for sorting and comparison, should be able to be performed without accessing the referenced files.
- Simple manipulations should be possible without access to the original files (e.g., given a reference deep in a file, it should be possible to generate a reference to the start of the file).
- Identifier resolution should be reasonably efficient (e.g., processing of the first chapter is not required to resolve a fragment identifier that points to the last chapter).
- References should be able to recover their target locations through parser variations and document revisions.
- Expression of simple, contiguous ranges should be supported.

- An extensible mechanism to accommodate future reference recovery heuristics should be provided.

> 1.2 Terminology

Please refer to the EPUB Specifications for definitions of EPUB-specific terminology used in this document.

Standard EPUB CFI

A Publication-level EPUB CFI links into an EPUB Publication. The path preceding the EPUB CFI references the location of the Publication.

Intra-Publication EPUB CFI

An intra-Publication EPUB CFI allows one Content Document to reference another within the same Publication. The path preceding the EPUB CFI references the current Publication's Package Document.

Refer to [Intra-Publication CFIs](#) for more information.

> 1.3 Conformance Statements

The keywords "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [\[RFC2119\]](#).

All sections of this specification are normative except where identified by the informative status label "This section is informative". The application of informative status to sections and appendices applies to all child content and subsections they may contain.

All examples in this specification are informative.

> 2 EPUB CFI Definition

> 2.1 Introduction

This section is informative

A fragment identifier is the part of an IRI [\[RFC3987\]](#) that defines a location within a resource. Syntactically, it is the segment attached to the end of the resource IRI starting with a hash (#). For HTML documents, IDs and named anchors are used as fragment identifiers, while for XML documents the Shorthand XPointer [\[XPTRSH\]](#) notation is used to refer to a given ID.

A Canonical Fragment Identifier (CFI) is a similar construct to these, but expresses a location within an EPUB Publication. For example:

```
book.epub#epubcfi(/6/4[chap01ref]!/4[body01]/10[para05]/3:10)
```

The function-like string immediately following the hash (`epubcfi(...)`) indicates that this fragment identifier conforms to the scheme defined by this specification, and the value contained in the parentheses is the

syntax used to reference the location within the specified Publication ([demo.epub](#)). Using the processing rules defined in [Path Resolution](#), any Reading System can parse this syntax, open the corresponding Content Document in the Publication and load the specified location for the User.

A complete definition of the EPUB CFI syntax is provided in the next section.

NOTE

[epub](#) has been prepended to the name of the scheme as a more generic CFI-like scheme may be defined in the future for all XML+ZIP-based file formats.

› 2.2 Syntax

(EBNF productions [ISO/IEC 14977](#))

fragment	= "epubcfi(" , (path range) , ")" ;
path	= step , local_path ;
range	= path , "," , local_path , "," , local_path ;
local_path	= { step "!" } , [termstep] ;
step	= "/" , integer , ["[" , assertion , "]"] ;
termstep	= terminus , ["[" , assertion , "]"] ;
terminus	= (":" , integer) ("@" , number , ":" , number) ("~" , number) ("~" , number , "@" , number , ":" , number) ;
number	= (digit-non-zero , { digit } , ["." , { digit } , digit-non-zero]) (zero , "." , { digit } , digit-non-zero) ;
integer	= zero (digit-non-zero , { digit }) ;
assertion	= [csv] , { parameter } ;
parameter	= ";" , value-no-space , "=" , csv ;
csv	= value , { "," , value } ;
value	= string-escaped-special-chars ;
value-no-space	= value - ([value] , space , [value]) ;
special-chars	= circumflex square-brackets parentheses comma semicolon equal ;
escaped-special-chars	= (circumflex , circumflex) (circumflex , square-brackets) (circumflex , parentheses) (circumflex , comma) (circumflex , semicolon) (circumflex , equal) ;
character-escaped-special	= (character - special-chars) escaped-special-chars ;
string-escaped-special-chars	= character-escaped-special , { character-escaped-special } ;
	=