PD ISO/IEC TS 30135-3:2014

BSI Standards Publication

Information technology — Digital publishing — EPUB3

Part 3: Content Documents

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National foreword

This Published Document is the UK implementation of ISO/IEC TS 30135-3:2014.

The user's attention is drawn to the fact that the UK committee voted against this document at the enquiry stage. While considering the specification of EPUB to be technically sound, the committee had a number of concerns with the editorial quality of the specification, specifically the grouping of terms and definitions, the use of cross-references between parts, and the typographic layout of the document. The UK committee were concerned that this could present obstacles to interpretation by any user who had not participated in the development of EPUB and was unfamiliar with assumptions and interpretations made by other users.

The UK participation in its preparation was entrusted to Technical Committee ICT/-/1, Information systems co-ordination.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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Part 3: Content Documents

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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

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*

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EPUB Content Documents 3.0

Recommended Specification 11 October 2011

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Latest version

http://www.idpf.org/epub/30/spec/epub30-contentdocs.html

Previous version

http://www.idpf.org/epub/30/spec/epub30-contentdocs-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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Editors

Markus Gylling, DAISY Consortium

William McCoy, International Digital Publishing Forum (IDPF)

Elika J. Etemad, Invited Expert

Matt Garrish, Invited Expert

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1 Overview

1.1 Purpose and Scope

This section is informative

This specification, EPUB Content Documents 3.0, defines profiles of HTML5, SVG, and CSS for use in the context of EPUB® Publications.

This specification is one of a family of related specifications that compose EPUB 3, the third major revision of an interchange and delivery format for digital publications based on XML and Web Standards. It is meant to be read and understood in concert with the other specifications that make up EPUB 3:

- The EPUB 3 Overview [EPUB3Overview], which provides an informative overview of EPUB and a roadmap to the rest of the EPUB 3 documents. The Overview should be read first.
- EPUB Publications 3.0 [Publications30], which defines publication-level semantics and overarching conformance requirements for EPUB Publications.
- EPUB Open Container Format (OCF) 3.0 [OCF3], which defines a file format and processing model for encapsulating a set of related resources into a single-file (ZIP) EPUB Container.
- EPUB Media Overlays 3.0 [MediaOverlays30], which defines a format and a processing model for synchronization of text and audio.

This specification supersedes Open Publication Structure (OPS) 2.0.1 [OPS2]. Refer to [EPUB3Changes] for information on differences between this specification and its predecessor.

1.2 Relationship to Other Specifications

This section is informative

1.2.1 Relationship to HTML5

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The XHTML document type defined by this specification is based on W3C [HTML5], and inherits all definitions of semantics, structure and processing behaviors from the HTML5 specification unless otherwise specified.

In addition, this specification defines a set of extensions to the W3C HTML5 document model that Authors may include in XHTML Content Documents.

This specification defines a simplified processing model that does not require Reading Systems to support scripting, HTML5 forms or the HTML5 DOM. EPUB Reading Systems conformant with this specification are only required to be able to process a conforming EPUB Content Document. As support for scripting and HTML5 forms are optional Reading System features, a conformant Reading System might not be a fully-conformant HTML5 User Agent (i.e., it might not implement the complete HTML5 processing model).

› 1.2.2 Relationship to SVG

This specification defines a restricted subset of SVG 1.1 to represent vector graphics inline in XHTML Content Documents and as standalone SVG Content Documents.

› 1.2.3 Relationship to CSS

The CSS profile defined in this specification has CSS 2.1 [CSS2.1] as its baseline. Any CSS Style Sheet that conforms to CSS 2.1 may be used in the context of an EPUB Publication, except as noted in CSS 2.1.

This specification also incorporates features defined by CSS3 Modules and introduces EPUB-specific CSS constructs.

› 1.2.4 EPUB 3 Versioning Strategy

EPUB 3 references W3C specifications that are not yet final, and incompatible changes to them may occur in the future that would cause EPUB 3 Content Documents that were previously conformant to no longer be conformant to the latest versions of the referenced specifications.

The IDPF anticipates revising the EPUB 3 specifications if and when such incompatible changes occur, updating the normative constraints defined herein as necessary and incrementing the minor version number of EPUB 3 (e.g., publishing an EPUB 3.0.n).

› 1.3 Terminology

EPUB Publication (or Publication)

A logical document entity consisting of a set of interrelated resources and packaged in an EPUB Container, as defined by this specification and its sibling specifications.

Publication Resource

A resource that contains content or instructions that contribute to the logic and rendering of the EPUB Publication. In the absence of this resource, the Publication might not render as intended by the Author. Examples of Publication Resources include the Package Document, EPUB Content Documents, EPUB Style Sheets, audio, video, images, embedded fonts and scripts.

With the exception of the Package Document itself, Publication Resources must be listed in the manifest [Publications30] and must be bundled in the EPUB container file unless specified otherwise in Publication Resource Locations [Publications30].

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Examples of resources that are not Publication Resources include those identified by the Package Document link [Publications30] element and those identified in outbound hyperlinks that resolve outside the EPUB Container (e.g., referenced from an [HTML5] a element href attribute).

Core Media Type Resource

A Publication Resource that is a Core Media Type and may therefore be included in the EPUB Publication without the provision of fallbacks [Publications30].

EPUB Content Document

A Publication Resource that conforms to one of the EPUB Content Document definitions (XHTML or SVG).

An EPUB Content Document is a Core Media Type, and may therefore be included in the EPUB Publication without the provision of fallbacks [Publications30].

XHTML Content Document

An EPUB Content Document conforming to the profile of [HTML5] defined in XHTML Content Documents.

XHTML Content Documents use the XHTML syntax of [HTML5].

SVG Content Document

An EPUB Content Document conforming to the constraints expressed in SVG Content Documents.

EPUB Navigation Document

A specialization of the XHTML Content Document, containing human- and machine-readable global navigation information, conforming to the constraints expressed in EPUB Navigation Documents.

Scripted Content Document

An EPUB Content Document that includes scripting or an XHTML Content Document that contains HTML5 forms elements.

Refer to Scripted Content Documents for more information.

Top-level Content Document

An EPUB Content Document referenced directly from the spine

Core Media Type

A set of Publication Resource types for which no fallback is required. Refer to Publication Resources [Publications30] for more information.

Package Document

A Publication Resource carrying bibliographical and structural metadata about the EPUB Publication, as defined in Package Documents [Publications30].

Manifest

A list of all Publication Resources that constitute the EPUB Publication.

Refer to manifest [Publications30] for more information.

Spine

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An ordered list of Publication Resources, typically EPUB Content Documents, representing the default reading order of the Publication.

Refer to spine [Publications30] for more information.

Text-to-Speech (TTS)

The rendering of the textual content of an EPUB Publication as artificial human speech using a synthesized voice.

EPUB Style Sheet (or Style Sheet)

A CSS Style Sheet conforming to the CSS profile defined in *EPUB Style Sheets*.

Viewport

The region of an EPUB Reading System in which the content of an EPUB Publication is rendered visually to a User.

CSS Viewport

A Viewport capable of displaying CSS-styled content.

SVG Viewport

A Viewport capable of displaying SVG images.

EPUB Container (or Container)

The ZIP-based packaging and distribution format for EPUB Publications defined in [OCF3].

Author

The person(s) or organization responsible for the creation of an EPUB Publication, which is not necessarily the creator of the content and resources it contains.

User

An individual that consumes an EPUB Publication using an EPUB Reading System.

EPUB Reading System (or Reading System)

A system that processes EPUB Publications for presentation to a User in a manner conformant with this specification and its sibling specifications.

› 1.4 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.

› 1.5 Namespace prefix mappings

For convenience, the following namespace prefix mappings [XMLNS] are used throughout this specification:

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prefix	namespace URI
epub	http://www.idpf.org/2007/ops
m	http://www.w3.org/1998/Math/MathML
pls	http://www.w3.org/2005/01/pronunciation-lexicon
ssml	http://www.w3.org/2001/10/synthesis
svg	http://www.w3.org/2000/svg

2 EPUB Content Documents

2.1 XHTML Content Documents

This section defines a profile of [HTML5] for creating XHTML Content Documents. An instance of an XML document that conforms to this profile is a Core Media Type and is referred to in this specification and its sibling specifications as an XHTML Content Document.

Unless otherwise specified, this specification inherits all definitions of semantics, structure and processing behaviors from the [HTML5] specification.

> CAUTION
>
> The EPUB 3 XHTML Content Document definition references features in the W3C [HTML5] specification that are still works in progress and may change in incompatible ways. When utilizing such features, authors should consider the inherent risks in terms of the potential impact on interoperability and document longevity.

2.1.1 Content Conformance

An XHTML Content Document must meet all of the following criteria:

Document Properties

- It must meet the conformance constraints for XML documents defined in XML Conformance [Publications30].
- It must use the XHTML syntax [HTML5].
- It must be valid to the XHTML Content Document schema as defined in XHTML Content Document Schema.
- For all document constructs used that are defined by [HTML5], it must conform to the conformance criteria defined for those constructs in that specification, unless explicitly overridden in HTML5 Deviations and Constraints.
- It must conform to all content conformance constraints defined in HTML5 Extensions and Enhancements.

File Properties

- The XHTML Content Document filename should use the file extension `.xhtml`.

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NOTE
All Publication Resources referenced from an XHTML Content Document must conform to the constraints for Publication Resources defined in EPUB Publication — Content Conformance [Publications30]

› 2.1.2 Reading System Conformance

A conformant EPUB Reading System must meet all of the following criteria for processing XHTML Content Documents:

› Unless explicitly defined by this specification or its sibling specifications as overridden, it must process XHTML Content Documents using semantics defined by the [HTML5] specification and honor any applicable User Agent conformance constraints expressed therein.

› It must meet all Reading System conformance criteria defined in HTML5 Extensions and Enhancements.

› It must recognize and adapt behaviorally to the constraints defined in HTML5 Deviations and Constraints.

› It must meet the Reading System conformance criteria defined in Scripted Content Documents — Reading System Conformance.

› It must support visual rendering of XHTML Content Documents as defined in EPUB Style Sheets — Reading System Conformance.

› It should recognize embedded ARIA markup and support exposure of any given ARIA roles, states and properties to platform accessibility APIs [WAI-ARIA].

› 2.1.3 HTML5 Extensions and Enhancements

This section defines EPUB 3 XHTML Content Document extensions to the underlying [HTML5] document model.

› 2.1.3.1 Semantic Inflection

› 2.1.3.1.1 Introduction

This section is informative

Semantic inflection is the process of attaching additional meaning about the specific purpose and/or nature an element plays in an XHTML Content Document. In the context of EPUB Publications, the `epub:type` attribute is typically used to express domain-specific semantics, with the inflection(s) it carries complementing the underlying [HTML5] host vocabulary. The applied semantics always refine the meaning of their containing elements, never override their nature (e.g., the attribute can be used to indicate a `section` is a chapter in a work, but cannot be used to turn `p` elements into list items to avoid proper list structures).

Semantic metadata is not intended for human consumption; it instead provides a controlled way for Reading Systems and other User Agents to learn more about the structure and content of a document, providing them the opportunity to enhance the reading experience for Users.

This specification defines a method for semantic inflection using *the attribute axis*: instead of adding new XML elements to the XHTML Content Document vocabulary, the `epub:type` attribute can be appended to

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existing elements to inflect the desired semantics. A mechanism to identify external vocabularies that provide controlled values for the attributes is also defined.

› 2.1.3.1.2 The `epub:type` Attribute

The `epub:type` attribute inflects semantics on the element on which it appears. Its value is one or more space-separated terms stemming from external vocabularies associated with the document instance, as defined in Vocabulary Association.

The inflected semantic must express a subclass of the semantic of the carrying element. In the case of semantically neutral elements (such as [HTML5] `div` and `span`), the inflected semantic must not attach a meaning that is already conveyed by an existing element (e.g., that a `div` represents a paragraph or section). Reading Systems must ignore inflected semantics that conflict with the carrying element.

> NOTE
>
> The `epub:type` attribute is intended to be functionally equivalent to the W3C Role Attribute [Role], but with restrictions as specified in Vocabulary Association.

Attribute Name

`type`

Namespace

`http://www.idpf.org/2007/ops`

Usage

May be specified on all elements.

Value

A space-separated list of property [Publications30] values, with restrictions as defined in Vocabulary Association.

› 2.1.3.1.3 Vocabulary Association

This specification adopts the vocabulary association mechanisms defined in Vocabulary Association Mechanisms [Publications30], with the following modifications:

Default Vocabulary

The default vocabulary for Content Documents is defined to be the EPUB 3 Structural Semantics Vocabulary.

Reserved Vocabularies

This specification does not reserve any prefixes.

The `prefix` Attribute

The `prefix` attribute definition is unchanged, but the attribute is defined to be in the namespace `http://www.idpf.org/2007/ops` when used in Content Documents.

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Examples

The following example shows the `epub:type` *attribute used to inflect footnote and note reference semantics. The properties used are defined in the [default vocabulary](#).*

```
<html … xmlns:epub="http://www.idpf.org/2007/ops">
    …
    <p> … <a epub:type="noteref" href="#n1">1</a> … </p>
    …
    <aside epub:type="footnote" id="n1">
        …
    </aside>
    …
</html>
```

The following example shows the `epub:type` *attribute used to inflect glossary semantics on an HTML5 definition list. The property used is defined in the [default vocabulary](#).*

```
<html … xmlns:epub="http://www.idpf.org/2007/ops">
    …
    <dl epub:type="glossary">
        …
    </dl>
    …
</html>
```

The following example shows the `epub:type` *attribute used to inflect source publication pagebreak semantics. The property used is defined in the [default vocabulary](#). (Note that the [dc:source](#) [Publications30] element provides a means of identifying the source publication to which the given pagination information applies.)*

```
<html … xmlns:epub="http://www.idpf.org/2007/ops">
   …
  <p> … <span epub:type="pagebreak" title="234"/> … </p>
   …
</html>
```

› 2.1.3.1.4 Processing Requirements

A Reading System must process the `epub:type` attribute as follows:

- › It may associate specialized behaviors with none, some or all of the terms defined in the [default vocabulary](#).
- › It may associate specialized behaviors with terms given in vocabularies other than the default.
- › It must ignore terms that it does not recognize.

When Reading System behavior associated with a given `epub:type` value conflicts with behavior associated with the carrying element, the behavior associated with the element must be given precedence.

› 2.1.3.2 SSML Attributes

› 2.1.3.2.1 Overview

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The W3C Speech Synthesis Markup Language [SSML] is a language used for assisting Text-to-Speech (TTS) engines in generating synthetic speech. Although SSML is designed as a standalone document type, it also defines semantics suitable for use within other host languages.

This specification recasts the SSML 1.1 `phoneme` element as two attributes — `ssml:ph` and `ssml:alphabet` — and makes them available within EPUB XHTML Content Documents.

Reading Systems with Text-to-Speech (TTS) capabilities should support the SSML Attributes as defined below.

> NOTE
>
> For more information on EPUB 3 features related to synthetic speech, refer to Text-to-speech [EPUB3Overview].

› 2.1.3.2.2 The `ssml:ph` attribute

The `ssml:ph` attribute specifies a phonemic/phonetic pronunciation of the text represented by the element to which the attribute is attached.

Attribute Name

`ph`

Namespace

`http://www.w3.org/2001/10/synthesis`

Usage

May be specified on all elements with which a phonetic equivalent can logically be associated (e.g., elements that contain textual information).

Must not be specified on a descendant of an element that already carries this attribute.

Value

A phonemic/phonetic expression, syntactically valid with respect to the phonemic/phonetic alphabet being used.

This attribute inherits all the semantics of the SSML 1.1 `phoneme` element `ph` attribute, with the following addition:

› When the `ssml:ph` attribute appears on an element that has text node descendants, the corresponding document text to which the pronunciation applies is the string that results from concatenating the descendant text nodes, in document order. The specified phonetic pronunciation must therefore logically match the element's textual data in its entirety (i.e., not just an isolated part of its content).

> NOTE
>
> Reading Systems that support the SSML Attributes and PLS Documents must honor the defined precedence rules for these two constructs.

› 2.1.3.2.3 The `ssml:alphabet` attribute

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The `ssml:alphabet` attribute specifies which phonemic/phonetic pronunciation alphabet is used in the value of the ssml:ph attribute.

Attribute Name

`alphabet`

Namespace

`http://www.w3.org/2001/10/synthesis`

Usage

Global, may be specified on any element.

Value

The name of the pronunciation alphabet used in the value of `ssml:ph` (inherited).

This attribute inherits all the semantics of the SSML 1.1 `phoneme` element `alphabet` attribute, with the following addition:

› The value of the `ssml:alphabet` attribute is inherited in the document tree. The pronunciation alphabet used in a given `ssml:ph` attribute value is determined by locating the first occurrence of the `ssml:alphabet` attribute starting with the element on which the `ssml:ph` attribute appears, followed by the nearest ancestor element.

Reading Systems that support the SSML Attributes feature of this specification should support the `ipa` alphabet.

› 2.1.3.3 Content Switching

› 2.1.3.3.1 Introduction

This section is informative

The `switch` element provides a simple mechanism through which Authors can tailor the Publication content displayed to Users, one that isn't dependent on the scripting capabilities of the Reading System.

Reading System developers may choose to support XML vocabularies and new HTML elements that are not valid in XHTML Content Documents. The `switch` mechanism encourages this type of development and experimentation, but at the same time provides Authors who wish to take advantage of it the security of knowing that their content will still display on any compliant Reading System (i.e., it maintains the baseline requirement that all XHTML Content Documents be valid if none of the specialized markup is supported).

Content switching is not just about encouraging future development, however; it can also be used to create Publications that maintain a level of compatibility with older Reading Systems unable to handle the new features of EPUB 3. For example, instances of MathML, now a native type, could be added using `switch` elements so that EPUB 2 Reading Systems could instead provide fallback images or text.

› 2.1.3.3.2 Definition

› 2.1.3.3.2.1 The `epub:switch` Element

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