

Top Tips for Creating Accessible EPUB 3 Files

According to the World Blind Union, nearly 95 percent of all published knowledge is “locked” in printed form. People with disabilities such as blindness, low vision, dyslexia, or mobility impairments that affect their use of print are not able to access this material. Because they are unable read this printed text, they face enormous barriers in education and employment.

Specialized organizations and libraries provide conversions of some books, making them accessible for people with print disabilities. However, due to the volume of material and the expense of converting to accessible format after a book is published, a vast majority of materials never get converted. The solution to this is to create books that are accessible during the publishing process. As long as a book is “born digital,” it can be “born accessible.”

The following tips help publishers, authors, and other content creators create accessible files from the beginning. The header for each tip also provides a link to more information. Utilizing these tips can help create a process that ensures books are “born accessible.”

Top Tips for Creating Accessible EPUB 3 Files

1. Use HTML 5

- Why? Behind the curtain, HTML 5 tags key elements and identifies them by name (that’s what they mean by structural semantics). Assistive Technology (AT) users will know to listen for these. [Learn more about HTML 5.](#)

2. All text must be available in a logical reading order

- Text can have sidebars or callouts; if you tag that content, a screen reader knows when in the text to read it. Blind users can’t jump around in a book if you don’t tell them where they are and how to get to the next section they’re looking for. Text must not be presented as images, be reordered by CSS, or require scripting to be accessed. Use structural markup to define the natural reading order of the primary content and to distinguish secondary material such as footnotes, references, figures, and other auxiliary content. [Learn more about logical reading order & assistive technologies.](#)

3. Separate presentation and content

- Visual reading is only one way of accessing content. Separation of the presentation (i.e., styling) from the content allows for someone to easily change how the content is presented to meet their own needs. For example, if you embed a specific font and point size for the text, this prevents someone from using a different font, such as one optimized for dyslexia, and doesn’t allow for a

low vision user to increase the size of the text. Do not use visual-only cues such as colored text, font size or positioning as the only clue to the meaning or importance of a word or section. Do not use tables or pictures of text to control the appearance of the content. The meaning of the content should be the same both with and without any styles or formatting applied. [Learn more about separation of style for equal access.](#)

4. Provide complete navigation

- It is essential to enable navigation through a book by tagging every important section of the book: chapters, sections, etc. Blind users can't jump around in a book if you don't tell them where they are and how to get to the next part they are looking for. Include a complete [table of contents](#) in the front matter and consider smaller tables of contents at the start of each section. Use <section> and <aside> tags within the content and the <itemref linear="no"> tag in the manifest file to define a logical reading order. This is particularly important for academic, educational, and other complex texts. [Learn more about accessible navigation.](#)

5. Create meaningful structure wherever possible

- Create a structure by using numbered [headings](#) in a logical structure. For other tagged structures, specify their content with the epub:type attribute. For example, the tag that contains the preface of a book might look like <section epub:type="preface" role="doc-preface">. Specific tags are for specific content only (i.e., the <cite> tag is only for citations) and should be used according to the standard. Use the most specific tag available and do not automatically wrap <div> or tags around everything. [Learn more about accessible structure.](#)

6. Define the content of each tag

- When creating ebooks, it is important to include semantic information to describe the content and usage of an HTML tag. A section tag for the table of contents would look like <section epub:type="toc" role="doc-toc"> and a list of definitions in a glossary would be tagged with <h1 epub:type="glossary" role="doc-glossary">. Use the EPUB 3 Structural Semantics Vocabulary as defined at (<http://idpf.org/epub/vocab/structure/>) to identify content. For users with assistive technologies, the [ARIA role attribute](#) can be used with the epub:type attribute to add more structural content information. [Learn more about defining content of tags for EPUB user agents.](#)

7. Use images only for pictures, not for tables or text

- Any content embedded in an image is not available to visually impaired readers. [Tables](#) presented as images cannot be navigated by a screen reader, leaving users unable to access all of the content in a manageable way. If the textual contents of a table or image are required for comprehension of the document,

use proper and complete markup for text and tabular data, including headers and scope attributes for tables. If images of text are unavoidable, provide a description and transcription of the text and use [accessible SVG](#). Accessible SVG graphics allow text in images to be rendered in an accessible way. They can also make it possible to deliver tactile images electronically to blind users with appropriate devices or to help automate the creation of tactile images that can be mailed to the reader with minimum human intervention. [Learn more about embedded content.](#) Tables presented as images cannot be navigated by a screen reader, leaving users unable to access all of the content in a manageable way. If the textual contents of a table or image are required for comprehension of the document, use proper and complete markup for text and tabular data, including headers and scope attributes for tables. If images of text are unavoidable, provide a description and transcription of the text and use [accessible SVG](#). Accessible SVG graphics allow text in images to be rendered in an accessible way. They can also make it possible to deliver tactile images electronically to blind users with appropriate devices or to help automate the creation of tactile images that can be mailed to the reader with minimum human intervention. .

8. Use image descriptions and alt text

- If content isn't described in the surrounding text, a complex image without a sufficiently descriptive caption is useless for a blind reader. Every content-rich image should have a relevant description, caption, or at a minimum, alt text, unless the image is solely decorative -- and tag decorative images so that they are ignored by a screen reader. Avoid using the alt text "image" to describe any image. See the [DIAGRAM Center Image Guidelines for EPUB 3](#) for mark-up best practices. An added bonus: A well-described image can add to the pedagogical richness of the experience and also be "discoverable" by search engines. [Learn more about alternative text & accessible images.](#)

9. Include page numbers

- Page numbers are the way many people navigate within a book, and in a classroom setting, students need to "all be on the same page." (This gets tricky with multiple digital editions and "digital first" content.) For any book with a print equivalent, use the epub:type="pagebreak" and role="doc-pagebreak" attribute to designate page numbers. Include the ISBN of the source of the page numbers in the package metadata for the book. A tag for a page number might look like this: `361`. [Learn more about accessible page navigation.](#)

10. Define the language(s)

- If you use a foreign word and don't tag it as such, the screen reader will read it as if it's the language of your device. To make sure each word will be rendered correctly, specify the default language of the content in the root html tag.

Indicate any words, phrases or passages in a different language by using the xml:lang attribute. It might look like this: `rue Saint-Andre-des-Arts`. [Learn more about language\(s\) & assistive technology.](#)

11. Use MathML

- Many books show a math equation as an image, which can't be read by a screen reader. MathML can be read by a screen reader which makes mathematical equations accessible to everyone by eliminating the ambiguity of a verbal description of a picture of an equation. This is critical for complex equations. There are many tools available to support MathML creation. [Learn more about MathML.](#)

12. Provide alternative access to media content

- Closed captions make videos more accessible for users who are deaf or hard of hearing; audio descriptions do the same for those who are blind or visually impaired. Make sure the native controls for video and audio content are enabled by default. Provide fallback options such as captions or descriptions for [video](#) and transcripts for [audio](#). [Learn more about accessible video.](#)

13. Make interactive content accessible

- Interactive content using JavaScript or SVG should be accessible. All custom controls should fully implement ARIA roles, states, and properties, as appropriate. [Learn more about accessible interactive content.](#)

14. Use accessibility metadata

- As part of a general good practice of documenting the accessibility of your content, provide accessibility metadata in your files so end users know what features are there and search engines can discover your accessible materials. Otherwise your customers don't know it's accessible -- and HOW accessible it is. This is your chance to show off all the work you've done! There are required metadata elements that can be found at [Schema.org](#). [Learn more about metadata.](#)

15. Make sure your processes support the above best practices

- Make sure accessibility is embedded in your workflow. If content isn't "born accessible" (created for accessibility in the first place), fixing it after it's published costs a fortune.
- Initiate a sustained company-wide effort to make accessibility a core value in the production and dissemination of content, including development of a company policy statement to express the accessibility commitment.
- Develop and implement accessibility guidelines and training for authors.

- Develop and implement accessibility guidelines and training for editorial and production staff.
- Discuss accessibility requirements and standards with vendors.
- Include an accessibility review in the quality-assurance process.
- Include accessibility information on your website and appropriate marketing materials.
- Add accessibility awareness training for customer service staff.