

The tex4ebook package

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Version v0.1e
2017-04-28

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1 Introduction

TeX4ebook is bundle of Lua scripts and LaTeX packages for conversion of LaTeX files to ebook formats, for example epub, mobi and epub3. tex4ht is used as conversion engine.

Note that while mobi is supported by Amazon Kindle, most widespread ebook reader, it doesn't support mathml and this means that math must be represented as images. The same is true for epub. This is not a good

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thing, especially for inline math, as you may experience wrong baselines. If your ebook contains math, the only correct solution is to produce epub3, as it supports mathml. The issue with epub3 is, that majority of e-ink ebook readers doesn't support this format, reader applications exists mainly for Android and Apple devices. For books which contains mainly prose, all formats should be suitable, but epub3 supports most features from web standards, such as CSS.

As with `tex4ht`, the emphasis is on conversion of document's logical structure and metadata, basic visual appearance is preserved as well, but you should use custom configurations if you want to make the document more visually appealing. You can include custom CSS or fonts in configuration files.

1.1 License

Permission is granted to copy, distribute and/or modify this software under the terms of the LaTeX Project Public License, version 1.3.

2 Usage

Run on the command line:

```
tex4ebook [options] filename
```

You don't have to modify your source files unless you want to use commands defined by `tex4ebook` in the document, or when your document uses some unsupported package like `fontspec` (see details bellow how to solve this issue).

If you want to use `tex4ebook` commands, add this line to your document preamble:

```
\usepackage{tex4ebook}
```

but it is optional. You shouldn't need to modify your \TeX files

2.1 Available commands

- `\coverimage{coverimage.name}` - include cover image to the document.

3 Command line options

`-c, --config` specify custom config file for `tex4ht`

example config file: File `sample.cfg`

```

\Preamble{xhtml}
\CutAt{section}
\begin{document}
\EndPreamble

```

run

```
tex4ebook -c sample filename.tex
```

This config file will create xhtml file for every section. Note that this behaviour is default.

- e,--build-file (default nil) Specify make4ht build file¹. Default build file filename is filename.mk4, use this option if you use different filename.
- f,--format (default epub) Output format. epub, epub3 and mobi are supported.
- l,--lua Runs htlua² instead of htlatex.
- m,--mode (default default) This set mode variable, accessible in the build file. Default supported values are default and draft. In draft mode, document is compiled only once, instead of three times.
- r,--resolution Resolution of generated images, for example math. It should meet resolution of target devices, which is usually about 167 ppi.
- s,--shell-escape Enable shell escape in htlatex run. This may be needed if you run external commands from your source files.
- t,--tidy process output html files with HTML tidy command².
- v,--version print version number

4 Configuration

tex4ebook uses tex4ht³ for conversion from LaTeX to html. tex4ht is highly configurable using config files. Basic config file structure is

```

\Preamble{xhtml, comma separated list of options}
...
\begin{document}
...
\EndPreamble

```

¹<https://github.com/michal-h21/make4ht#build-file>

²It needs to be installed separately

³<http://www.tug.org/tex4ht/>

Basic info about command configurations can be found in a work-in-progress *tex4ht tutorial*⁴, *tex4ht documentation*⁵, and in series of blogposts on CV Radhakrishnan's blog: *Configure part 1*⁶, *Configure part 2*⁷, *Low level commands*⁸. Available options for `\Preamble` command are listed in the article *TeX4ht: options*⁹.

Great source of tips for tex4ht configuring is *tex4ht tag on TeX.sx*¹⁰, there is also a *tag for tex4ebook*¹¹.

Examples of interesting questions are *including images and fonts in ebooks*¹² or *setting image size in em units instead of pt*¹³.

4.1 Provided configurations

tex4ebook provides some configurations for your usage:

```
\Configure{UniqueIdentifier}{identifier}
```

Every epub file should have unique identifier, like ISBN, DOI, URI etc. Default identifier is URI, with value `http://example.com/\jobname`.

```
\Configure{OpfScheme}{URI}
```

Type of unique identifier, default type is URI. It is used only in epub, it is deprecated for epub3

```
\Configure{resettoclevels}{list of section types in descending order}
```

Configure section types which should be included in the NCX file. Default value is the whole document hierarchy, from `\part` to `\paragraph`.

```
\Configure{DocumentLanguage}{language code}
```

Each epub must declare the document language. It is inferred from babel main language by default, but you can configure it when it doesn't work correctly. The `language code` should be in ISO 639-1 form.

```
\Configure{CoverImage}{before cover image}{after cover image}
```

By default, cover image is inserted in `<div class="cover-image">` element, you may use this configuration option to insert different markup, or even to place the cover image to standalone page.

⁴<https://github.com/michal-h21/helpers4ht/wiki/tex4ht-tutorial>

⁵<http://www.tug.org/applications/tex4ht/mn11.html>

⁶<http://www.cvr.cc/?p=323>

⁷<http://www.cvr.cc/?p=362>

⁸<http://www.cvr.cc/?p=482>

⁹<http://www.cvr.cc/?p=504>

¹⁰<http://tex.stackexchange.com/questions/tagged/tex4ht>

¹¹<http://tex.stackexchange.com/questions/tagged/tex4ebook>

¹²<http://tex.stackexchange.com/a/213165/2891>

¹³<http://tex.stackexchange.com/a/195718/2891>

`\Configure{CoverMimeType}{mime type of cover image}`

Default value is `image/png`, change this value if you use other image type than `png`.

If you don't want to include the cover image in the document, use command

`\CoverMetadata{filename}`

in the config file.

`\Configure{OpfMetadata}{item element}`

Add item to `<metadata>` section in the OPF file.

`\Configure{OpfManifest}{maifest element}`

Add item to `<manifest>` section in the OPF file.

`\Configure{xmlns}{prefix}{uri}`

Add xml name space to `xhtml` files. Useful in EPUB 3

4.2 Commands available in config files

`\OpfRegisterFile[filename]` register file in the OPF file. Current output file is added by default.

`\OpfAddProperty{property type}` add EPUB3 property for the current file. See *EPUB3 spec*¹⁴

`\OpfGuide[filename]{title}{type}` Add file to the `<guide>` section in the OPF file. See *Where do you start an ePUB and what is the <guide> section of the .OPF file?*¹⁵ for some details. Note that `<guide>` is deprecated in EPUB 3.

4.3 Build files

`tex4ebook` uses `make4ht`¹⁶ as a build system. See `make4ht` documentation for details on build files.

¹⁴<http://www.idpf.org/epub/301/spec/epub-publications.html#sec-item-property-values>

¹⁵<http://epubsecrets.com/where-do-you-start-an-epub-and-what-is-the-guide-section-of-the-opf-file.php>

¹⁶<https://github.com/michal-h21/make4ht>

5 Troubleshooting

When compilation of the document breaks with error during LaTeX run, it may be caused by some problem in tex4ht configuration. Comment out line `\usepackage{tex4ebook}` in your source file and run command:

```
htlatex filename
```

if same error as in tex4ebook run arises, the problem is in some tex4ht configuration. Try to identify the source of problem and if you cannot find the solution, make minimal example showing the error and ask for help either on *tex4ht mailing list*¹⁷ or on *TeX-sx*¹⁸.

5.1 Fontspec

tex4ht currently doesn't support fontspec and open type fonts. At this moment, workaround for this is to modify your source file and conditionally include fontspec and any other conflicting packages only when document is not processed with tex4ht.

Sample:

```
\documentclass{article}
\makeatletter
\@ifpackageloaded{tex4ht}{%
% Packages for tex4ht unicode support
\usepackage[utf8]{inputenc}
\usepackage[T1]{fontenc}
\usepackage[english,czech]{babel}
}%
% Packages for xelatex
\usepackage{fontspec}
\usepackage{polyglossia}
\setmainfont{Latin Modern Roman}
}
\makeatother
```

The drawback is that not all characters of the Unicode range are supported with inputenc. For some solutions of this limitation, see a thread on *tex4ht mailing list*¹⁹

Other approach is to use alternative4ht package from helpers4ht bundle. It works only with Lua backend, but it supports full unicode and you don't have to use conditional package inclusion in your document. See an example.

¹⁷<http://tug.org/mailman/listinfo/tex4ht>

¹⁸<http://tex.stackexchange.com/>

¹⁹<http://tug.org/pipermail/tex4ht/2013q1/000719.html>

5.2 Validation

In case of successful compilation, use command line tool `epubcheck`²⁰ to check whether your document doesn't contain any errors.

Type

```
epubcheck filename.epub
```

5.2.1 Common validation issues:

- WARNING: filename.epub: item (OEBPS/foo.boo) exists in the zip file, but is not declared in the OPF file

Delete the filename-(epub|epub3|mobi) folder and filename.epub. Then run `tex4ebook` again.

- WARNING(ACC-009): hsmmt10t.epub/OEBPS/hsmmt10tch17.xhtml(235,15): MathML should either have an alt text attribute or annotation-xml child element.

This is accessibility message. Unless you use some macro with annotations for each math instance, you will get lot of these messages. Try to use `epubcheck -e` to print only serious errors.

6 Changes

- 27/04/2017 Version 0.1e
 - pack the accumulated changes for distribution
 - set version number from git tag
- 17/01/2017
 - process duplicate images only once
 - check the OPF table for duplicated id attributes
- 11/01/2017
 - pass settings table to the build file.
- 19/12/2016
 - new configuration: `\Configure{resettoclevels}{list of sectioning levels to be included in the NCX}`
- 31/10/2016

²⁰you need to install it separately, see <https://github.com/IDPF/epubcheck>

- added tidyconf.conf to the Makefile
- 22/10/2016
 - added support for new Make4ht command `Make:add_file`
- 22/08/2016
 - fixed incorrect `<dc:creator>` generated by `\author`
 - clean ids in the OPF file if they contain invalid characters at the beginning
- 31/07/2016
 - use monospace font for command line options in order to prevent double hyphens to become dashes by ligaturing
- 22/07/2016
 - removed debugging message when `--lua` option is used
- 07/04/2016
 - Cut `\part` commands to standalone pages
- 05/04/2016
 - bug fix: pages which contained math were arranged before other pages
- 31/03/2016 Version 0.1d
 - bug fix: Unicode wasn't used by default
 - bug fix: Formats weren't preserved
- 06/12/2015 Version 0.1c
 - added `--help` and `--version` command line options
- 25/11/2015
 - added missing language codes
 - added `\Configure{DocumentLanguage}` for the cases when document language inferencing doesn't work
- 17/11/2015
 - use `mkparams` for cli arguments handling.

- fixed inconsistencies between recent changes in `make4ht` and `tex4ebook`
- 24/09/2015 Version 0.1b
 - info about new workaround for `fontspec` package
- 25/08/2015
 - fatal error happened with `epub3` when the document didn't contain the TOC
- 23/08/2015
 - simple cleaning of the `ncx` file if `tidy` command isn't available
- 05/07/2015 Version 0.1a
 - `tex4ebook` script was missing in the distribution zip file
 - all links moved to footnotes in the documentation
- 29/06/2015 Version 0.1
 - fixes in documentation
- 22/06/2015
 - changes moved from `README.md` to `CHANGELOG.md`
- 18/06/2015
 - replaced `--mathml` option with `--mode`. For `mathml` support, use `mathml` option for `tex4ht.sty`.
 - lot of stuff was fixed in `epub3` support.
 - new command `\OpfAddProperty`
- 14/01/2015
 - thanks Volker Gottwald for guide on installing and using `tex4ebook` on Windows
- 23/11/2014
 - added new command `\OpfGuide`, for adding items to `<guide>` section in the `opf` file. This is useful for `epub` and `mobi` formats.
 - Usage:


```
\OpfGuide[filename]{title}{reference type}
```

filename is optional, current file name is used when empty. See
epub secrets article

- 20/10/2014
 - fixed issues with starred sections
 - files created with starred sectioning commands (`\chapter*`, `\section*`) should be included in correct reading order now
- 16/09/2014
 - new features added
 - new configuration file for `--tidy` option, `mathml` and `html5` elements are supported. This means that many validation errors in `mathml` output can be fixed with `--tidy` option
 - added configuration for all languages supported by `babel`
 - `woff` and `ttf` fonts are supported
 - added inline footlines in `epub3` format
 - added `no-cut` command line option for breaking sections and chapters into standalone pages
 - Please support initiative for improving `mathml` support in Gecko and Webkit engines. This will hopefully improve also Epub3 readers.
- 10/08/2013
 - `make4ht` is now standalone application which `tex4ebook` depends on. You must install it in order to use current `tex4ebook` version.