

Crowbook

Crowbook

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Chapter 1

Crowbook

Render a markdown book in HTML, Epub or PDF.

Crowbook's purpose is to allow you to automatically generate multiple outputs formats from a book written in Markdown. Its main focus is novels, and the default settings should (hopefully) generate readable books with correct typography.

1.1 Example

To see what Crowbook's output looks like, you can read (a not-necessarily up-to-date version of) the Crowbook guide (containing this README.md file and additional documentation) rendered in [HTML](#), [PDF](#) or [EPUB](#).

1.2 Installing

Packages

If you are on Debian GNU/Linux or Ubuntu (on a PC architecture), you can download `.deb` packages on [the releases page](#).

Binaries

See [the releases page](#) to download a precompiled binary for your architecture (currently: Linux, Windows and MacOSX). Just extract the archive and run `crowbook` (or `crowbook.exe` on Windows). You might also want to copy the binary somewhere in your `PATH` for later usage.

Building

You'll need to have the **Rust** compiler on your machine first; you can **download and install it [here](#)**. Once it is down:

```
$ cargo install crowbook
```

will automatically download the latest **crowbook** release on **[crates.io](#)** and install it.

1.3 Usage

The simplest command is:

```
$ crowbook <BOOK>
```

where **BOOK** is a configuration file. Crowbook will parse this file and generate a book in HTML, Epub, LaTeX, and/or PDF, according to the settings in the configuration file. So if you clone this repository and run

```
$ crowbook config.book
```

you'll generate the example book in various formats. The HTML version should look **like that**.

To create a new book, assuming you have a list of Markdown files, you can generate a template configuration file with the **--create** argument:

```
$ crowbook --create my.book chapter_*.md
```

This will generate a default **my.book** file, which you'll need to complete. This configuration file contains some metadata, options, and lists the Markdown files. Here is a basic example:

```
author: Joan Doe
title: Some book
lang: en
```

```
output_html: some_book.html
```

```
+ chapter_1.md
+ chapter_2.md
```

```
+ chapter_3.md  
+ ...
```

For more information see [the configuration file](#).

It is also possible to give additional parameters to `crowbook`; we have already seen `--create`, but if you want the full list, see [the arguments](#).

1.4 Current features

Output formats

Crowbook (to my knowledge) correctly supports HTML and EPUB (either version 2 or 3) as output formats: rendered files should pass respectively the [W3C validator](#) and the [IDPF EPUB validator](#) for a wide range of (correctly Markdown formatted) input files. See the example book rendered in [HTML](#) and [EPUB](#) on github.io.

LaTeX output is a bit more tricky: it should work reasonably well for novels (the primary target of Crowbook), but `pdflatex` might occasionally choke on some "weird" unicode character. Moreover, images are not yet implemented (but should come soon). See the example book rendered in [PDF](#) on github.io.

ODT output is experimental at best. It might work if your inputs files only include very basic formatting (basically, headers, emphasis and bold), it will probably look ugly in the rest of the cases, and it might miserably fail in some. See the example book rendered in [ODT](#) on github.io if you want to hurt your eyes.

Input format

Crowbook uses [pulldown-cmark](#) and thus should support most of CommonMark Markdown. Inline HTML, however, is not implemented, and probably won't be, as the goal is to have books that can also be generated in PDF (and maybe eventually ODT).

Maybe the most specific "feature" of Crowbook is that (by default, it can be deactivated) it tries to "clean" the input files. By default this doesn't do much (except removing superfluous spaces), but if the book's language is set to french it tries to respect french typography, replacing spaces with non-breaking ones when it is appropriate (e.g. in french you are supposed to put a non-breaking space before '?', '!', ',';

or `?`)). This feature is relatively limited at the moment, but I might try to add more options and support for more languages.

Links handling

Crowbook tries to correctly translate local links in the input Markdown files: e.g. if you have a link to a markdown file that is part of your book, it will be transformed into a link inside the document.

Inline YAML blocks

Crowbook supports inline YAML blocks. These are blocks delimited with lines containing `---` (three dashes). An example of such block:

```
---
author: Me
title: My title
---
```

These blocks must contain *valid* YAML syntax. If they are not at the beginning of the Markdown file, they must also be preceded by an empty line.

It is possible to use inline YAML blocks to modify options for the book (`author` and `title` in the previous example). This is mostly useful when Crowbook is runned with the `--single` argument (receiving a single Markdown file instead of a book configuration file).

Bugs

See [Bugs](#).

1.5 Acknowledgements

Besides the [Rust](#) compiler and standard library, Crowbook uses the following libraries:

- [pulldown-cmark](#) (for parsing markdown)
- [yaml-rust](#) (for parsing YAML blocks)
- [mustache](#) (for templating)
- [clap](#) (for parsing command line arguments)

- [chrono](#) (date and time library)
- [uuid](#) (to generate uuid)

It also uses configuration files from [rust-everywhere](#) to use [Travis](#) and [Appveyor](#) to generate binaries for various platforms on each release.

While Crowbook directly doesn't use them, there was also inspiration from [Pandoc](#) and [mdBook](#).

Also, the [W3C HTML validator](#) and the [IDPF EPUB validator](#) proved very useful during development.

1.6 ChangeLog

See [ChangeLog](#).

1.7 Library

While the main purpose of Crowbook is to be runned as a command line, the code is written as a library, so if you want to build on it you can use it as such. You can look at the generated documentation [here](#).

1.8 License

Crowbook is free software: you can redistribute it and/or modify it under the terms of the GNU Lesser General Public License (LGPL), version 2.1 or (at your option) any ulterior version. See [LICENSE](#) for more information.

Chapter 2

The configuration file

If you want to use Crowbook for your book, this configuration file is all you'll have to add (assuming you already have the book in Markdown files; if you don't, you'll also have to write a book first, but that's besides the scope of this document).

The format is not very complicated. This is an example of it:

```
# metadata
author: Joan Doe
title: Some book
lang: en

output.html: some_book.html

# list of chapters
- preface.md
+ chapter_1.md
+ chapter_2.md
+ chapter_3.md
+ chapter_4.md
- epilogue.md
```

Basically, it is divided in two parts:

- a list of options, under the form **key: value**, following YAML syntax.
- a list of Markdown files.

Lines starting with the # characters are comments and are discarded.

2.1 The list of files

There are various options to include a markdown file.

- `+ file_name.md` includes a numbered chapter.
- `- file_name.md` includes an unnumbered chapter.
- `! file_name.md` includes a chapter whose title won't be displayed (except in the table of contents); this is useful for e.g. including a copyright at the beginning of the book, or for short stories where there is only one chapter.
- `42. file_name.md` specifies the number for a chapter.

So a typical usage might look like this:

```
! copyright.md
- preface.md
# We want first chapter to be Chapter 0 because we are
programmers!
0. chapter_0.md
# Next chapters can be numbered automatically
+ chapter_1.md
+ chapter_2.md
...
```

There are two important things to note:

1. you must *not* use quotes around the file names.
2. the path of these files are relative to the directory where your config file is, *not* to the directory where you are when running `crowbook`. E.g. you can run `crowbook books/my_trilogy/first_book/config.book` without being in the book's directory.

Also note that you don't have to specify a title. This is because the title of the chapter is inferred from the Markdown document. To go back to our previous example:

```
+ chapter_1.md
```

does not specify a chapter title, because it will read it directly in `chapter_1.md`, e.g.:

```
The day I was born
=====
```

```
...
```

You should have one and only one level-one header (i.e. chapter title) in each markdown file.

If you have more than one, Crowbook will print a warning and treat it as another chapter (numbered according to the scheme specified for including the file). It might however mess the table of contents in some cases (e.g. for Epub).

If you do *not* have a level-1 header in a markdown file:

- if it is a numbered chapter, Crowbook will infer a chapter name from the numbering scheme;
- if it is not numbered, chapter's title will default to the empty string and won't be displayed in the TOC.

2.2 Crowbook options

The first part of the configuration file is dedicated to pass options to Crowbook. This is **YAML syntax**, so each line should be of the form `key: value`. Note that in most cases you don't have to put string in quotes, e.g.:

```
title: My title
```

It is however possible (and sometimes necessary to escape some characters) to use quotes around strings:

```
title: "My title!"
```

It is possible to use multiline strings with `>-` and then indenting the lines that are part of the string:

```
title: >-
  A
  long
  title
author: Joan Doe
```

will set `title` to "A long title". See [block literals in YAML](#) for more information on the various way to insert multiline strings (which mostly change the way newlines will or won't be inserted).

Here is the complete list of options, with a short description. The usage of some of them is detailed later on.

Metadata

- `author`
 - **type**: string
 - **default value**: `Anonymous`
 - The author of the book
- `title`
 - **type**: string
 - **default value**: `Untitled`
 - The title of the book
- `lang`
 - **type**: string
 - **default value**: `en`
 - The language of the book
- `subject`
 - **type**: string
 - **default value**: `not set`
 - Subject of the book (used for EPUB metadata)
- `description`
 - **type**: string
 - **default value**: `not set`
 - Description of the book (used for EPUB metadata)
- `cover`
 - **type**: path
 - **default value**: `not set`
 - File name of the cover of the book

Output options

- `output.epub`
 - **type:** path
 - **default value:** not set
 - Output file name for EPUB rendering
- `output.html`
 - **type:** path
 - **default value:** not set
 - Output file name for HTML rendering
- `output.tex`
 - **type:** path
 - **default value:** not set
 - Output file name for LaTeX rendering
- `output.pdf`
 - **type:** path
 - **default value:** not set
 - Output file name for PDF rendering
- `output.odt`
 - **type:** path
 - **default value:** not set
 - Output file name for ODT rendering

Misc options

- `zip.command`
 - **type:** string
 - **default value:** zip
 - Command to use to zip files (for EPUB/ODT)
- `numbering`

- **type:** integer
- **default value:** 1
- The maximum heading levels to number (0: no numbering, 1: only chapters, ..., 6: all)
- **display_toc**
 - **type:** boolean
 - **default value:** false
 - If true, display a table of content in the document
- **toc_name**
 - **type:** string
 - **default value:** Table of contents
 - Name of the table of contents if toc is displayed in line
- **autoclean**
 - **type:** boolean
 - **default value:** true
 - Toggles cleaning of input markdown (not used for LaTeX)
- **verbose**
 - **type:** boolean
 - **default value:** false
 - If set to true, print warnings in Markdown processing
- **side_notes**
 - **type:** boolean
 - **default value:** false
 - Display footnotes as side notes in HTML/Epub
- **temp_dir**
 - **type:** path
 - **default value:** “
 - Path where to create a temporary directory (default: uses result from Rust’s `std::env::temp_dir()`)

- `numbering_template`
 - **type:** string
 - **default value:** `"{{number}}. {{title}}"`
 - Format of numbered titles
- `nb_char`
 - **type:** char
 - **default value:** `' '`
 - The non-breaking character to use for autoclean when lang is set to fr

HTML options

- `html.template`
 - **type:** path
 - **default value:** not set
 - Path of an HTML template
- `html.css`
 - **type:** path
 - **default value:** not set
 - Path of a stylesheet to use with HTML rendering

EPUB options

- `epub.version`
 - **type:** integer
 - **default value:** 2
 - The EPUB version to generate
- `epub.css`
 - **type:** path
 - **default value:** not set
 - Path of a stylesheet to use with EPUB rendering

- `epub.template`
 - **type:** `path`
 - **default value:** `not set`
 - Path of an epub template for chapter

LaTeX options

- `tex.links_as_footnotes`
 - **type:** `boolean`
 - **default value:** `true`
 - If set to `true`, will add footnotes to URL of links in LaTeX/PDF output
- `tex.command`
 - **type:** `string`
 - **default value:** `pdflatex`
 - LaTeX flavour to use for generating PDF
- `tex.template`
 - **type:** `path`
 - **default value:** `not set`
 - Path of a LaTeX template file

Note that these options have a type, which in most case should be pretty straightforward (a boolean can be `true` or `false`, an integer must be composed a number, a string is, well, any string). The `path` type might puzzle you a bit, but it's equivalent a string, except Crowbook will consider it relatively to the book file.

Output options

These options specify which files to generate. You must at least set one of this option, or Crowbook won't do anything.

Recall that all file paths are relative to the directory where the config file is, not to the one where you run `crowbook`. So if you set

```
output.epub = foo.epub
```

and runs

```
$ crowbook some/dir/config.book
```

foo.epub will be generated in `some/dir`, not in your current directory.

Crowbook will try to generate each of the `output.xxx` files that are specified. That means that you'll have to set at least one of those if you want a call to

```
$ crowbook my.book
```

to generate anything. (It's still possible to generate a specific format, and only this one, by using the `--to` argument on the command line).

Note that some formats depend on some commands being installed on your system. Most notably, Crowbook depends on LaTeX (`pdflatex` by default, though you can specify the command to use with `tex.command`) to generate a PDF file, so PDF rendering won't work if it is not installed on your system. Crowbook also uses the `zip` command to generate the EPUB and ODT, files.

Generic options for rendering

numbering

An integer that represents the maximum level of numbering for your book. E.g., 1 will only number chapters, while 2 will number chapters, sections, but not anything below that. 6 is the maximum level and turns numbering on for all headers.

default: 1

numbering_template

A string that will be used for chapter titles. You can use `{{number}}` and `{{title}}` in this string, e.g.:

```
numbering_template: "Chapter {{number}} {{title}}"
```

Note that:

- in this case, quoting is necessary because `{` and `}` have special meaning in YAML;
- this string won't be used for unnumbered chapters;
- this string isn't currently used by LaTeX, either.

autoclean

This option cleans a bit the input markdown. With the default implementation, it only removes consecutive spaces, which has not real impact (they are ignored anyway both by HTML viewers and by LaTeX).

However, if **lang** is set to **fr**, it also tries to add non-breaking spaces in front (or after) characters like '?', '!', ',', ';' to respect french typography.

Chapter 3

Arguments

Crowbook can takes a list of arguments:

Render a markdown book in Epub, PDF or HTML.

USAGE:

```
crowbook [FLAGS] [OPTIONS] [--] [ARGS]
```

FLAGS:

-h, --help	Prints help information
-l, --list-options	Lists all possible option
-s, --single	Use a single Markdown file
instead of a book configuration file	
-V, --version	Prints version information
-v, --verbose	Print warnings in
parsing/rendering	

OPTIONS:

-c, --create <FILES>...	Creates a new book
with existing markdown files	
-o, --output <FILE>	Specifies output
file	
--print-template <TEMPLATE>	Displays the
default value of a template	
--set <KEY_VALUES>	Sets a list of book
options	
-t, --to <FORMAT>	Generate specific
forma [values: epub, pdf, html, tex, odt]	

ARGS:

<BOOK> File containing the book configuration, or a Markdown file when called with `--single`

Note that Crowbook generates output files relatively to the directory where <BOOK> is:

```
$ crowbook foo/bar.book --to pdf --output baz.pdf
```

will thus generate `baz.pdf` in directory `foo` and not in current directory.

The most important option obviously <BOOK>, i.e. the file configuration book. It is mandatory for most options: if you don't pass it, `crowbook` will simply display this help message. In a normal use case this is the only argument you'll need to pass, and `crowbook` will generate the book in all formats specified in the configuration file.

It is, however, possible to pass more arguments to `crowbook`.

3.1 --create

Usage: `crowbook [BOOK] --create file_1.md file_2.md ...`

Creates a new book from a list of Markdown files. It will generate a book configuration file with all file names specified as chapters. It either prints the result to stdout (if `BOOK` is not specified) or generate the file `BOOK` (or abort if it already exists).

Examples

```
crowbook foo.book --create README.md ChangeLog.md
LICENSE.md
```

will generate a file `foo.book` containing:

```
author: Your name
title: Your title
lang: en
```

```
# Uncomment and fill to generate files
# output.html: some_file.html
# output.epub: some_file.epub
# output.pdf: some_file.pdf
```

```
# Uncomment and fill to set cover image (for Epub)
# cover: some_cover.png
```

```
# List of chapters
+ README.md
+ ChangeLog.md
+ LICENSE.md
```

```
while
```

```
crowbook --create README.md ChangeLog.md LICENSE.md
```

will prints the same result, but to stdout (without creating a file).

When `crowbook` is runned with `--create`, it can also uses the keys/values set by `--set` (see below):

```
$ crowbook foo.book --create file1.md file2.md --set
author "Pierre Dupont" title "Mon œuvre" lang fr
```

will generate a `foo.book` file containing

```
author: Pierre Dupont
title: Mon œuvre
lang: fr
```

```
# List of chapters
+ file1.md
+ file2.md
```

3.2 --single

usage: `crowbook --single <FILE>`
(or `crowbook -s <FILE>`)

This options allows to pass `crowbook` a single Markdown file. This file can contain an inline YAML block to set some book options. Inline YAML blocks must start and end with a line with `---` (three dashes). E.g:

```
---
author: Joan Doe
```

```
title: A short story
---
```

If this YAML block is not at the beginning of a file, it must also be preceded by a blank line.

This allows to not have to write a `.book` configuration file for a short story or an article. `crowbook --single foo.md` is roughly equivalent to having a book configuration file containing:

```
! foo.md
```

That is, the chapter heading (if any) won't be displayed in the output documents (though they still appear in the TOC).

3.3 --set

usage: `crowbook <BOOK> --set [KEY] [VALUE]...`

This options takes a list `KEY VALUE` pairs and allows to set or override a book configuration option. All valid options in the configuration files are valid as keys. For more information, see [the configuration file](#).

Examples

```
$ crowbook foo.book --set html.css style.css
```

will override the CSS for HTML generation (the `html.css` key) to `style.css`.

```
$ crowbook foo.book --set author Foo --title Bar
```

will override the book title to `Bar` and its author to `Foo`.

3.4 --list-options

usage: `crowbook --list-options`

(or `crowbook -l`)

Displays all the valid options to use, whether in a book configuration file, with `--set`, or in an inline YAML block.

3.5 --print-template

usage: crowbook --print-template template

Prints to stdout the built-in template. Useful if you want to customize the appearance of your document. E.g., if you want to modify the CSS used for HTML rendering:

```
$ crowbook --print-template html.css > my_style.css
# edit my_style.css in your favourite editor
$ crowbook my.book --set html.css my_style.css
# or add "html.css: my_style.css" in my.book
```

Note that it is possible to use this option in conjunction with `--set`, though it is currently only useful for EPUB template:

```
$ crowbook --print-template epub.template --set
epub.version 2
# Returns the template for Epub 2 (currently it is the
default one)
$ crowbook --print-template epub.template --set
epub.version 3
# Returns the template for Epub 3
```

3.6 --verbose

usage: crowbook <BOOK> --verbose

If this flag is set, Crowbook will print the warnings it detect while parsing and rendering. These warnings are typically related to the inclusion of non-local images, linking to Markdown files that are not part of the book, and so on.

3.7 --to

usage: crowbook <BOOK>--to [FORMAT]
(or crowbook <BOOK> -t [FORMAT])

Generate only the specified format. `FORMAT` must be either `epub`, `pdf`, `html`, `odt` or `tex`.

If an output file for the format is not specified in the book configuration file, `crowbook` will fail to render PDF, ODT and Epub (whereas it will print HTML and Tex files on stdout). It is however possible to specify a file with the `--output` option.

Examples

```
crowbook --to html foo.book
```

will generate some HTML, and prints it either to the file specified by `output.html` in `foo.book`, or to `stdout` if it is not specified.

```
crowbook --to pdf --output foo.pdf foo.book
```

will generate a `foo.pdf` file,.

3.8 --output

usage: `crowbook <BOOK> --to <FORMAT> --output <FILE>`
(or `crowbook -t <FORMAT> -o <FILE> <BOOK>`)

Specifies an output file. Only valid when `--to` is used.

Note that Crowbook generates output files relatively to the directory where `BOOK` is:

```
$ crowbook foo/bar.book --to pdf --output baz.pdf
```

will thus generate `baz.pdf` in directory `foo` and not in current directory.

ChangeLog

0.4.0 (unreleased)

- Crowbook now internally uses a true YAML parser, `yaml_rust`, for its options. Since the "old" Crowbooks's config format was similar, but had some subtle differences, this is somewhat of a breaking change:
 - strings should now be escaped with `"` in some cases (e.g. if it contains special characters). On the other hand, it *allows* to optionally escape a string with these quotes, which wasn't possible until then and might be useful in some cases.
 - multiline strings now follow the YAML format, instead of the previous "YAML-ish" format. This can impact the way newlines are added at the end of a multiline string. See e.g. [this link](#) for the various ways to include multiline strings in Yaml.
- Crowbook now parses YAML blocks (delimited by two lines with `---`) in Markdown files, ignoring keys that it doesn't recognize. This allows crowbook to be compatible(-ish) with Markdown that contains YAML blocks for Jekyll or Pandoc.
- New option `--single` allows to give Crowbook a single Markdown file (which can contain options within an inline YAML block) instead of a book configuration file. This is useful for e.g. short stories.
- Enhanced the way debugging/warning/info messages are handled and displayed:
 - Added a `--debug` option to the binary.

- Internal: added a `Logger` struct.
- Different levels of information (debug/warning/info/error) get different colours.
- Bugfixes:
 - Crowbook no longer crashes when called with the `--to` argument if it can't create a file.

0.3.0 (2016-02-27)

- Crowbook now tries to convert local links. That is, if you link to a Markdown file that is used in the book. (e.g. `README.md`), it *should* link to an appropriate inner reference inside the book.
- Latex renderer now supports (local) images.
- Epub renderer now embed (local) images in the EPUB file.
- Some changes to the HTML/Epub stylesheets.
- Internal (or usage as a library):
 - Crowbook no longer changes current directory, which worked in the binary but could cause problem if library was used in multithreaded environment (e.g. in `cargo test`).
 - More modules and methods are now private.
 - Improved documentation.
 - Added more unit tests.
- Bugfixes:
 - Epub renderer now correctly renders unnumbered chapter without a number in its `toc.ncx` file

0.2.2 (2016-02-25)

- Bugfixes:
 - French cleaner now correctly replaces space after `—` (in e.g. dialogs) with "em space".

0.2.1 (2016-02-25)

- Bugfixes:
 - HTML/Epub rendering no longer incorrectly increment chapter count for unnumbered chapters.
 - Latex: makes what is possible to avoid overflowing the page.
- Minor changes:
 - Latex: improvement of the default way URLs are displayed.

0.2.0 (2016-02-25)

- Command line arguments:
 - New argument `--print-template` now allows to print a built-in template to stdout.
 - New argument `--list-options` prints out all valid options in a config file (or in `set`), their type and default value.
 - New argument `--set` allows to define or override whatever option set in a book configuration.
 - `--create` can now be used without specifying a `BOOK`, printing its result on `stdout`.
- Configuration file:
 - Added support for multiline strings in `.book` files, with either `'|'` (preserving line returns) or `'>'` (transforming line returns in spaces)
 - New option `display_toc` allows to display the table of contents (whose name, at least for HTML, is specified by `toc_name`) in HTML and PDF documents.
 - Option `numbering` now takes an int instead of a boolean, allowing to specify the maximum level to number (e.g. 1: chapters only, 2: chapters and section, ..., 6: everything).
- Rendering:
 - Added support for numbering all headers, not just level-1 (e.g., having a subsection numbered 2.3.1).

- Tables and Footnotes are now implemented for HTML/Epub and LaTeX output.
- Internal:
 - Refactored `Book` to use an `HashMap` of `BookOptions` instead of having like 42 fields.

0.1.0 (2016-02-21)

- initial release

Bugs

- epub: no way to embed custom files to epub
- epub: toc.ncx currently only displays chapters (first level headers)
- latex: support for images is not good
- odt: no support for... a lot of stuff, actually
- config: can't parse specified numbers for negative chapter (is it really a bug?)

ToDo

- generate cleaner codes (e.g. indentation)
- clean CSS and templates files
- html: add option to generate multi-pages html

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