

Projects / Hua

Print version of this document (Hua.pdf, 34K).

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Hua Basics

Hua (simplified Chinese for flower) is a simple, feature-rich, template-based static content generator used for maintaining web sites and blogs.

Written in PowerShell, Hua was originally written in the Ruby scripting language. It was inspired, in part, by the venerable Perl-based blogging tool Bloxom and similar static content generators. Simplicity is a core principle: The database containing site entries, site content, includes, and template files are maintained in plain text. Comments are provided through a third-party engine like Disqus or IntenseDebate. Hua is open source software (MIT License).

Features

- Supports as many sites as there are configuration files.
- Template-based: Hua gives the designer complete control over a site's visual and interaction design.
- No need to code content in HTML: Hua supports Markdown.
- Configurable paging.
- Supports tagging at the article and site-level.
- Supports article-level and site meta information.
- Runs on Windows and Linux.
- 100% text-based configuration and content.
- Command line-based: it's easy to integrate Hua into an existing toolchain.
- PDF output: Hua supports PDF output through Pandoc and the GNU roff (groff) typesetting system.

Requirements & Download

Hua has been tested on Windows 10 and 11, Ubuntu Linux, and Cygwin (see note regarding the latter in Using Hua). It should run on any reasonably up-to-date PowerShell installation. An example site (configuration file, entries file, meta info file, and content) is included in the distribution so you can try it out immediately.

Hua supports Markdown using the MarkdownToHTML module. For PDF output, Pandoc (version 3.8 or above recommended) and GNU roff (groff) are required.

Hua Revision 302 - Fri Nov 28 2025 Hua.zip, 81K

Installation

Simply unzip the file and put Hua wherever you want. A man page is provided for Linux users and should exist in the \$MANPATH.

Configuring Hua

The Hua configuration file specifies the locations of support files and variables used by Hua (articles/entries and meta info, output/content/include directories, URLs).

Hua files and config variables:

entries_file	Delimited text file of blog entries
meta_file	Delimited text file containing blog meta info
content_dir	Directory of the blog content
markdown_dir	Directory containing the markdown template
output_dir	Directory of the blog output HTML
index_file	File path of the primary blog page
archive_file	File path of page listing all article titles
header_file	File path of header include
footer_file	File path of footer include
read_more_file	File name of 'Read More...' include
comments_file	File name of comments include
blog_root	The web accessible root of the blog
web_root	The web accessible root of the web site
title_sep	Character(s) used to separate elements in the title
entries_pp	Number of entries per page (for paging)
next_label	Label of next page link (replace spaces with)
prev_label	Label of previous page link (replace spaces with)
log_dir	Directory in which log file is output
log_file	File name of log file

entries_file	=	.\entries.csv
meta_file	=	.\meta.csv
content_dir	=	.\content
markdown_dir	=	.\markdown
output_dir	=	.\blog
index_file	=	index.html
archive_file	=	archive.html
header_file	=	.\content\inc\header.html
footer_file	=	.\content\inc\footer.html
read_more_file	=	.\content\inc\read_more.html
comments_file	=	.\content\inc\comments.html
blog_root	=	/blog/
web_root	=	http://example.local
title_sep	=	/
entries_pp	=	2
next_label	=	Next Page
prev_label	=	Previous Page
log_dir	=	.
log_file	=	hua.log

The Entries File

The entries file is a comma-delimited plain-text database of articles. It can be edited with a text editor or a spreadsheet application (provided the plain-text format is preserved). Each line consists of the following fields:

1. **ID:** A numeric field. Articles are sorted and presented in descending order using this field.
2. **Title:** Appears at the top of the article and is linked to the article's permalink.
3. **File:** The filename of the article's template, stored in the `content_dir`.
4. **Tags:** Article-specific tags ("|" delimited). In addition to index and permalink pages, articles appear in the appropriate tag pages.
5. **Date:** The date presented with the article. *Note:* This doesn't control the position of the article on the index and tag pages, ID does that.
6. **Author:** Individual or organization name associated with the article.
7. **Contact:** Link to individual or organization web page (precede with `http://`) or email (precede with `mailto:`) associated with the article.
8. **Related:** List of article IDs ("|" delimited) related to the article.

The Meta File

Article meta information is stored in a separate, pipe-delimited file. Like the entries file, it can be edited with a text editor or a spreadsheet application (provided the plain-text format is preserved). Each line consists of the following fields:

1. **ID:** A numeric field. Must correspond to the appropriate article in the entries file.
2. **Keywords:** A comma-delimited list of subject keywords appropriate to the article.
3. **Description:** A description of the article.

Command Line Arguments

- Pass `-A` or `--article` followed by an article ID to generate *only* that article. This is useful when an article is in development and requires review. It is also significantly faster. Only the article matching the ID is generated. Index, archive, and tagged-with files are *not* updated in this mode. Note Article ID *must* be contained within quotes.
- Pass `-G` or `--groff` in article mode to output GNU roff (groff) code (in addition to HTML) for the specified article. This mode is reliant upon Pandoc (version 3.8 or above recommended) being installed and in the system path. On Linux systems, Hua automatically produces a PDF provided `ps2pdf` (included with Ghostscript) is in the system path.
- Pass `-O` or `--orphans` as the second argument to list all files (irrespective of type) in the `output_dir` that are not referenced in the `entries_file` (typically `*.html` and `*.md`). If there are no orphans, nothing is output. Content is *not* processed in this mode.
- Pass `-V` or `--version` as the first argument to show Hua's version information.

Using Hua

Basic Usage

Hua is run by specifying the Hua script and configuration file. In the example below it is assumed the user has unzipped and changed to the Hua directory:

```
$ pwsh hua.ps1 example.cfg
```

The same in a PowerShell console:

```
$ .\hua.ps1 example.cfg
```

Hua can be run in a Cygwin console as well. Note that PowerShell 7.4 (or above) should be used.

Additional Examples

Article mode (only article ID 00041 is processed):

```
$ .\hua.ps1 example.cfg -A '00041'
```

Article and groff mode (article ID 00041 HTML and groff is output):

```
$ .\hua.ps1 example.cfg -A '00041' -G
```

Manually converting groff to PDF:

```
$ groff -Tps -ms article.ms > article.ps
$ ps2pdf article.ps article.pdf
```

Orphans mode:

```
$ .\hua.ps1 example.cfg -O
another-orphan.html
orphan-1.html
```

Version information:

```
$ .\hua.ps1 -V
Hua version: $Revision: 302 $
```

Errors

Hua is normally silent, so if everything goes well, nothing is output on the command line and Hua exits with a status of 0. Errors are output in the following situations:

- No configuration file is specified. Hua stops. Exit status of 1.
- The configuration file can't be found. Hua stops. Exit status of 2.
- A configuration variable doesn't exist in the configuration file. Hua stops. Exit status of 3.
- The directory specified for the log file doesn't exist. Hua stops. Exit status of 4.
- The entries file doesn't exist. Hua stops. Exit status of 5.
- The entries file doesn't contain any articles. Hua stops. Exit status of 6.
- Duplicate IDs in the entries file. Hua stops. Exit status of 7.
- Filename conflicts in the entries file (e.g., duplicates or article.html and article.md). Hua stops. Exit status of 8.
- Filename conflicts in the content directory (e.g., article.html and article.md). Hua stops. Exit status of 8.
- The meta info file doesn't exist. Hua stops. Exit status of 9.
- The header include doesn't exist or is empty. Hua stops. Exit status of 10.
- The footer include doesn't exist or is empty. Hua stops. Exit status of 11.
- The output directory doesn't exist or isn't a directory. Hua stops. Exit status of 12.
- Unknown mode passed as second argument. Hua stops. Exit status of 13.
- The ID specified in article mode does not exist in the entries file. Hua stops. Exit status of 14.
- The content directory doesn't exist or isn't a directory. Hua stops. Exit status of 15.
- Orphans mode and the output directory doesn't exist or isn't a directory. Hua stops. Exit status of 16.
- Content directory and output directory specified as the same in configuration file. Hua stops. Exit status of 17.
- The read more include doesn't exist or is empty. Hua continues.
- The comments include doesn't exist or is empty. Hua continues.
- An article content file doesn't exist. Hua continues to the next article.
- The ID field of an entry in the entries file is empty. Hua continues to the next article.
- The file field of an entry in the entries file is empty. Hua continues to the next article.
- An article file exists but contains no content. Hua continues to the next article.
- A markdown file is referenced in the entries file, but MarkdownToHTML is not installed. Hua continues to the next article.
- A markdown file is referenced in the entries file, but the markdown template cannot be found. Hua continues to the next article.

- Groff output mode is specified, but Pandoc is not installed. Hua produces specified article HTML but groff is not output.
- An article ID in the Related field does not exist in the entries file. The entry is not included in the related articles list. Hua continues.

Known Issues & Future Enhancements

There are no known issues.

Related Articles

All articles tagged with Hua on the blog.