

# Composer CMS: Content Make System

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# Contents

<b>1</b>	<b>Composer CMS</b>	<b>1</b>
1.1	Overview . . . . .	1
1.2	Quick Start . . . . .	1
1.3	Principles . . . . .	2
1.4	Requirements . . . . .	2
<b>2</b>	<b>Composer Operation</b>	<b>5</b>
2.1	Recommended Workflow . . . . .	5
2.1.1	Directory Tree . . . . .	5
2.1.2	Customization . . . . .	5
2.1.3	Important Notes . . . . .	5
2.1.4	Next Steps . . . . .	6
2.2	Document Formatting . . . . .	6
2.3	#WORKING:NOW:NOW:DOCS:FIX#####	
2.3.1	Static Websites . . . . .	6
2.4	#WORKING:NOW:NOW:FIX#####	
2.5	#WORKING:NOW:NOW:FIX#####	
2.6	#WORKING:NOW:NOW:FIX#####	
2.6.1	HTML . . . . .	7
2.6.2	PDF . . . . .	7
2.6.3	EPUB . . . . .	7
2.6.4	Reveal.js Presentations . . . . .	7
2.7	#WORKING:NOW:NOW:FIX#####	
<b>3</b>	<b>rework this</b>	<b>9</b>
3.0.1	Microsoft Word & PowerPoint . . . . .	9
3.0.2	Plain Text . . . . .	9
3.0.3	Pandoc Markdown . . . . .	9
3.1	Configuration Settings . . . . .	10
3.2	#WORKING:NOW:NOW:FIX#####	
3.3	Precedence Rules . . . . .	10
3.4	#WORKING:NOW:NOW:FIX#####	
3.5	Specifying Dependencies . . . . .	10
3.6	Custom Targets . . . . .	11
3.7	Repository Versions . . . . .	11
<b>4</b>	<b>Composer Variables</b>	<b>13</b>
4.1	Formatting Variables . . . . .	13
4.1.1	c_site . . . . .	14
4.1.2	c_type / c_base / c_list . . . . .	14
4.1.3	c_lang . . . . .	14
4.1.4	c_logo . . . . .	14
4.1.5	c_icon . . . . .	14
4.1.6	c_css . . . . .	14

4.1.7	c_toc	15
4.1.8	c_level	15
4.1.9	c_margin	15
4.1.10	c_options	15
4.2	Control Variables	15
4.2.1	MAKEJOBS	16
4.2.2	COMPOSER_DOCOLOR	16
4.2.3	COMPOSER_DEBUGIT	16
4.2.4	COMPOSER_INCLUDE	16
4.2.5	COMPOSER_DEPENDS	17
4.2.6	COMPOSER_KEEPING	17
4.2.7	COMPOSER_LOG	17
4.2.8	COMPOSER_EXT	17
4.2.9	COMPOSER_TARGETS	17
4.2.10	COMPOSER_SUBDIRS	18
4.2.11	COMPOSER_EXPORTS	18
4.2.12	COMPOSER_IGNORES	18
4.3	Helper Variables	18
4.3.1	CURDIR	18
4.3.2	COMPOSER_CURDIR	18
4.3.3	COMPOSER_DIR	19
4.3.4	COMPOSER_ROOT	19
4.3.5	COMPOSER_EXPORT	19
4.3.6	COMPOSER_LIBRARY	19
4.3.7	COMPOSER_SRC	19
4.3.8	COMPOSER_ART	19
4.3.9	COMPOSER_DAT	19
4.3.10	COMPOSER_TMP	19
<b>5</b>	<b>Composer Targets</b>	<b>21</b>
5.1	Primary Targets	21
5.1.1	help / help-all	21
5.1.2	template / template-yml / template-md	21
5.1.3	compose	22
5.1.4	site / site-all / site-force	22
5.1.5	site-clean	22
5.1.6	install / install-all / install-force	22
5.1.7	clean / clean-all / *-clean	22
5.1.8	all / all-all / *-all	22
5.1.9	list	22
5.2	Additional Targets	22
5.2.1	_release / _update / _update-all	23
5.2.2	_debug / _debug-file	23
5.2.3	check / check-all	23
5.2.4	config / config-all / config-* / config-yml / targets	23
5.2.5	init / init-force	24
5.2.6	commit / commit-all / commit-list	24
5.2.7	export / export-all / export-force / *-export	24
5.2.8	site-library	24
5.2.9	site-list / site-list-all / site-list-list / site-list-null / site-list-*	24
5.3	Internal Targets	24
<b>6</b>	<b>Reference</b>	<b>27</b>
6.1	Configuration	27
6.1.1	Pandoc Extensions	27
6.1.2	Templates	27
6.1.3	Defaults	30

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6.2	Reserved . . . . .	35
6.2.1	Target Names . . . . .	35
6.2.2	Variable Names . . . . .	35
<b>7</b>	<b>Composer CMS License</b>	<b>51</b>
7.1	Copyright . . . . .	51
7.2	License . . . . .	51
7.2.1	Preamble . . . . .	51
7.2.2	TERMS AND CONDITIONS . . . . .	52
7.2.2.1	0. Definitions. . . . .	52
7.2.2.2	1. Source Code. . . . .	52
7.2.2.3	2. Basic Permissions. . . . .	53
7.2.2.4	3. Protecting Users' Legal Rights From Anti-Circumvention Law. . . . .	53
7.2.2.5	4. Conveying Verbatim Copies. . . . .	53
7.2.2.6	5. Conveying Modified Source Versions. . . . .	53
7.2.2.7	6. Conveying Non-Source Forms. . . . .	54
7.2.2.8	7. Additional Terms. . . . .	55
7.2.2.9	8. Termination. . . . .	56
7.2.2.10	9. Acceptance Not Required for Having Copies. . . . .	56
7.2.2.11	10. Automatic Licensing of Downstream Recipients. . . . .	56
7.2.2.12	11. Patents. . . . .	56
7.2.2.13	12. No Surrender of Others' Freedom. . . . .	57
7.2.2.14	13. Use with the GNU Affero General Public License. . . . .	57
7.2.2.15	14. Revised Versions of this License. . . . .	57
7.2.2.16	15. Disclaimer of Warranty. . . . .	58
7.2.2.17	16. Limitation of Liability. . . . .	58
7.2.2.18	17. Interpretation of Sections 15 and 16. . . . .	58
7.2.3	END OF TERMS AND CONDITIONS . . . . .	58

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# Chapter 1

## Composer CMS



“Creating Made Simple.”

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Composer CMS v3.1	License: GPL
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### 1.1 Overview

**Composer is a simple but powerful CMS based on Pandoc, Bootstrap and GNU Make.** It is a document and website build system that processes directories or individual files in Markdown format.

Traditionally, CMS stands for Content Management System. Composer is designed to be a Content **Make** System. Written content is vastly easier to manage as plain text, which can be crafted with simple editors and tracked with revision control. However, professional documentation, publications, and websites require formatting that is dynamic and feature-rich.

Pandoc is an extremely powerful document conversion tool, and is a widely used standard for processing Markdown into other formats. While it has reasonable defaults, there are a large number of options, and additional tools are required for some formats and features.

Composer consolidates all the necessary components, simplifies the options, and prettifies the output formats, all in one place. It also serves as a build system, so that large repositories can be managed as documentation archives or published as Static Websites.

```
=====
$ >> Composer CMS v3.0 :: .../composer
=====
# MAKEFILE_LIST      [.../composer/Makefile]
# COMPOSER_INCLUDES  [.../composer/composer.mk]
# CURDIR             [.../composer]
# MAKECMDGOALS       [all] (all)
# MAKELEVEL          [1]
=====
I >> Creating      | .../composer :: Composer-v3.0_Manual.pdf
I >> Creating      | .../composer :: README.html
I >> Creating      | .../composer :: README.pdf
I >> Creating      | .../composer :: README.epub
I >> Creating      | .../composer :: README.revealjs.html
I >> Creating      | .../composer :: README.docx
```

### 1.2 Quick Start

Use make help to get started:

```
make [-f .../ Makefile] [ variables ] <filename>.<extension>
make [-f .../ Makefile] [ variables ] <target>
```

Create documents from source Markdown files (see Formatting Variables):

```
make README.html
make Composer-v3.1.Manual.html c_list="README.md LICENSE.md"
```

Save a persistent configuration (see Recommended Workflow and Configuration Settings):

```
make template >.composer.mk
$EDITOR .composer.mk
Composer-v3.1.Manual.html: override c_list := README.md LICENSE.md
make clean
make all
```

Recursively install and build an entire directory tree (see Recommended Workflow):

```
cd .../documents
mv .../composer .Composer
make -f .Composer/Makefile install-all
make all-all
```

See help—all for full details and additional targets.

## 1.3 Principles

The guiding principles of Composer:

- All source files in readable plain text
- Professional output, suitable for publication
- Minimal dependencies, and entirely command-line driven
- Separate content and formatting; writing and publishing are independent
- Inheritance and dependencies; global, tree, directory and file overrides
- Fast; both to initiate commands and for processing to complete

Direct support for key document types (see Document Formatting):

- Static Websites
- HTML
- PDF
- EPUB
- Reveal.js Presentations
- Microsoft Word & PowerPoint

## 1.4 Requirements

Composer has almost no external dependencies. All needed components are integrated directly into the repository, including Pandoc. Composer does require a minimal command-line environment based on GNU tools, particularly GNU Make, which is standard for all GNU/Linux systems. The Windows Subsystem for Linux for Windows and MacPorts for macOS both provide suitable environments.

The one large external requirement is TeX Live, and it can be installed using the package managers of each of the above systems. It is only necessary for creating PDF files.

Below are the versions of the components in the repository, and the tested versions of external tools for this iteration of Composer. Use check to validate your system.

Repository	Commit	License
Pandoc	2.18	GPL
YQ	v4.24.2	MIT
Bootstrap	v5.1.3	MIT



Repository	Commit	License
Bootlint	v1.1.0	MIT
Bootswatch	v5.1.3	MIT
Font-Awesome	6.1.2	MIT / CC-BY
Water.css	d950cbc9f8607521587f	MIT
Markdown Viewer	3bd40d84c071379440b3	MIT
Markdown Themes	6b3643d0f703727d8472	None
Reveal.js	4.3.1	MIT

Project	Composer Version
GNU Bash	5.1.16
– GNU Coreutils	8.32
– GNU Findutils	4.9.0
– GNU Sed	4.8
GNU Make	4.3
– Pandoc	2.18
– YQ	4.24.2
– TeX Live PDF	2021 3.141592653-2.6-1.40.22
Supporting Tools:	»
– Git SCM	2.37.4
– GNU Diffutils	3.8
– Rsync	3.2.4

Markdown Viewer is included both for its CSS stylesheets, and for real-time rendering of Markdown files as they are being written. To install, follow the instructions in the README.md.

The versions of the integrated repositories can be changed, if desired (see Repository Versions).

---



## Chapter 2

# Composer Operation

### 2.1 Recommended Workflow

#### 2.1.1 Directory Tree

The ideal workflow is to put Composer in a top-level `.Composer` for each directory tree you want to manage, creating a structure similar to this:

```
.../.Composer
.../
.../tld/
.../tld/sub/
```

To save on disk space, using a central Composer install for multiple directory trees, the `init` target can be used to create a linked `.Composer` directory:

```
make -f .../Makefile init
```

The directory tree can then be converted to a Composer documentation archive (Quick Start example):

```
make -f .Composer/Makefile install-all
make all-all
```

#### 2.1.2 Customization

If specific settings need to be used, either globally or per-directory, `.composer.mk` and `.composer.yml` files can be created (see Configuration Settings, Quick Start example):

```
make template >.composer.mk          && $EDITOR .composer.mk
make template-yml >.composer.yml      && $EDITOR .composer.yml
```

Custom targets can also be defined, using standard GNU Make syntax (see Custom Targets).

#### 2.1.3 Important Notes

GNU Make does not support file and directory names with spaces in them, and neither does Composer. Documentation archives which have such files or directories will produce unexpected results.

It is fully supported for input files to be symbolic links to files that reside outside the documentation archive:

```
cd .../tld
ln -rs .../README.md ./
make README.html
```

Similarly to source code, GNU Make is meant to only run one instance within the directory at a time, and Composer shares this requirement. It should be run as a single user, to avoid duplication and conflicts. Concurrent runs will produce unexpected results. It is highly recommended to set MAKEJOBS to a value greater than the default, to speed up processing.

It is best practice to install-force after every Composer upgrade, in case there are any changes to the Makefile template (see Templates). Everything in Composer sources from the main Makefile, so that is the only file which requires review to see what changes have been made between versions.

### 2.1.4 Next Steps

The archive is ready, and each directory is both a part of the collective and its own individual instance. Targets can be run per-file, per-directory, or recursively through an entire directory tree. The most commonly used targets are in Primary Targets.

**Welcome to Composer. *Happy Making!***

## 2.2 Document Formatting

### 2.3 #WORKING:NOW:NOW:DOCS:FIX#####

As outlined in Overview and Principles, a primary goal of Composer is to produce beautiful and professional output. Pandoc does reasonably well at this, and yet its primary focus is document conversion, not document formatting. Composer fills this gap by specifically tuning a select list of the most commonly used document formats.

The input Markdown format used by Composer is the Pandoc default. However, the Pandoc Extensions list has been modified slightly. See that section and the Pandoc Markdown documentation for the exact list and details for each.

Further options for each document type are in Formatting Variables. All improvements not exposed as variables will apply to all documents created with a given instance of Composer.

Note that all the files referenced below are embedded in the ‘Embedded Files’ and ‘Heredoc’ sections of the Makefile. They are exported by the `_release` target, and will be overwritten whenever it is run.

#### 2.3.1 Static Websites

Bootstrap is a leading web development framework, capable of building static webpages that behave dynamically. Static sites are very easy and inexpensive to host, and are extremely responsive compared to truly dynamic webpages.

Composer uses this framework to transform an archive of simple text files into a modern website, with the appearance and behavior of dynamically indexed pages.

### 2.4 #WORKING:NOW:NOW:FIX#####

```
.../artifacts/bootstrap/bootstrap.js
.../artifacts/bootstrap/bootstrap.css
.../artifacts/composer/composer.site.css
.../artifacts/composer/composer.site.shade.light.css
.../artifacts/composer/composer.site.shade.dark.css
.../artifacts/images/logo.img
.../artifacts/images/icon.img
```

Bootlint Bootswatch

### 2.5 #WORKING:NOW:NOW:FIX#####

```
.../bootswatch/docs/index.html
```

## 2.6 #WORKING:NOW:NOW:FIX#####

### 2.6.1 HTML

In addition to being a helpful real-time rendering tool, Markdown Viewer includes several CSS stylesheets that are much more visually appealing than the Pandoc default, and which behave like normal webpages, so Composer uses them for all HTML-based document types, including EPUB.

Information on installing Markdown Viewer for use as a Markdown rendering tool is in Requirements.

### 2.6.2 PDF

The default formatting for PDF is geared towards academic papers and the typesetting of printed books, instead of documents that are intended to be purely digital.

Internally, Pandoc first converts to LaTeX, and then uses TeX Live to convert into the final PDF. Composer inserts customized LaTeX to modify the final output:

```
.../artifacts/composer/composer.pdf.latex
```

### 2.6.3 EPUB

The EPUB format is essentially packaged HTML, so Composer uses the same Markdown Viewer CSS stylesheets for it.

### 2.6.4 Reveal.js Presentations

The CSS for Reveal.js presentations has been modified to create a more traditional and readable end result. The customized version is at:

```
.../artifacts/composer/composer.revealjs.css
```

## 2.7 #WORKING:NOW:NOW:FIX#####



## Chapter 3

# rework this

It links in a default theme from the `.../reveal.js/dist/theme` directory. Edit the location in the file, or use `c_css` to select a different theme.

It is set up so that a logo can be placed in the upper right hand corner on each slide, for presentations that need to be branded. Simply copy an image file to the logo location:

```
.../artifacts/images/logo.img
```

To have different logos for different directories (using Recommended Workflow, Configuration Settings and Precedence Rules):

```
cd .../presentations
cp .../logo.img ./
ln -rs .../.Composer/artifacts/composer/composer.revealjs.css ../composer.css
echo 'override c_type := revealjs ' >>../composer.mk
make all
```

### 3.0.1 Microsoft Word & PowerPoint

The internal Pandoc templates for these are exported by Composer, so they are available for customization:

```
.../artifacts/reference.docx
.../artifacts/reference.pptx
```

They are not currently modified by Composer.

### 3.0.2 Plain Text

This output format is still parseable by Pandoc as valid Markdown, but is formatted to read as pure plain text that is only 80 columns wide. There are cases where this conversion is desirable, such as technical documentation, where it is easier to write and format as Pandoc Markdown but the output needs to be in a universally accepted text layout and presentation.

Composer currently does not modify this format, other than using the `--columns=80` and `--wrap=auto` options to Pandoc.

### 3.0.3 Pandoc Markdown

Output Markdown that is specific to Pandoc. This is for linting or creating standardized versions of source files for shared archives.

Due to the expressed purposes of this format, Composer will never modify it.

## 3.1 Configuration Settings

## 3.2 #WORKING:NOW:NOW:FIX#####

Composer uses `.composer.mk` files for persistent settings and definition of Custom Targets. By default, they only apply to the directory they are in (see `COMPOSER_INCLUDE` in Control Variables). A `.composer.mk` in the main Composer directory will be global to all directories. The targets and settings in the most local file override all others (see Precedence Rules).

The easiest way to create new `.composer.mk` and `.composer.yml` files is with the `template` and `template-yml` targets (Quick Start example):

```
make template >.composer.mk      && $EDITOR .composer.mk
make template-yml >.composer.yml  && $EDITOR .composer.yml
```

All variable definitions must be in the override `[variable] := [value]` format from the `template` target. Doing otherwise will result in unexpected behavior, and is not supported. The regular expression that is used to detect them:

```
override [[[:space:]]+](^[[:space:]]+)[[:space:]]+[:]=]
```

Variables can also be specified per-target, using GNU Make syntax:

```
README.%: override c_toc := 0
README.revealjs.html: override c_toc :=
```

In this case, there are multiple definitions that could apply to `README.revealjs.html`, due to the `%` wildcard. Since the most specific target match is used, the final value for `c_toc` would be empty.

Example configuration files:

```
.../.composer.mk
.../artifacts/.composer.yml
.../artifacts/README.site.yml
```

## 3.3 Precedence Rules

## 3.4 #WORKING:NOW:NOW:FIX#####

The order of precedence for `.composer.mk` files is local-to-global (see `COMPOSER_INCLUDE` in Control Variables). This means that the values in the most local file override all others.

Variable aliases, such as `COMPOSER_DEBUGIT/c_debug/V` are prioritized in the order shown, with `COMPOSER_*` taking precedence over `c_*`, over the short alias.

Selection of the CSS file can be done using `.composer.css` or the `c_css` variable, with `.composer.css` taking precedence (unless `c_css` comes from `.composer.mk`). The process for `.composer.css` files is identical to `.composer.mk` (see `COMPOSER_INCLUDE` in Control Variables).

All values in `.composer.mk` take precedence over everything else, including `.composer.css` and environment variables.

## 3.5 Specifying Dependencies

If there are files or directories that have dependencies on other files or directories being processed first, this can be done simply using GNU Make syntax in `.composer.mk`:

```
LICENSE.html: README.html
all-subdirs-artifacts: all-subdirs-pandoc
```



This would require README.html to be completed before LICENSE.html, and for pandoc to be processed before artifacts. Directories need to be specified with the `all—subdirs—*` syntax in order to avoid conflicts with target names (see Custom Targets).

Chaining of dependencies can be as complex and layered as GNU Make will support. Note that if a file or directory is set to depend on a target, that target will be run whenever the file or directory is called.

## 3.6 Custom Targets

If needed, custom targets can be defined inside a `.composer.mk` file (see Configuration Settings), using standard GNU Make syntax. Naming them as `*-export`, `*-clean` or `*-all` will include them in runs of the respective targets. Targets with any other names will need to be run manually, or included in `COMPOSER_TARGETS`.

`#WORK ...` or, via Specifying Dependencies

There are a few limitations when naming custom targets. Targets starting with the regular expression `[_.]` are hidden, and are skipped by auto-detection. Additionally, there is a list of reserved targets in `Reserved`, along with a list of reserved variables.

Any included `.composer.mk` files are sourced early in the main Composer Makefile, so matching targets and most variables will be overridden. In the case of conflicting targets, GNU Make will produce warning messages. Variables will have their values changed silently. Changing the values of internal Composer variables is not recommended or supported.

A final note is that `*-export`, `*-clean` and `*-all` targets are stripped from `COMPOSER_TARGETS`. In cases where this results in an empty `COMPOSER_TARGETS`, there will be a message and no actions will be taken.

## 3.7 Repository Versions

There are a few internal variables used by `__update` to select the repository and binary versions of integrated components (see Requirements). These are exposed for configuration, but only within `.composer.mk`:

- `PANDOC_VER` (must be a binary version number)
- `PANDOC_CMT` (defaults to `PANDOC_VER`)
- `YQ_VER` (must be a binary version number)
- `YQ_CMT` (defaults to `YQ_VER`)
- `BOOTSTRAP_CMT`
- `BOOTLINT_CMT`
- `BOOTSWATCH_CMT`
- `FONTAWES_CMT`
- `WATERCSS_CMT`
- `MDVIEWER_CMT`
- `MDTHEMES_CMT`
- `REVEALJS_CMT`

Binaries for Pandoc and YQ are installed in their respective directories. By moving or removing them, or changing the version number and foregoing `__update-all`, the system versions will be used instead. This will work as long as the commit versions match, so that supporting files are in alignment.

It is possible that changing the versions will introduce incompatibilities with Composer, which are usually impacts to the prettification of output files (see Document Formatting).



# Chapter 4

## Composer Variables

### 4.1 Formatting Variables

Variable	Purpose	Value
c_site ~ S	Enable Static Websites	
c_type ~ T	Desired output format	html
c_base ~ B	Base of output file	
c_list ~ L	List of input files(s)	
c_lang ~ a	Language for document headers	en-US
c_logo ~ g	Logo image (HTML formats)	logo.img
c_icon ~ i	Icon image (HTML formats)	icon.img
c_css ~ c	Location of CSS file	theme.html-default.css
c_toc ~ t	Table of contents depth	
c_level ~ l	Chapter/slide header level	2
c_margin ~ m	Size of margins (PDF)	0.8in
c_options ~ o	Custom Pandoc options	

Values (c_type)	Format	Extension
html	HyperText Markup Language	*.html
pdf	Portable Document Format	*.pdf
epub	Electronic Publication	*.epub
revealjs	Reveal.js Presentation	*.revealjs.html
docx	Microsoft Word	*.docx
pptx	Microsoft PowerPoint	*.pptx
text	Plain Text (well-formatted)	*.txt
markdown	Markdown (for testing)	*.md.txt

- Other c\_type values will be passed directly to Pandoc
- Special c\_css values:
  - .composer.css = Filesystem override of variable value
  - css\_alt = Use the alternate default stylesheet
  - 0 = Revert to the Pandoc default
- Special c\_toc value: 0 = List all headers, and number sections
- Special c\_level value: 0 = Varies by c\_type (see c\_level)
- An empty c\_margin value enables individual margins:
  - c\_margin\_top ~ mt
  - c\_margin\_bottom ~ mb

- `c_margin_left` ~ `ml`
- `c_margin_right` ~ `mr`

#### 4.1.1 `c_site`

#WORK

#### 4.1.2 `c_type` / `c_base` / `c_list`

The compose target uses these variables to decide what to build and how. The output file is `[c_base].<extension>`, and is constructed from the `c_list` input files, in order. The `<extension>` is selected based on the `c_type` table above. Generally, it is not required to use the compose target directly for supported `c_type` files, since it is run automatically based on what output file `<extension>` is specified.

The automatic input file detection works by matching one of the following (Quick Start example):

```
make README.html           ~ README (empty [COMPOSER_EXT])
make README.html           ~ README.md
make README.md.html        ~ README.md
make Composer-v3.1.Manual.html c_list="README.md LICENSE.md"
```

Other values for `c_type`, such as `json` or `man`, for example, can be passed through to Pandoc manually:

```
make compose c_type="json" c_base="README" c_list="README.md"
make compose c_type="man" c_base="Composer-v3.1.Manual" c_list="README.md"
```

Any of the file types supported by Pandoc can be created this way. The only limitation is that the input files must be in Markdown format.

#### 4.1.3 `c_lang`

- Primarily for PDF, this specifies the language that the table of contents (`c_toc`) and chapter headings (`c_level`) will use.

#### 4.1.4 `c_logo`

#WORKING

```
#WORKING document /g/_data/zactive/coding/composer/artifacts/images
.../artifacts/images
```

#### 4.1.5 `c_icon`

#WORKING

#### 4.1.6 `c_css`

```
#WORKING document /g/_data/zactive/coding/composer/artifacts/theme
.../artifacts/themes
```

- By default, a CSS stylesheet from Markdown Viewer is used for HTML and EPUB, and one of the Reveal.js themes is used for Reveal.js Presentations. This variable allows for selection of a different file in all cases.
- The special value `css_alt` selects the alternate default stylesheet. Using 0 reverts to the Pandoc default.
- This value can be overridden by the presence of `.composer.css` files. See Precedence Rules for details.

### 4.1.7 `c_toc`

- Setting this to a value of [1–6] creates a table of contents at the beginning of the document. The numerical value is how many header levels deep the table should go. A value of 6 lists all header levels.
- Using a value of 0 lists all header levels, and additionally numbers all the sections, for reference.

### 4.1.8 `c_level`

- This value has different effects, depending on the `c_type` of the output document.
- For HTML, any value enables section—divs, which wraps headings and their section content in `<section>` tags and attaches identifiers to them instead of the headings themselves. This is for CSS styling, and is generally desired.
- For PDF, there are 3 top-level division types: part, chapter, and section. This sets the top-level header to the specified type, which changes the way the document is presented. Using part divides the document into “Parts”, each starting with a stand-alone title page. With this division type, each second-level heading starts a new “Chapter”. A chapter simply starts a new section on a new page, and lower-level headings continue as running portions within it. Finally, section creates one long running document with no blank pages or section breaks (like a HTML page). To set the desired value:
  - part ~ 0
  - chapter ~ 2
  - section ~ Any other value
- For EPUB, this creates chapter breaks at the specified level, starting the section on a new page. The special 0 simply sets it to the default value of 2.
- For Reveal.js Presentations, the top-level headings can persist on the screen when moving through slides in their sections, or they can rotate out as their own individual slides. Setting to 0 enables persistent headings, and all other values use the default.
- An empty value defers to the Pandoc defaults in all cases.

### 4.1.9 `c_margin`

- The default margins for PDF are formatted for typesetting of printed books, where there is a large amount of open space around the edges and the text on each page is shifted away from where the binding would be. This is generally not what is desired in a purely digital PDF document.
- This is one value for all the margins. Setting it to an empty value exposes variables for each of the individual margins: `c_margin_top`, `c_margin_bottom`, `c_margin_left` and `c_margin_right`.

### 4.1.10 `c_options`

- In some cases, it may be desirable to add additional Pandoc options. Anything put in this variable will be passed directly to Pandoc as additional command-line arguments.

## 4.2 Control Variables

Variable	Purpose	Value
MAKEJOBS	Parallel processing threads	1 (makejobs)
COMPOSER_DOCOLOR	Enable title/color sequences	(boolean)
COMPOSER_DEBUGIT	Use verbose output	(debugit)
COMPOSER_INCLUDE	Include all: .composer.mk	(boolean)
COMPOSER_DEPENDS	Sub-directories first: all	(boolean)
COMPOSER_KEEPING	Log entries / cache files	100 (keeping)
COMPOSER_LOG	Timestamped command log	.composed
COMPOSER_EXT	Markdown file extension	.md
COMPOSER_TARGETS	See: all/clean	config/targets
COMPOSER_SUBDIRS	See: all/clean/install	config/targets
COMPOSER_EXPORTS	See also: <code>c_site/export</code>	config
COMPOSER_IGNORES	See also: <code>c_site/export</code>	config

- `MAKEJOBS` ~ `c_jobs` ~ `J`
- `COMPOSER_DOCOLOR` ~ `c_color` ~ `C`
- `COMPOSER_DEBUGIT` ~ `c_debug` ~ `V`
- *(makejobs) = empty is disabled / number of threads / 0 is no limit*
- *(debugit) = empty is disabled / any value enables / 0 is full tracing*
- *(keeping) = empty is no limit / number to keep / 0 is none*
- *(boolean) = empty is disabled / any value enables*

### 4.2.1 MAKEJOBS

#WORK a small number of large directories will process faster than a large number of small ones, especially with site

- By default, Composer progresses linearly, doing one task at a time. If there are dependencies between items, this can be beneficial, since it ensures things will happen in a particular order. The downside, however, is that it is very slow.
- Composer supports GNU Make parallel execution, where multiple threads can be working through tasks independently. Experiment with lower values first. When recursing through large directories, each make that instantiates into a sub-directory has it's own jobs server, so the total number of threads running can proliferate rapidly.
- This can drastically speed up execution, processing thousands of files and directories in minutes. However, values that are too high can exhaust system resources. With great power comes great responsibility.
- A value of 0 does parallel execution with no thread limit.

### 4.2.2 COMPOSER\_DOCOLOR

- Composer uses colors to make all output and help text easier to read. The escape sequences used to accomplish this can create mixed results when reading in an output file or a \$PAGER, or just make it harder to read for some.
- This is also used internally for targets like `__debug-file` and `template`, where plain text is required.

### 4.2.3 COMPOSER\_DEBUGIT

- Provides more explicit details about what is happening at each step. It generates a lot more output, and can be slower. It will also be hard to read unless `MAKEJOBS` is set to 1.
- Full tracing using 0 outputs complete GNU Make and GNU Bash debugging information. This is extraordinarily verbose, and it is recommended to pipe it to a file for review.
- This variable is repurposed in `__debug` to pass a list of targets to test.

### 4.2.4 COMPOSER\_INCLUDE

- On every run, Composer walks through the `MAKEFILE_LIST`, all the way back to the main Makefile, looking for `.composer.mk` files in each directory. By default, it only reads the ones in the main Composer directory and the current directory, in that order. This option enables reading all of them.
- In the example directory tree below, normally the `.composer.mk` in `.Composer` is read first, and then `tld/sub/.composer.mk`. With this enabled, it will read all of them in order from top to bottom: `.Composer/.composer.mk`, `.composer.mk`, `tld/.composer.mk`, and finally `tld/sub/.composer.mk`.
- This is why it is best practice to have a `.Composer` directory at the top level for each documentation archive (see Recommended Workflow). Not only does it allow for strict version control of Composer per-archive, it also provides a mechanism for setting Composer Variables globally.
- When using this option, care should be taken with “Local” variables from `template` (see Templates). They will be propagated down the tree, which is generally not desired except in very specific cases. Using `COMPOSER_CURDIR` to limit their scope is recommended.
- This setting also causes `.composer.yml` and `.composer.css` files to be processed in an identical manner (see Precedence Rules).

Example directory tree (see Recommended Workflow):

```
.../.Composer/Makefile
.../.Composer/.composer.mk
.../Makefile
.../.composer.mk
.../tld/Makefile
.../tld/.composer.mk
.../tld/sub/Makefile
.../tld/sub/.composer.mk
```

## 4.2.5 COMPOSER\_DEPENDS

- When doing all-all, Composer will process the current directory before recursing into sub-directories. This reverses that, and sub-directories will be processed first.
- In the example directory tree in COMPOSER\_INCLUDE above, the default would be: .../ , .../ tld, and then .../ tld/sub. If the higher-level directories have dependencies on the sub-directories being run first, this will support that by doing them in reverse order, processing them from bottom to top.
- This has no effect on install or clean.

## 4.2.6 COMPOSER\_KEEPING

#WORK 0 deletes all... # COMPOSER\_KEEPING test & document # clean-logs test & document # clean-logs only runs on all, so single files could go forever...?

## 4.2.7 COMPOSER\_LOG

- Composer appends to a .composed log file in the current directory whenever it executes Pandoc. This provides some accounting, and is used by list to determine which \*.md files have been updated since the last time Composer was run.
- This setting can change the name of the log file, or disable it completely (empty value).
- It is removed each time clean is run.

## 4.2.8 COMPOSER\_EXT

- The Markdown file extension Composer uses: \*.md. This is for auto-detection of files to add to COMPOSER\_TARGETS, files to output for list, and other tasks. This is a widely used standard, including GitHub. Another commonly used extension is: \*.markdown.
- In some cases, they do not have any extension, such as README and LICENSE in source code directories. Setting this to an empty value causes them to be detected and output. It also causes all other files to be processed, because it becomes the wildcard \*, so use with care. It is likely best to use COMPOSER\_TARGETS to explicitly set the targets list in these situations.

#WORKING document! # .targets # COMPOSER\_TARGETS # COMPOSER\_SUBDIRS # COMPOSER\_EXPORTS # COMPOSER\_IGNORES

## 4.2.9 COMPOSER\_TARGETS

#WORK does not pick up .\* files/directories

- The list of output files to create or delete with clean and all. Composer does auto-detection using c\_type and COMPOSER\_EXT, so this does not usually need to be set. Hidden files that start with . are skipped.
- Setting this manually disables auto-detection. It can also include non-file targets added into a .composer.mk file (see Custom Targets).
- The .null target is special, and when used as a value for COMPOSER\_TARGETS or COMPOSER\_SUBDIRS it will display a message and do nothing. A side-effect of this target is that an actual file or directory named .null will never be created or removed by Composer.
- An empty value triggers auto-detection.
- Use config or targets to check the current value.

### 4.2.10 COMPOSER\_SUBDIRS

- The list of sub-directories to recurse into with install, clean, and all. The behavior and configuration is identical to COMPOSER\_TARGETS above, including auto-detection and the .null target. Hidden directories that start with . are skipped.
- An empty value triggers auto-detection.
- Use config or targets to check the current value.

### 4.2.11 COMPOSER\_EXPORTS

```
#WORKING # this one will be complicated... maybe? # has, effectively, the same .null behavior as
above... # also overridden by COMPOSER_IGNORES # document .targets token... # hidden variables... #
/.g/_data/zactive/coding/composer/+Composer #
#
```

### 4.2.12 COMPOSER\_IGNORES

#WORK either remove site here, or add it to the ones above... #WORK also, there are also implications for site-library...

- The list of COMPOSER\_TARGETS, COMPOSER\_SUBDIRS and COMPOSER\_EXPORTS to skip with export, site, install, clean, and all. This allows for selective auto-detection, when the list of items to process is larger than those to leave alone.
- Use config to check the current value.

## 4.3 Helper Variables

Variable	Purpose	Value
CURDIR	GNU Make current directory	\$PWD :: make
COMPOSER_CURDIR	Detects COMPOSER_INCLUDE	CURDIR :: .composer.mk
COMPOSER_DIR	Location of Composer	.../composer
COMPOSER_ROOT	Topmost level of current tree	.../composer
COMPOSER_EXPORT	Target: export	COMPOSER_ROOT/+Composer (mk)
COMPOSER_LIBRARY	Target: site/site-library	(yaml)
COMPOSER_SRC	Repositories and downloads	COMPOSER_DIR/.sources
COMPOSER_ART	Composer supporting files	COMPOSER_DIR/artifacts
COMPOSER_DAT	Pandoc supporting files	COMPOSER_ART/pandoc
COMPOSER_TMP	Cache and working directory	CURDIR/.composer.tmp

- (mk) = configurable in .composer.mk
- (yaml) = configurable in .composer.yaml

*These are internal variables only exposed within .composer.mk files. See Configuration Settings and Custom Targets for more details.*

### 4.3.1 CURDIR

#WORK

### 4.3.2 COMPOSER\_CURDIR

#WORKING:DOCS can also be used to detect first pass, using “ifeq”, to prevent “warning: overriding recipe for target” warnings...

- This is set to \$CURDIR when reading in a .composer.mk file in the make running directory, and is empty otherwise. This provides a way to limit particular portions of the file to the local directory, regardless of



whether `COMPOSER_INCLUDE` is set or not.

Example usage in a `.composer.mk` file:

```
ifneq ($(COMPOSER_CURDIR),)
    ...
endif
```

### 4.3.3 `COMPOSER_DIR`

`#WORK`

### 4.3.4 `COMPOSER_ROOT`

`#WORK`

### 4.3.5 `COMPOSER_EXPORT`

`#WORK` hidden variables...

- `[_EXPORT_DIRECTORY]`
- `[_EXPORT_GIT_REPO]`
- `[_EXPORT_GIT_BRANCH]`

### 4.3.6 `COMPOSER_LIBRARY`

`#WORK`

### 4.3.7 `COMPOSER_SRC`

`#WORK`

### 4.3.8 `COMPOSER_ART`

`#WORK`

### 4.3.9 `COMPOSER_DAT`

`#WORK`

### 4.3.10 `COMPOSER_TMP`

`#WORK`

---



# Chapter 5

## Composer Targets

### 5.1 Primary Targets

Target	Purpose
help	Basic help overview (default)
help-all	Console version of README.md (no reference sections)
template	Print settings template: .composer.mk
template-yml	Print settings template: .composer.yml
template-md	Print markdown file template
compose	Document creation engine (see <code>c_type</code> )
site	Build HTML files as Static Websites (see <code>c_site</code> )
site-all	Do site recursively: <code>COMPOSER_SUBDIRS</code>
site-force	Do site recursively: including <code>COMPOSER_LIBRARY</code>
site-clean	Remove <code>c_site</code> only: <code>COMPOSER_LIBRARY/COMPOSER_TMP</code>
install	Current directory initialization: Makefile
install-all	Do install recursively (no overwrite)
install-force	Recursively force overwrite of Makefile files
clean	Remove output files: <code>COMPOSER_TARGETS :: *-clean</code>
clean-all	Do clean recursively: <code>COMPOSER_SUBDIRS</code>
*-clean	Any targets named this way will also be run by clean
all	Create output files: <code>COMPOSER_TARGETS :: *-all</code>
all-all	Do all recursively: <code>COMPOSER_SUBDIRS</code>
*-all	Any targets named this way will also be run by all
list	Show updated files: <code>*COMPOSER_EXT » COMPOSER_LOG</code>

#### 5.1.1 help / help-all

- Outputs all of the documentation for Composer. The README.md has a few extra sections covering internal targets, along with reserved target and variable names, but is otherwise identical to the help-all output.

#### 5.1.2 template / template-yml / template-md

- Prints useful templates for creating new files (see Templates):
  - Composer .composer.mk (see Configuration Settings)
  - Composer `c_site` and Pandoc .composer.yml (see Static Websites and Configuration Settings)
  - Pandoc markdown

### 5.1.3 compose

- This is the very core of Composer, and does the actual work of the Pandoc conversion. Details are in the `c_type` / `c_base` / `c_list` section of Formatting Variables.

### 5.1.4 site / site-all / site-force

#WORKING site rebuilds indexes, force recursively

### 5.1.5 site-clean

#WORKING

### 5.1.6 install / install-all / install-force

- Creates the necessary Makefile files to set up a directory or a directory tree as a Composer archive. By default, it will not overwrite any existing files.
- Doing a simple install will only create a file in the current directory, whereas install-all will recurse through the entire directory tree. A full install-force is the same as install-all, with the exception that it will overwrite all Makefile files.
- The topmost directory will have the Makefile created for it modified to point to Composer.

### 5.1.7 clean / clean-all / \*-clean

- Deletes all COMPOSER\_TARGETS output files in the current directory, after first running all \*-clean targets.
- Doing clean-all does the same thing recursively, through all the COMPOSER\_SUBDIRS.

### 5.1.8 all / all-all / \*-all

- Creates all COMPOSER\_TARGETS output files in the current directory, after first running all \*-all targets.
- Doing all-all does the same thing recursively, through all the COMPOSER\_SUBDIRS.

### 5.1.9 list

- Outputs all the COMPOSER\_EXT files that have been modified since COMPOSER\_LOG was last updated. Acts as a quick reference to see if anything has changed.
- Since the COMPOSER\_LOG file is updated whenever Pandoc is executed, this target will primarily be useful when all is the only target used to create files in the directory.

## 5.2 Additional Targets

Target	Purpose
<code>_release</code>	Full upgrade to current release, repository preparation
<code>_update</code>	Update all included components (see Requirements)
<code>_update-all</code>	Complete <code>_update</code> , including binaries: Pandoc, YQ
<code>_debug</code>	Diagnostics, tests targets list in COMPOSER_DEBUGIT
<code>_debug-file</code>	Export <code>_debug</code> results to a plain text file
<code>check</code>	List system packages and versions (see Requirements)
<code>check-all</code>	Complete check package list, and system information
<code>config</code>	Show values of all Composer Variables
<code>config-all</code>	Complete config, including environment variables
<code>config-*</code>	Export individual Composer Variables values
<code>config-yml</code>	JSON export of <code>.composer.yml</code> configuration
<code>targets</code>	List all available targets for the current directory
<code>init</code>	Create and link a <code>.Composer</code> in current directory
<code>init-force</code>	Completely reset and relink an existing <code>.Composer</code>

Target	Purpose
commit	Timestamped Git commit of the current directory tree
commit-all	Automatic commit, without \$EDITOR step
export	Synchronize +Composer export of COMPOSER_ROOT
export-all	#WORKING:DOCS
export-force	#WORKING:DOCS
*-export	Any targets named this way will also be run by export
site-library	Build or update the COMPOSER_LIBRARY
site-list	Show COMPOSER_LIBRARY metadata for current directory
site-list-all	Do site-list for entire directory tree
site-list-list	Output existing metadata fields and values
site-list-null	List files which are missing metadata fields
site-list-*	Find and export all files named * in the tree

### 5.2.1 \_\_release / \_\_update / \_\_update-all

- Using the repository configuration (see Repository Versions), these fetch and install all external components.
- The \_\_update-all target also fetches the Pandoc and YQ binaries, whereas \_\_update only fetches the repositories.
- In addition to doing \_\_update-all, \_\_release runs \_\_setup-all, which performs the steps necessary to turn the current directory into a complete clone of Composer, including overwriting all supporting files.
- One of the unique features of Composer is that everything needed to compose itself is embedded in the Makefile.

Rapid cloning:

```
mkdir .../clone
cd .../clone
make -f .../.Composer/Makefile __release
```

### 5.2.2 \_\_debug / \_\_debug-file

- This is the tool to use for any support issues. Submit the output file to: [composer@garybgenett.net](mailto:composer@garybgenett.net)
- Internally, it also runs:
  - \_\_test
  - check-all
  - config-all
  - targets
- If issues are occurring when running a particular set of targets, list them in COMPOSER\_DEBUGIT.
- For general issues, run in the top-level directory (see Recommended Workflow). For specific issues, run in the directory where the issue is occurring.

For example:

```
make COMPOSER_DEBUGIT="README.html Composer-v3.1.Manual.html" __debug-file
```

### 5.2.3 check / check-all

- Use check to see the list of components and their versions, in relation to the system installed versions. Doing check-all will show the complete list of tools that are used by Composer.

### 5.2.4 config / config-all / config-\* / config-yml / targets

- The current values of all Composer Variables is output by config, and config-all will additionally output all environment variables.
- Individual Composer Variables can be exported with config-\*. This is useful for scripting in .composer.mk (see Custom Targets).

- A JSON version of the `.composer.yml` configuration is exported with `config.yml`. This is available for any external scripting, such as in `.composer.mk` (see Custom Targets), and is parseable with YQ.
- A structured list of detected targets, `*-export`, `*-clean` and `*-all` targets, `COMPOSER_TARGETS`, and `COMPOSER_SUBDIRS` is printed by targets.
- Together, config and targets reveal the entire internal state of Composer.

### 5.2.5 `init` / `init-force`

#WORKING

### 5.2.6 `commit` / `commit-all` / `commit-list`

- Using the directory structure in Recommended Workflow, `.../` is considered the top-level directory. Meaning, it is the last directory before linking to Composer.
- If the top-level directory is a Git repository (it has `<directory>.git` or `<directory>/git`), this target creates a commit of the current directory tree with the title format below.
- For example, if it is run in the `.../tld` directory, that entire tree would be in the commit, including `.../tld/sub`. The purpose of this is to create quick and easy checkpoints when working on documentation that does not necessarily fit in a process where there are specific atomic steps being accomplished.
- When this target is run in a Composer directory, it uses itself as the top-level directory. When calling Composer directly using `-f`, the current directory is used.
- Using `commit-all` automatically does the commit instead of opening the text editor in the `$EDITOR` variable.
- For the `commit-list` target specifically, `c_list` is repurposed to select the limited list of files and/or directories that should be committed. All selected files and directories must exist in the current directory or somewhere in the subdirectory tree below it. There is no option to skip the `$EDITOR` with this target.

Commit title format:

```
[ Composer CMS v3.1  :: 2023-08-03T02:37:58 -07:00 ]
```

Example using `commit-list` with `c_list`:

```
make commit-list c_list="Makefile artifacts "
```

### 5.2.7 `export` / `export-all` / `export-force` / `*-export`

#WORKING ... and then runs all `*-export` targets.

### 5.2.8 `site-library`

#WORKING

### 5.2.9 `site-list` / `site-list-all` / `site-list-list` / `site-list-null` / `site-list-*`

#WORKING

## 5.3 Internal Targets

Target	Purpose
<code>help-help</code>	Complete README.md content (similar to <code>help-all</code> )
<code>.template-install</code>	The Makefile used by <code>install</code> (see Templates)
<code>.template</code>	The <code>.composer.mk</code> used by <code>template</code> (see Templates)
<code>headers</code>	Series of targets that handle all informational output
<code>headers-template</code>	For testing default headers output
<code>headers-template-all</code>	For testing complete headers output
<code>.make_database</code>	Complete contents of GNU Make internal state
<code>.all_targets</code>	Extracted list of all targets from <code>.make_database</code>

Target	Purpose
.null	Placeholder to specify or detect empty values
__update-__test	Skip download steps in __update, and only do builds
__setup	Extracts embedded files from Makefile
__setup-all	Does __setup, and builds all README.* output files
__test	Test suite, validates all supported features
__test-file	Export __test results to a plain text file
__test-dir	Only create directory structure, and do __release
__test-list	Output available test cases, for running directly
check-help	Minimized check output (used for Requirements)
site-.composer.mk	COMPOSER_LIBRARY configured template: .composer.mk
site-.composer.yml	COMPOSER_LIBRARY configured template: .composer.yml
site-template	Static Websites example _site in COMPOSER_DIR
site-template-config	Only create directory structure and source files
site-template-__test	Version configured to test specific variations
subdirs	Expands COMPOSER_SUBDIRS into *--subdirs-* targets
list-list	Same as list, but only lists the files (no headers)

*None of these are intended to be run directly during normal use. They are only listed here for completeness.*

---





# Chapter 6

## Reference

### 6.1 Configuration

#### 6.1.1 Pandoc Extensions

Composer uses the markdown input format, with these extensions:

```
ascii_identifiers
auto_identifiers
emoji
fancy_lists
fenced_divs
footnotes
gfm_auto_identifiers
header_attributes
implicit_figures
implicit_header_references
inline_notes
intraword_underscores
line_blocks
link_attributes
markdown_in_html_blocks
pandoc_title_block
pipe_tables
raw_html
raw_tex
shortcut_reference_links
smart
strikeout
superscript
task_lists
yaml_metadata_block
```

#### 6.1.2 Templates

The install target Makefile template (for reference only):

```
override COMPOSER_MY_PATH := $(abspath $(dir $(lastword $(MAKEFILE_LIST))))
override COMPOSER_TEACHER := $(abspath $(dir $(COMPOSER_MY_PATH)))/Makefile
include $(COMPOSER_TEACHER)
```

Use the template target to create .composer.mk files:

```
#####  
# Global  
  
# override MAKEJOBS := 1  
# override COMPOSER_DOCOLOR :=  
# override COMPOSER_DEBUGIT :=  
# override COMPOSER_KEEPING := 100  
# override COMPOSER_LOG := .composed  
# override COMPOSER_EXT := .md  
# override c_site :=  
# override c_type := html  
# override c_lang := en-US  
# override c_logo := $(COMPOSER_DIR)/artifacts/images/logo.img  
# override c_icon := $(COMPOSER_DIR)/artifacts/images/icon.img  
# override c_css := $(COMPOSER_DIR)/artifacts/themes/theme.html-default.css  
  
#####  
# ifneq ($(COMPOSER_CURDIR),)  
  
#####  
# Local  
  
# override COMPOSER_INCLUDE :=  
# override COMPOSER_DEPENDS :=  
# override COMPOSER_TARGETS := README.site.html README.html README.pdf README.epub README.  
# override COMPOSER_SUBDIRS := .null  
# override COMPOSER_EXPORTS := *.html *.pdf *.epub *.revealjs.html *.docx *.pptx *.txt *.m  
# override COMPOSER_IGNORES := +Composer  
# override c_base :=  
# override c_list :=  
# override c_toc :=  
# override c_level := 2  
# override c_margin := 0.8in  
# override c_margin_top :=  
# override c_margin_bottom :=  
# override c_margin_left :=  
# override c_margin_right :=  
# override c_options :=  
  
#####  
# endif
```

Use the template-yml target to create .composer.yml files:

```
# variables:  
#   title-prefix: null  
#   site-config:  
#     homepage: null  
#     brand: null  
#     copyright: null  
#     composer: 1  
#     search_name: null  
#     search_site: null  
#     search_call: null  
#     search_form: null  
#     header: null  
#     footer: null
```

---

```

#      css_shade: dark
#      copy_protect: null
#      cols_break: lg
#      cols_sticky: 1
#      cols_order:
#          - 1
#          - 2
#          - 3
#      cols_reorder:
#          - 1
#          - 3
#          - 2
#      cols_size:
#          - 3
#          - 7
#          - 2
#      cols_resize:
#          - 6
#          - 12
#          - 6
#      metainfo: '<date> :: <title><|> — <author|; >'
#      metainfo_null: '*(none)*'
#      taglist:
#          author:
#              title: Author
#              display: '*Authors: <|>, <|>*'
#          tags:
#              title: Tag
#              display: '*Tags: <|>, <|>*'
#      readtime: '*Reading time: <word> words, <time> minutes*'
#      readtime_wpm: 220
#      site-library:
#          folder: null
#          auto_update: null
#          digest_title: Latest Updates
#          digest_continue: '[...]'
#          digest_permalink: '*(permalink to full text)*'
#          digest_header: null
#          digest_footer: null
#          digest_chars: 1024
#          digest_count: 10
#          digest_expanded: 0
#          digest_spacer: 1
#          sitemap_title: Site Map
#          sitemap_expanded: 0
#          sitemap_spacer: 1
#          lists_header: null
#          lists_footer: null
#          lists_expanded: 0
#          lists_spacer: 1
#      site-nav-top: null
#      site-nav-bottom: null
#      site-nav-left: null
#      site-nav-right: null
#      site-info-top: null
#      site-info-bottom: null

```

---

Use the template-md target to create new markdown files:

```
-----
title: "Composer CMS: Content Make System"
date: 2023-08-03
author:
  - Gary B. Genett
tags:
  - Composer
-----
*Happy Making!*
```

### 6.1.3 Defaults

The default .composer.mk in the Composer directory:

```
#####
# Composer CMS :: GNU Make Configuration
#####
ifneq ($(COMPOSER_CURDIR),)
#####

#####
# Settings

override COMPOSER_SUBDIRS := .null

#####
# Wildcards

README.%: override c_logo := artifacts/images/logo-v1.0.png
README.%: override c_icon := artifacts/images/icon-v1.0.png
README.%: override c_toc := 0

#####
# Settings

override README.site.html := artifacts/README.site.md
README.site.html: override c_site := 1
README.site.html: override c_toc :=

override README.pdf := README.md LICENSE.md

override README.revealjs.html := artifacts/README.revealjs.md
README.revealjs.html: override c_toc :=

#####
endif
#####
# End Of File
#####
```

The template .composer.yml in the artifacts directory:

```
#####
# Composer CMS :: YAML Configuration
#####
```

```

variables:

#####
# site

    title-prefix: EXAMPLE SITE

#####
    site-config:

        homepage: http://www.garybgenett.net/projects/composer
        brand: LOGO / BRAND
#>> copyright: COPYRIGHT
    copyright: |
        <!-- composer >> icon gpl >> -->
        <!-- composer >> icon cc-by-nc-nd >> -->
        <!-- composer >> icon copyright >> -->
        COPYRIGHT
#>> composer: 1

#>> search_name: SEARCH
    search_name: |
        <!-- composer >> icon search >> -->
    search_site: https://duckduckgo.com
    search_call: q
    search_form: |
        <!-- composer >> form sites garybgenett.net >> -->
        <!-- composer >> form ia web >> -->
        <!-- composer >> form kae d >> -->
        <!-- composer >> form ko 1 >> -->
        <!-- composer >> form kp -1 >> -->
        <!-- composer >> form kv 1 >> -->
        <!-- composer >> form kz -1 >> -->

#>> header: null
#>> footer: null

#>> css_shade: dark
#>> copy_protect: null

#>> cols_break: lg
#>> cols_sticky: 1
#>> cols_order: [ 1, 2, 3 ]
#>> cols_reorder: [ 1, 3, 2 ]
#>> cols_size: [ 3, 7, 2 ]
#>> cols_resize: [ 6, 12, 6 ]

#>> metainfo: "<date> :: <title><|> — <author|; >"
#>> metainfo_null: "*(none)*"
#>> taglist:
#>>     author:
#>>         title: "Author"
#>>         display: "*Authors: <|>, <|>*"
#>>     tags:
#>>         title: "Tag"
#>>         display: "*Tags: <|>, <|>*"

```

```
#>> readtime: "*Reading time: <word> words, <time> minutes*"
#>> readtime_wpm: 220

#####
site-library:

    folder: #>> null
#>> auto_update: null

#>> digest_title: "Latest Updates"
#>> digest_continue: "[...]"
#>> digest_permalink: "*(permalink to full text)*"
#>> digest_header: null
#>> digest_footer: null
#>> digest_chars: 1024
#>> digest_count: 10
#>> digest_expanded: 0
#>> digest_spacer: 1

#>> sitemap_title: "Site Map"
#>> sitemap_expanded: 0
#>> sitemap_spacer: 1

#>> lists_header: null
#>> lists_footer: null
#>> lists_expanded: 0
#>> lists_spacer: 1

#####
site-nav-top:

MENU:
  - MAIN: <composer_root>/index.html
  - PAGES:
    - Composer README: <composer_root>/../index.html
    - spacer
    - Introduction:
      - _: <composer_root>/index.html
      - Default Site: <composer_root>/null/index.html
      - Configured Site: <composer_root>/config/index.html
      - Pandoc Markdown: <composer_root>/pandoc/MANUAL.html
      - Bootstrap Default: <composer_root>/bootstrap/site/content/docs/5.1/getting-started.html
    - Layout & Elements:
      - _: <composer_root>/examples.html
      - Metainfo Page: <composer_root>/config/pages.html
      - Metainfo File: <composer_root>/config/pages/2020-01-01+template_00.html
      - Themes & Shades: <composer_root>/themes/index.html
    - Default Library Page:
      - _: <composer_root>/_library/index.html
      - Configured Library Page: <composer_root>/config/_library-config/index.html
#>>    - Default Digest Page: <composer_root>/index-digest.html
#>>    - Configured Digest Page: <composer_root>/config/index-digest.html

CONTENTS:
  - CONTENTS:
    - contents
```

```

#>>      - contents 6
#>>      - contents 0
SPACE:
  - spacer
LIBRARY:
  - DATES:
    - library date
  - AUTHORS:
    - library author
  - TAGS:
    - library tags

#####
site-nav-bottom:

PATH:
  - SITEMAP: <composer_root>/_library/sitemap.html
INFO:
  - taglist author
  - taglist tags

#####
site-nav-left:

BEGIN:
MENU:
  - fold-begin 0 . 0 LEFT FOLD
  - _: |
    * ITEM 1
    * ITEM 2
    * ITEM 3
  - fold-end
MIDDLE:
  - spacer
TEXT:
  - box-begin 0 LEFT BOX
  - _: |
    LEFT TEXT
  - box-end
SPACE:
  - spacer
CONTENTS:
  - box-begin 0 CONTENTS
  - metainfo
  - contents
#>>      - contents 6
#>>      - contents 0
  - taglist author
  - taglist tags
  - readtime
  - box-end
END:

#####
site-nav-right:

```

```
BEGIN:
MENU:
  - fold-begin 0 . 0 RIGHT FOLD
  - _: |
      * ITEM 1
      * ITEM 2
      * ITEM 3
  - fold-end
MIDDLE:
  - spacer
TEXT:
  - box-begin 0 RIGHT BOX
  - _: |
      RIGHT TEXT
  - box-end
SPACE:
  - spacer
LIBRARY:
  - fold-begin group fold-library
  - fold-begin 0 0 fold-library DATES
  - library date
  - fold-end
  - fold-begin 0 0 fold-library AUTHORS
  - library author
  - fold-end
  - fold-begin 0 . fold-library TAGS
  - library tags
  - fold-end
  - fold-end group
END:

#####
site-info-top:

TEXT:
  - _: |
      TOP TEXT
INFO:
#>> - metainfo
#>> - taglist author
#>> - taglist tags
#>> - readtime
ICON:
  - icon github https://github.com/garybgenett/composer Composer CMS
#>> - _: |
#>> <!-- composer >> icon gpl >> -->
#>> <!-- composer >> icon cc-by-nc-nd >> -->
#>> <!-- composer >> icon copyright >> -->

#####
site-info-bottom:

TEXT:
  - _: |
      BOTTOM TEXT
INFO:
```



```
#>>  - metainfo
#>>  - taglist  author
#>>  - taglist  tags
      - readtime
      ICON:
```

```
#####
# End Of File
#####
```

## 6.2 Reserved

### 6.2.1 Target Names

Do not create targets which match these, or use them as prefixes:

```
.all_targets
.make_database
.null
all
check
clean
commit
compose
config
export
headers
help
init
install
list
site
subdirs
targets
template
_debug
_release
_setup
_test
_update
```

### 6.2.2 Variable Names

Do not create variables which match these, and avoid similar names:

```
7Z
7Z_VER
BASE64
BASH
BASH_VER
BOOTLINT_CMT
BOOTLINT_DIR
BOOTLINT_LIC
BOOTLINT_SRC
BOOTSTRAP_ART_CSS
BOOTSTRAP_ART_JS
```

BOOTSTRAP\_CMT  
BOOTSTRAP\_DEF\_CSS  
BOOTSTRAP\_DEF\_JS  
BOOTSTRAP\_DIR  
BOOTSTRAP\_DIR\_CSS  
BOOTSTRAP\_DIR\_JS  
BOOTSTRAP\_DOC\_VER  
BOOTSTRAP\_LIC  
BOOTSTRAP\_SRC  
BOOTSWATCH\_CMT  
BOOTSWATCH\_CSS\_ALT  
BOOTSWATCH\_CSS\_DARK  
BOOTSWATCH\_CSS\_LIGHT  
BOOTSWATCH\_CSS\_SOLAR\_DARK  
BOOTSWATCH\_CSS\_SOLAR\_LIGHT  
BOOTSWATCH\_DIR  
BOOTSWATCH\_LIC  
BOOTSWATCH\_SRC  
CAT  
CHECKIT  
CHMOD  
CLEANER  
CODEBLOCK  
COLUMNS  
COLUMN\_2  
COMMENTED  
COMPOSER  
COMPOSER\_ART  
COMPOSER\_BASENAME  
COMPOSER\_BIN  
COMPOSER\_CNAME  
COMPOSER\_COLOR  
COMPOSER\_COMPOSER  
COMPOSER\_CONTENTS  
COMPOSER\_CONTENTS\_DIRS  
COMPOSER\_CONTENTS\_EXT  
COMPOSER\_CONTENTS\_FILES  
COMPOSER\_CONV  
COMPOSER\_CSS  
COMPOSER\_CURDIR  
COMPOSER\_CUSTOM  
COMPOSER\_DAT  
COMPOSER\_DEBUGIT  
COMPOSER\_DEBUGIT\_ALL  
COMPOSER\_DEPENDS  
COMPOSER\_DIR  
COMPOSER\_DOCOLOR  
COMPOSER\_DOSETUP\_DIR  
COMPOSER\_EXPORT  
COMPOSER\_EXPORTS  
COMPOSER\_EXPORTS\_DEFAULT  
COMPOSER\_EXPORT\_DEFAULT  
COMPOSER\_EXPORT\_REGEX  
COMPOSER\_EXT  
COMPOSER\_EXT\_DEFAULT  
COMPOSER\_EXT\_SPECIAL

COMPOSER\_FILENAME  
COMPOSER\_FIND  
COMPOSER\_FULLNAME  
COMPOSER\_HEADLINE  
COMPOSER\_HOMEPAGE  
COMPOSER\_ICON  
COMPOSER\_ICON\_VER  
COMPOSER\_IGNORES  
COMPOSER\_IMAGES  
COMPOSER\_INCLUDE  
COMPOSER\_INCLUDES  
COMPOSER\_INCLUDES\_LIST  
COMPOSER\_INCLUDES\_TREE  
COMPOSER\_KEEPING  
COMPOSER\_LIBRARY  
COMPOSER\_LIBRARY\_AUTO\_UPDATE  
COMPOSER\_LIBRARY\_DIR  
COMPOSER\_LIBRARY\_PATH  
COMPOSER\_LIBRARY\_ROOT  
COMPOSER\_LIBRARY\_ROOT\_REGEX  
COMPOSER\_LICENSE  
COMPOSER\_LOG  
COMPOSER\_LOGO  
COMPOSER\_LOGO\_VER  
COMPOSER\_LOG\_DEFAULT  
COMPOSER\_MY\_PATH  
COMPOSER\_NOCOLOR  
COMPOSER\_OPTIONS  
COMPOSER\_OPTIONS\_EXPORT  
COMPOSER\_OPTIONS\_GLOBAL  
COMPOSER\_OPTIONS\_LOCAL  
COMPOSER\_OPTIONS\_MAKE  
COMPOSER\_OPTIONS\_PANDOC  
COMPOSER\_OPTIONS\_PUBLISH  
COMPOSER\_OPTIONS\_PUBLISH\_ENV  
COMPOSER\_PANDOC  
COMPOSER\_REGEX  
COMPOSER\_REGEX\_DEFINE  
COMPOSER\_REGEX\_OVERRIDE  
COMPOSER\_REGEX\_PREFIX  
COMPOSER\_RELEASE  
COMPOSER\_REPOPAGE  
COMPOSER\_RESERVED  
COMPOSER\_RESERVED\_DOITALL  
COMPOSER\_RESERVED\_SKIP  
COMPOSER\_ROOT  
COMPOSER\_ROOT\_PATH  
COMPOSER\_ROOT\_REGEX  
COMPOSER\_SETTINGS  
COMPOSER\_SRC  
COMPOSER\_SUBDIRS  
COMPOSER\_TAGLINE  
COMPOSER\_TARGETS  
COMPOSER\_TARGETS\_AUTO  
COMPOSER\_TEACHER  
COMPOSER\_TECHNAME

COMPOSER\_TIMESTAMP  
COMPOSER\_TINYNAME  
COMPOSER\_TMP  
COMPOSER\_TMP\_FILE  
COMPOSER\_VERSION  
COMPOSER\_YML  
COMPOSER\_YML\_DATA  
COMPOSER\_YML\_DATA\_SKEL  
COMPOSER\_YML\_DATA\_TAGSLIST  
COMPOSER\_YML\_DATA\_TAGSLIST\_SKEL  
COMPOSER\_YML\_DATA\_VAL  
COMPOSER\_YML\_LIST  
CONFIGS  
CONVICT  
COPYRIGHT\_FULL  
COPYRIGHT\_SHORT  
COREUTILS\_VER  
CP  
CREATED\_TAGLINE  
CREATOR  
CSS\_ALT  
CSS\_ICONS  
CSS\_ICON\_ARROW\_D  
CSS\_ICON\_ARROW\_L  
CSS\_ICON\_ARROW\_R  
CSS\_ICON\_ARROW\_U  
CSS\_ICON\_COPYRIGHT  
CSS\_ICON\_GITHUB  
CSS\_ICON\_MENU  
CSS\_ICON\_SEARCH  
CSS\_THEME  
CSS\_THEMES  
CURL  
CURL\_VER  
CUSTOM\_HTML\_CSS  
CUSTOM\_PDF\_LATEX  
CUSTOM\_PUBLISH\_CSS  
CUSTOM\_PUBLISH\_CSS\_SHADE  
CUSTOM\_PUBLISH\_SH  
CUSTOM\_REVEALJS\_CSS  
DATE  
DATEMARK  
DATENAME  
DATESTAMP  
DEBUGIT  
DEPTH\_DEFAULT  
DEPTH\_MAX  
DESC\_DOCX  
DESC\_EPUB  
DESC\_HTML  
DESC\_LINT  
DESC\_LPDF  
DESC\_PPTX  
DESC\_PRES  
DESC\_SITE  
DESC\_TEXT

DIFF  
DIFFUTILS\_VER  
DISTRIB  
DIST\_ICON\_v1.0  
DIST\_LOGO\_v1.0  
DIST\_SCREENSHOT\_v1.0  
DIST\_SCREENSHOT\_v3.0  
DIST\_SCREENSHOT\_v4.0  
DIVIDE  
DOFORCE  
DOITALL  
DOMAKE  
DOSETUP  
DO\_HEREDOC  
ECHO  
ENDOLINE  
ENV  
ENV\_MAKE  
EOL  
EXAMPLE  
EXPAND  
EXPORTS  
EXPR  
EXTENSION  
EXTN\_DEFAULT  
EXTN\_DOCX  
EXTN\_EPUB  
EXTN\_HTML  
EXTN\_LINT  
EXTN\_LPDF  
EXTN\_PPTX  
EXTN\_PREP  
EXTN\_TEXT  
EXT\_ICON\_CC  
EXT\_ICON\_GPL  
FIND  
FINDUTILS\_VER  
FIND\_ALL  
FONTAWES\_CMT  
FONTAWES\_DIR  
FONTAWES\_LIC  
FONTAWES\_SRC  
GIT  
GIT\_LOG\_COUNT  
GIT\_LOG\_FORMAT  
GIT\_OPTS\_CONVICT  
GIT\_REPO  
GIT\_REPO\_DO  
GIT\_RUN  
GIT\_RUN\_COMPOSER  
GIT\_VER  
GZIP\_BIN  
GZIP\_VER  
HEAD  
HEADERS  
HEADER\_L

HEAD\_MAIN  
HELPOUT  
HEREDOC\_COMPOSER\_MK  
HEREDOC\_COMPOSER\_MK\_PUBLISH  
HEREDOC\_COMPOSER\_MK\_PUBLISH\_BOOTSTRAP\_DIR  
HEREDOC\_COMPOSER\_MK\_PUBLISH\_BOOTSTRAP\_TREE  
HEREDOC\_COMPOSER\_MK\_PUBLISH\_CONFIGS  
HEREDOC\_COMPOSER\_MK\_PUBLISH\_EXAMPLE  
HEREDOC\_COMPOSER\_MK\_PUBLISH\_NOTHING  
HEREDOC\_COMPOSER\_MK\_PUBLISH\_PAGEDIR  
HEREDOC\_COMPOSER\_MK\_PUBLISH\_PANDOC\_DIR  
HEREDOC\_COMPOSER\_MK\_PUBLISH\_SHOWDIR  
HEREDOC\_COMPOSER\_MK\_PUBLISH\_SHOWDIR\_TARGET  
HEREDOC\_COMPOSER\_YML  
HEREDOC\_COMPOSER\_YML\_PUBLISH\_BOOTSTRAP\_DIR  
HEREDOC\_COMPOSER\_YML\_PUBLISH\_BOOTSTRAP\_TREE  
HEREDOC\_COMPOSER\_YML\_PUBLISH\_CONFIGS  
HEREDOC\_COMPOSER\_YML\_PUBLISH\_EXAMPLE  
HEREDOC\_COMPOSER\_YML\_PUBLISH\_LIBRARY  
HEREDOC\_COMPOSER\_YML\_PUBLISH\_NOTHING  
HEREDOC\_COMPOSER\_YML\_PUBLISH\_PAGEDIR  
HEREDOC\_COMPOSER\_YML\_PUBLISH\_PANDOC\_DIR  
HEREDOC\_COMPOSER\_YML\_PUBLISH\_SHOWDIR  
HEREDOC\_COMPOSER\_YML\_README  
HEREDOC\_CUSTOM\_HTML\_CSS  
HEREDOC\_CUSTOM\_HTML\_CSS\_SOLARIZED  
HEREDOC\_CUSTOM\_HTML\_CSS\_WATER\_CSS\_HACK  
HEREDOC\_CUSTOM\_HTML\_CSS\_WATER\_SRC\_SOLAR  
HEREDOC\_CUSTOM\_HTML\_CSS\_WATER\_VAR\_SHADE  
HEREDOC\_CUSTOM\_HTML\_CSS\_WATER\_VAR\_SOLAR  
HEREDOC\_CUSTOM\_PDF\_LATEX  
HEREDOC\_CUSTOM\_PUBLISH\_CSS  
HEREDOC\_CUSTOM\_PUBLISH\_CSS\_HACK  
HEREDOC\_CUSTOM\_PUBLISH\_CSS\_POST  
HEREDOC\_CUSTOM\_PUBLISH\_CSS\_PRE  
HEREDOC\_CUSTOM\_PUBLISH\_CSS\_SHADE  
HEREDOC\_CUSTOM\_PUBLISH\_CSS\_TESTING  
HEREDOC\_CUSTOM\_PUBLISH\_CSS\_THEME  
HEREDOC\_CUSTOM\_PUBLISH\_JS\_POST  
HEREDOC\_CUSTOM\_PUBLISH\_JS\_PRE  
HEREDOC\_CUSTOM\_PUBLISH\_SH  
HEREDOC\_CUSTOM\_REVEALJS\_CSS  
HEREDOC\_GITATTRIBUTES  
HEREDOC\_GITIGNORE  
HEREDOC\_LICENSE  
HTML\_BREAK  
HTML\_HIDE  
HTML\_SPACE  
INPUT  
INSTALL  
LIBRARY\_AUTO\_UPDATE  
LIBRARY\_AUTO\_UPDATE\_ALT  
LIBRARY\_DIGEST\_CHARS  
LIBRARY\_DIGEST\_CHARS\_ALT  
LIBRARY\_DIGEST\_CONTINUE  
LIBRARY\_DIGEST\_CONTINUE\_ALT

LIBRARY\_DIGEST\_COUNT  
LIBRARY\_DIGEST\_COUNT\_ALT  
LIBRARY\_DIGEST\_EXPANDED  
LIBRARY\_DIGEST\_EXPANDED\_ALT  
LIBRARY\_DIGEST\_EXPANDED\_MOD  
LIBRARY\_DIGEST\_FOOTER  
LIBRARY\_DIGEST\_FOOTER\_ALT  
LIBRARY\_DIGEST\_FOOTER\_MOD  
LIBRARY\_DIGEST\_HEADER  
LIBRARY\_DIGEST\_HEADER\_ALT  
LIBRARY\_DIGEST\_HEADER\_MOD  
LIBRARY\_DIGEST\_PERMALINK  
LIBRARY\_DIGEST\_PERMALINK\_ALT  
LIBRARY\_DIGEST\_SPACER  
LIBRARY\_DIGEST\_SPACER\_ALT  
LIBRARY\_DIGEST\_TITLE  
LIBRARY\_DIGEST\_TITLE\_ALT  
LIBRARY\_FOLDER  
LIBRARY\_FOLDER\_ALT  
LIBRARY\_LISTS\_EXPANDED  
LIBRARY\_LISTS\_EXPANDED\_ALT  
LIBRARY\_LISTS\_EXPANDED\_MOD  
LIBRARY\_LISTS\_FOOTER  
LIBRARY\_LISTS\_FOOTER\_ALT  
LIBRARY\_LISTS\_FOOTER\_MOD  
LIBRARY\_LISTS\_HEADER  
LIBRARY\_LISTS\_HEADER\_ALT  
LIBRARY\_LISTS\_HEADER\_MOD  
LIBRARY\_LISTS\_SPACER  
LIBRARY\_LISTS\_SPACER\_ALT  
LIBRARY\_SITEMAP\_EXPANDED  
LIBRARY\_SITEMAP\_EXPANDED\_ALT  
LIBRARY\_SITEMAP\_EXPANDED\_MOD  
LIBRARY\_SITEMAP\_SPACER  
LIBRARY\_SITEMAP\_SPACER\_ALT  
LIBRARY\_SITEMAP\_TITLE  
LIBRARY\_SITEMAP\_TITLE\_ALT  
LINERULE  
LISTING  
LN  
LS  
LS\_TIME  
MAKEFILE  
MAKEFILE\_LIST  
MAKEFLAGS  
MAKEFLAGS\_ENV  
MAKEJOBS  
MAKEJOBS\_DEFAULT  
MAKEJOBS\_OPTS  
MAKE\_DB  
MAKE\_VER  
MARKER  
MDTHEMES\_CMT  
MDTHEMES\_DIR  
MDTHEMES\_LIC  
MDTHEMES\_SRC

MDVIEWER\_CMT  
MDVIEWER\_CMT\_SASS\_VER  
MDVIEWER\_CSS\_ALT  
MDVIEWER\_CSS\_DARK  
MDVIEWER\_CSS\_DIR  
MDVIEWER\_CSS\_LIGHT  
MDVIEWER\_CSS\_SOLAR\_DARK  
MDVIEWER\_CSS\_SOLAR\_LIGHT  
MDVIEWER\_DIR  
MDVIEWER\_LIC  
MDVIEWER\_MANIFEST  
MDVIEWER\_MODULES  
MDVIEWER\_SRC  
MENU\_SELF  
MKDIR  
MV  
NEWLINE  
NOFAIL  
NOTHING  
NOTHING\_IGNORES  
NPM  
NPM\_BUILD  
NPM\_INSTALL  
NPM\_NAME  
NPM\_RUN  
NPM\_SETUP  
NPM\_VER  
NULL  
OS\_TYPE  
OS\_UNAME  
OUTPUT  
OUTPUT\_FILENAME  
OUT\_LICENSE  
OUT\_MANUAL  
OUT\_README  
PANDOC  
PANDOC\_BIN  
PANDOC\_CMT  
PANDOC\_CMT\_DISPLAY  
PANDOC\_DIR  
PANDOC\_EXTENSIONS  
PANDOC\_FROM  
PANDOC\_JSON\_TO\_LINT  
PANDOC\_LIC  
PANDOC\_LNX\_BIN  
PANDOC\_LNX\_DST  
PANDOC\_LNX\_SRC  
PANDOC\_MAC\_BIN  
PANDOC\_MAC\_DST  
PANDOC\_MAC\_SRC  
PANDOC\_MD\_TO\_HTML  
PANDOC\_MD\_TO\_JSON  
PANDOC\_MD\_TO\_TEXT  
PANDOC\_OPTIONS  
PANDOC\_OPTIONS\_ERROR  
PANDOC\_SRC



PANDOC\_TEX\_PDF  
PANDOC\_URL  
PANDOC\_VER  
PANDOC\_WIN\_BIN  
PANDOC\_WIN\_DST  
PANDOC\_WIN\_SRC  
PATH\_LIST  
PRINT  
PRINTER  
PRINTF  
PUBLISH  
PUBLISH\_BOOTSTRAP\_TREE  
PUBLISH\_CMD\_BEG  
PUBLISH\_CMD\_END  
PUBLISH\_CMD\_ROOT  
PUBLISH\_COLS\_BREAK  
PUBLISH\_COLS\_BREAK\_ALT  
PUBLISH\_COLS\_ORDER\_C  
PUBLISH\_COLS\_ORDER\_C\_ALT  
PUBLISH\_COLS\_ORDER\_L  
PUBLISH\_COLS\_ORDER\_L\_ALT  
PUBLISH\_COLS\_ORDER\_R  
PUBLISH\_COLS\_ORDER\_R\_ALT  
PUBLISH\_COLS\_REORDER\_C  
PUBLISH\_COLS\_REORDER\_C\_ALT  
PUBLISH\_COLS\_REORDER\_L  
PUBLISH\_COLS\_REORDER\_L\_ALT  
PUBLISH\_COLS\_REORDER\_L\_MOD  
PUBLISH\_COLS\_REORDER\_R  
PUBLISH\_COLS\_REORDER\_R\_ALT  
PUBLISH\_COLS\_RESIZE\_C  
PUBLISH\_COLS\_RESIZE\_C\_ALT  
PUBLISH\_COLS\_RESIZE\_L  
PUBLISH\_COLS\_RESIZE\_L\_ALT  
PUBLISH\_COLS\_RESIZE\_R  
PUBLISH\_COLS\_RESIZE\_R\_ALT  
PUBLISH\_COLS\_RESIZE\_R\_MOD  
PUBLISH\_COLS\_SIZE\_C  
PUBLISH\_COLS\_SIZE\_C\_ALT  
PUBLISH\_COLS\_SIZE\_L  
PUBLISH\_COLS\_SIZE\_L\_ALT  
PUBLISH\_COLS\_SIZE\_R  
PUBLISH\_COLS\_SIZE\_R\_ALT  
PUBLISH\_COLS\_STICKY  
PUBLISH\_COLS\_STICKY\_ALT  
PUBLISH\_COMPOSER  
PUBLISH\_COMPOSER\_ALT  
PUBLISH\_COMPOSER\_MOD  
PUBLISH\_COPY\_PROTECT  
PUBLISH\_COPY\_PROTECT\_ALT  
PUBLISH\_CREATORS  
PUBLISH\_CREATORS\_PRINT  
PUBLISH\_CREATORS\_PRINT\_ALT  
PUBLISH\_CREATORS\_PRINT\_MOD  
PUBLISH\_CREATORS\_TITLE  
PUBLISH\_CREATORS\_TITLE\_ALT

PUBLISH\_CREATORS\_TITLE\_MOD  
PUBLISH\_CSS\_SHADE  
PUBLISH\_CSS\_SHADE\_ALT  
PUBLISH\_DIRS  
PUBLISH\_DIRS\_CONFIGS  
PUBLISH\_DIRS\_DEBUGIT  
PUBLISH\_EXAMPLE  
PUBLISH\_FILES  
PUBLISH\_FOOTER  
PUBLISH\_FOOTER\_ALT  
PUBLISH\_HEADER  
PUBLISH\_HEADER\_ALT  
PUBLISH\_INCLUDE  
PUBLISH\_INCLUDE\_ALT  
PUBLISH\_INDEX  
PUBLISH\_LIBRARY  
PUBLISH\_LIBRARY\_ALT  
PUBLISH\_LOG  
PUBLISH\_METAINFO  
PUBLISH\_METAINFO\_ALT  
PUBLISH\_METAINFO\_MOD  
PUBLISH\_METAINFO\_NULL  
PUBLISH\_METAINFO\_NULL\_ALT  
PUBLISH\_OUT\_README  
PUBLISH\_PAGEDIR  
PUBLISH\_PAGE\_1  
PUBLISH\_PAGE\_1\_CONFIGS  
PUBLISH\_PAGE\_1\_INCLUDE  
PUBLISH\_PAGE\_1\_NAME  
PUBLISH\_PAGE\_2  
PUBLISH\_PAGE\_2\_NAME  
PUBLISH\_PAGE\_3  
PUBLISH\_PAGE\_3\_CONFIGS  
PUBLISH\_PAGE\_3\_FOOTER  
PUBLISH\_PAGE\_3\_HEADER  
PUBLISH\_PAGE\_3\_NAME  
PUBLISH\_PAGE\_4\_HEADER  
PUBLISH\_PAGE\_4\_NAME  
PUBLISH\_PAGE\_5\_HEADER  
PUBLISH\_PAGE\_5\_NAME  
PUBLISH\_PAGE\_EXAMPLE  
PUBLISH\_PAGE\_EXAMPLE\_DISPLAY  
PUBLISH\_PAGE\_EXAMPLE\_INCLUDE  
PUBLISH\_PAGE\_EXAMPLE\_LAYOUT  
PUBLISH\_PAGE\_EXAMPLE\_NAME  
PUBLISH\_PAGE\_INCLUDE  
PUBLISH\_PAGE\_INCLUDE\_ALT  
PUBLISH\_PAGE\_INCLUDE\_ALT\_NAME  
PUBLISH\_PAGE\_INCLUDE\_EXAMPLE  
PUBLISH\_PAGE\_INCLUDE\_NAME  
PUBLISH\_PAGE\_LIBRARY  
PUBLISH\_PAGE\_LIBRARY\_ALT  
PUBLISH\_PAGE\_LIBRARY\_ALT\_NAME  
PUBLISH\_PAGE\_LIBRARY\_EXAMPLE  
PUBLISH\_PAGE\_LIBRARY\_NAME  
PUBLISH\_PAGE\_PAGEDIR\_FOOTER

PUBLISH\_PAGE\_PAGEDIR\_HEADER  
PUBLISH\_PAGE\_PAGEDIR\_NAME  
PUBLISH\_PAGE\_SHOWDIR  
PUBLISH\_PAGE\_SHOWDIR\_INCLUDE  
PUBLISH\_PAGE\_SHOWDIR\_NAME  
PUBLISH\_PAGE\_TESTING  
PUBLISH\_PAGE\_TESTING\_NAME  
PUBLISH\_READTIME  
PUBLISH\_READTIME\_ALT  
PUBLISH\_READTIME\_WPM  
PUBLISH\_READTIME\_WPM\_ALT  
PUBLISH\_ROOT  
PUBLISH\_SHOWDIR  
PUBLISH\_SH\_HELPERS  
PUBLISH\_SH\_RUN  
PUBLISH\_TAGSLIST  
PUBLISH\_TAGSLIST\_PRINT  
PUBLISH\_TAGSLIST\_PRINT\_ALT  
PUBLISH\_TAGSLIST\_PRINT\_MOD  
PUBLISH\_TAGSLIST\_TITLE  
PUBLISH\_TAGSLIST\_TITLE\_ALT  
PUBLISH\_TAGSLIST\_TITLE\_MOD  
PUBLISH\_TESTING  
READ\_ALIASES  
REALMAKE  
REALPATH  
REVEALJS\_CMT  
REVEALJS\_CSS\_ALT  
REVEALJS\_CSS\_DARK  
REVEALJS\_CSS\_LIGHT  
REVEALJS\_CSS\_SOLAR\_DARK  
REVEALJS\_CSS\_SOLAR\_LIGHT  
REVEALJS\_DIR  
REVEALJS\_LIC  
REVEALJS\_SRC  
RM  
RSYNC  
RSYNC\_VER  
SED  
SED\_ESCAPE\_COLOR  
SED\_ESCAPE\_CONTROL  
SED\_ESCAPE\_LIST  
SED\_VER  
SHELL  
SORT  
SOURCE\_INCLUDES  
SPECIAL\_VAL  
SPLIT  
SUBDIRS  
TABLE\_C2  
TABLE\_M2  
TABLE\_M3  
TAIL  
TAR  
TARGETS  
TAR\_VER

TEE  
TESTING  
TESTING\_COMPOSER\_DIR  
TESTING\_COMPOSER\_MAKEFILE  
TESTING\_DIR  
TESTING\_LOGFILE  
TESTING\_MAKEJOBS  
TEX\_PDF  
TEX\_PDF\_VER  
TITLE\_END  
TITLE\_LN  
TMPL\_DOCX  
TMPL\_EPUB  
TMPL\_HTML  
TMPL\_LINT  
TMPL\_LPDF  
TMPL\_PPTX  
TMPL\_PRES  
TMPL\_TEXT  
TOKEN  
TOUCH  
TR  
TRUE  
TYPE\_DEFAULT  
TYPE\_DOCX  
TYPE\_EPUB  
TYPE\_HTML  
TYPE\_LINT  
TYPE\_LPDF  
TYPE\_PPTX  
TYPE\_PRES  
TYPE\_TARGETS  
TYPE\_TARGETS\_LIST  
TYPE\_TARGETS\_OPTIONS  
TYPE\_TEXT  
UNAME  
UPGRADE  
VIM\_FOLDING  
VIM\_OPTIONS  
WATERCSS\_CMT  
WATERCSS\_CSS\_ALT  
WATERCSS\_CSS\_DARK  
WATERCSS\_CSS\_LIGHT  
WATERCSS\_CSS\_SOLAR\_ALT  
WATERCSS\_CSS\_SOLAR\_DARK  
WATERCSS\_CSS\_SOLAR\_LIGHT  
WATERCSS\_DIR  
WATERCSS\_LIC  
WATERCSS\_SRC  
WC  
WC\_CHAR  
WC\_WORD  
WGET  
WGET\_PACKAGE  
WGET\_PACKAGE\_DO  
WGET\_VER

YQ  
YQ\_BIN  
YQ\_CMT  
YQ\_CMT\_DISPLAY  
YQ\_DIR  
YQ\_EVAL  
YQ\_EVAL\_DATA  
YQ\_EVAL\_DATA\_FORMAT  
YQ\_EVAL\_FILES  
YQ\_LIC  
YQ\_LNX\_BIN  
YQ\_LNX\_DST  
YQ\_LNX\_SRC  
YQ\_MAC\_BIN  
YQ\_MAC\_DST  
YQ\_MAC\_SRC  
YQ\_READ  
YQ\_SRC  
YQ\_URL  
YQ\_VER  
YQ\_WIN\_BIN  
YQ\_WIN\_DST  
YQ\_WIN\_SRC  
YQ\_WRITE  
YQ\_WRITE\_FILE  
YQ\_WRITE\_JSON  
YQ\_WRITE\_OUT  
YQ\_WRITE\_OUT\_COLOR  
c\_base  
c\_css  
c\_css\_select  
c\_css\_select\_theme  
c\_icon  
c\_lang  
c\_level  
c\_list  
c\_list\_file  
c\_list\_var  
c\_logo  
c\_margin  
c\_margin\_bottom  
c\_margin\_left  
c\_margin\_right  
c\_margin\_top  
c\_options  
c\_site  
c\_toc  
c\_type  
clean-logs  
compose-dependencies  
compose-log  
compose-.null  
composer-cp  
composer-ln  
composer-make  
composer-makefile

composer-mkdir  
composer-mv  
composer-note  
composer-rm  
\_debug-output  
template-print  
template-var  
template-var-static  
export-filter  
export-find  
export-libraries  
export-library  
export-tree  
export-config  
headers  
headers-action  
headers-dir  
headers-file  
headers-note  
headers-path-dir  
headers-path-list  
headers-path-root  
headers-rm  
headers-run  
headers-skip  
headers-compose  
headers-compose-PANDOC\_OPTIONS  
headers-subdirs  
help-all-CUSTOM  
help-all-DEPENDS  
help-all-FORMAT  
help-all-GOALS  
help-all-LINKS  
help-all-LINKS\_EXT  
help-all-ORDERS  
help-all-OVERVIEW  
help-all-REQUIRE  
help-all-REQUIRE\_POST  
help-all-SECTION  
help-all-SETTINGS  
help-all-TARGETS\_ADDITIONAL  
help-all-TARGETS\_INTERNAL  
help-all-TARGETS\_PRIMARY  
help-all-TITLE  
help-all-VARIABLES\_CONTROL  
help-all-VARIABLES\_FORMAT  
help-all-VARIABLES\_HELPER  
help-all-VERSIONS  
help-all-WORKFLOW  
help-help-list-template  
help-help-targets-FORMAT  
help-help-targets-SECTIONS  
help-help-targets-TITLES  
install-Makefile  
site-cache  
site-caches

site-caches-begin  
site-caches-end  
site-library  
site-library-digest  
site-library-digest-create  
site-library-digest-files  
site-library-digest-list  
site-library-digest-null  
site-library-digest-src  
site-library-digest-vars  
site-library-index  
site-library-indexer  
site-library-metadata  
site-library-sitemap  
site-library-sitemap-create  
site-library-sitemap-done  
site-library-sitemap-file  
site-library-sitemap-src  
site-library-sitemap-src-file  
site-library-sitemap-vars  
site-library-sort-sh  
site-library-sort-yq  
site-\_\_debug-output  
site-targets  
site-targets-cache  
site-targets-contents  
site-targets-contents-done  
site-targets-file  
site-targets-helpers  
site-targets-metainfo  
site-targets-metainfo-done  
site-targets-readtime  
site-targets-readtime-done  
site-targets-tagslist  
site-targets-tagslist-done  
subdirs-template  
targets-list  
\_\_test-COMPOSER\_INCLUDE-done  
\_\_test-COMPOSER\_INCLUDE-init  
\_\_test-count  
\_\_test-done  
\_\_test-fail  
\_\_test-find  
\_\_test-hold  
\_\_test-init  
\_\_test-load  
\_\_test-log  
\_\_test-make  
\_\_test-mark  
\_\_test-pwd  
\_\_test-run  
\_\_test-speed-init  
\_\_test-speed-init-load  
\_\_test-headers  
\_\_C  
\_\_D

`_E`  
`_EXPORT_DIRECTORY`  
`_EXPORT_GIT_BRANCH`  
`_EXPORT_GIT_REPO`  
`_F`  
`_H`  
`_M`  
`_N`  
`_S`

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*Happy Making!*



# Chapter 7

## Composer CMS License

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