Composer CMS: Content Make System

Gary B. Genett

v3.1 (2024-07-03)

Table of Contents

# 1 Composer CMS

| Composer Icon | “Creating Made Simple.” |
| --- | --- |
| [Composer CMS v3.1](https://github.com/garybgenett/composer/tree/v3.1) | [License: GPL](LICENSE.html) |
| [Gary B. Genett](http://www.garybgenett.net/projects/composer) | composer@garybgenett.net |

– Formats: [webpage](README.site.html) / [html](README.html) / [pdf](README.pdf) / [epub](README.epub) / [revealjs.html](README.revealjs.html) / [docx](README.docx)

## 1.1 Overview

[**Composer**](http://www.garybgenett.net/projects/composer) **is a simple but powerful CMS based on** [**Pandoc**](https://pandoc.org)**,** [**Bootstrap**](https://getbootstrap.com) **and** [**GNU Make**](http://www.gnu.org/software/make)**.** It is a document and website build system that processes directories or individual files in [Markdown](https://pandoc.org/MANUAL.html#pandocs-markdown) format.

Traditionally, CMS stands for Content Management System. [Composer](http://www.garybgenett.net/projects/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](https://pandoc.org) is an extremely powerful document conversion tool, and is a widely used standard for processing [Markdown](https://pandoc.org/MANUAL.html#pandocs-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](http://www.garybgenett.net/projects/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](#static-websites).



## 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](https://pandoc.org/MANUAL.html#pandocs-markdown) files (see [Formatting Variables](#formatting-variables)):

make README.html
make Composer-v3.1.Manual.html c\_list="README.md LICENSE.md"

Save a persistent configuration (see [Recommended Workflow](#recommended-workflow) and [Configuration Settings](#configuration-settings)):

make template >.composer.mk
$EDITOR .composer.mk
 override COMPOSER\_TARGETS := .targets Composer-v3.1.Manual.html
 override Composer-v3.1.Manual.html := README.md LICENSE.md
make clean
make all

Recursively install and build an entire directory tree (see [Recommended Workflow](#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](http://www.garybgenett.net/projects/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](#document-formatting)):

* [Static Websites](#static-websites)
* [HTML](#html)
* [PDF](#pdf)
* [EPUB](#epub)
* [Reveal.js Presentations](#revealjs-presentations)
* [Microsoft Word & PowerPoint](#microsoft-word--powerpoint)

## 1.4 Requirements

[Composer](http://www.garybgenett.net/projects/composer) has almost no external dependencies. All needed components are integrated directly into the repository, including [Pandoc](https://pandoc.org) and [YQ](https://mikefarah.gitbook.io/yq). [Composer](http://www.garybgenett.net/projects/composer) does require a minimal command-line environment based on [GNU](http://www.gnu.org) tools, particularly [GNU Make](http://www.gnu.org/software/make), which is standard for all [GNU/Linux](https://gnu.org/gnu/linux-and-gnu.html) systems. The [Windows Subsystem for Linux](https://docs.microsoft.com/en-us/windows/wsl) for Windows and [MacPorts](https://www.macports.org) for macOS both provide suitable environments.

The one large external requirement is [TeX Live](https://tug.org/texlive), and it can be installed using the package managers of each of the above systems. It is only necessary for creating [PDF](#pdf) files.

Below are the versions of the components in the repository, and the tested versions of external tools for this iteration of [Composer](http://www.garybgenett.net/projects/composer). Use [check](#check--check-all) to validate your system.

| Repository | Commit | License |
| --- | --- | --- |
| [Pandoc](https://pandoc.org) | 2.18 | GPL |
| [YQ](https://mikefarah.gitbook.io/yq) | v4.24.2 | MIT |
| [Bootstrap](https://getbootstrap.com) | v5.1.3 | MIT |
| [Bootlint](https://github.com/twbs/bootlint) | v1.1.0 | MIT |
| [Bootswatch](https://bootswatch.com) | v5.1.3 | MIT |
| [Font Awesome](https://fontawesome.com) | 6.1.2 | MIT / CC-BY |
| [Water.css](https://watercss.kognise.dev) | d950cbc9f8607521587f | MIT |
| [Markdown Viewer](https://github.com/simov/markdown-viewer) | 3bd40d84c071379440b3 | MIT |
| [Markdown Themes](https://github.com/simov/markdown-themes) | 6b3643d0f703727d8472 | None |
| [Reveal.js](https://revealjs.com) | 4.3.1 | MIT |
| [Google Firebase](https://firebase.google.com) | v12.4.7 | MIT |

| Project | Composer Version |
| --- | --- |
| [GNU Bash](http://www.gnu.org/software/bash) | 5.1.16 |
| – [GNU Coreutils](http://www.gnu.org/software/coreutils) | 8.32 |
| – [GNU Findutils](http://www.gnu.org/software/findutils) | 4.9.0 |
| – [GNU Sed](http://www.gnu.org/software/sed) | 4.8 |
| [GNU Make](http://www.gnu.org/software/make) | 4.3 |
| – [Pandoc](https://pandoc.org) | 2.18 |
| – [YQ](https://mikefarah.gitbook.io/yq) | 4.24.2 |
| – [TeX Live](https://tug.org/texlive) [PDF](#pdf) | 2021 3.141592653-2.6-1.40.22 |
| Supporting Tools: | – |
| – [Git SCM](https://git-scm.com) | 2.37.4 |
| – [GNU Diffutils](http://www.gnu.org/software/diffutils) | 3.8 |
| – [Rsync](https://rsync.samba.org) | 3.2.4 |

[Markdown Viewer](https://github.com/simov/markdown-viewer) is included both for its CSS stylesheets, and for real-time rendering of [Markdown](https://pandoc.org/MANUAL.html#pandocs-markdown) files as they are being written. To install, follow the instructions in the README.md.

[Google Firebase](https://firebase.google.com) is only necessary for uploading via the [export-all](#X1cae58edb4e6d163700a1d4b5205e3b7c031e32) and [export-force](#X1cae58edb4e6d163700a1d4b5205e3b7c031e32) targets. Binaries are included in the repository, but do not seem to work with all versions of their respective operating systems. If the included binary fails, use +update-firebase-tools to build a local version (see [+update-\*](#Xa8fb5052e33cb3be3321197977bba6b7259754f)).

The versions of the integrated repositories can be changed, if desired (see [Repository Versions](#repository-versions)).

# 2 Composer Operation

## 2.1 Recommended Workflow

### 2.1.1 Directory Tree

The ideal workflow is to put [Composer](http://www.garybgenett.net/projects/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](http://www.garybgenett.net/projects/composer) install for multiple directory trees, the [init](#init--init-force) target can be used to create a linked .Composer directory:

make -f .../Makefile init

The directory tree can then be converted to a [Composer](http://www.garybgenett.net/projects/composer) documentation archive ([Quick Start](#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](#configuration-settings), [Quick Start](#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](http://www.gnu.org/software/make) syntax (see [Custom Targets](#custom-targets)).

### 2.1.3 Important Notes

[GNU Make](http://www.gnu.org/software/make) does not support file and directory names with spaces in them, and neither does [Composer](http://www.garybgenett.net/projects/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](http://www.gnu.org/software/make) is meant to only run one instance within the directory at a time, and [Composer](http://www.garybgenett.net/projects/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](#makejobs) to a value greater than the default, to speed up processing.

It is best practice to [install-force](#install--install-all--install-force) after every [Composer](http://www.garybgenett.net/projects/composer) upgrade, in case there are any changes to the Makefile template (see [Templates](#templates)). Everything in [Composer](http://www.garybgenett.net/projects/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](#primary-targets).

**Welcome to** [**Composer**](http://www.garybgenett.net/projects/composer)**. *Happy Making!***

## 2.2 Document Formatting

#WORKING:DOCS###################################################################

.../artifacts/pandoc/template.\*
.../artifacts/pandoc/reference.\*
.../artifacts/composer/composer-site.css
.../artifacts/composer/composer-html.css

As outlined in [Overview](#overview) and [Principles](#principles), a primary goal of [Composer](http://www.garybgenett.net/projects/composer) is to produce beautiful and professional output. [Pandoc](https://pandoc.org) does reasonably well at this, and yet its primary focus is document conversion, not document formatting. [Composer](http://www.garybgenett.net/projects/composer) fills this gap by specifically tuning a select list of the most commonly used document formats.

The input [Markdown](https://pandoc.org/MANUAL.html#pandocs-markdown) format used by [Composer](http://www.garybgenett.net/projects/composer) is the [Pandoc](https://pandoc.org) default. However, the [Pandoc Extensions](#pandoc-extensions) list has been modified slightly. See that section and the [Pandoc](https://pandoc.org) [Markdown](https://pandoc.org/MANUAL.html#pandocs-markdown) documentation for the exact list and details for each.

Further options for each document type are in [Formatting Variables](#formatting-variables). All improvements not exposed as variables will apply to all documents created with a given instance of [Composer](http://www.garybgenett.net/projects/composer).

Note that all the files referenced below are embedded in the ‘Embedded Files’ section of the Makefile. They are exported by the [+release](#Xa8fb5052e33cb3be3321197977bba6b7259754f) target (using [+setup](#internal-targets)), and will be overwritten whenever it is run.

### 2.2.1 Static Websites

[Bootstrap](https://getbootstrap.com) 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](http://www.garybgenett.net/projects/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.

#WORKING:DOCS###################################################################

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

[Bootlint](https://github.com/twbs/bootlint) [Bootswatch](https://bootswatch.com)

.../bootswatch/docs/index.html

– Examples: [Example Website](_site/index.html) / <README.site.html>

### 2.2.2 HTML

In addition to being a helpful real-time rendering tool, [Markdown Viewer](https://github.com/simov/markdown-viewer) includes several CSS stylesheets that are much more visually appealing than the [Pandoc](https://pandoc.org) default, and which behave like normal webpages, so [Composer](http://www.garybgenett.net/projects/composer) uses them for all [HTML](#html)-based document types, including [EPUB](#epub).

Information on installing [Markdown Viewer](https://github.com/simov/markdown-viewer) for use as a [Markdown](https://pandoc.org/MANUAL.html#pandocs-markdown) rendering tool is in [Requirements](#requirements).

– Example: <README.html>

### 2.2.3 PDF

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

Internally, [Pandoc](https://pandoc.org) first converts to LaTeX, and then uses [TeX Live](https://tug.org/texlive) to convert into the final [PDF](#pdf). [Composer](http://www.garybgenett.net/projects/composer) inserts customized LaTeX to modify the final output:

.../artifacts/composer/composer-pdf.header

#WORK # …/artifacts/composer/composer.pdf.latex

– Example: <README.pdf>

### 2.2.4 EPUB

The [EPUB](#epub) format is essentially packaged [HTML](#html), so [Composer](http://www.garybgenett.net/projects/composer) uses the same [Markdown Viewer](https://github.com/simov/markdown-viewer) CSS stylesheets for it.

– Example: <README.epub>

### 2.2.5 Reveal.js Presentations

The CSS for [Reveal.js](https://revealjs.com) presentations has been modified to create a more traditional and readable end result. The customized version is at:

.../artifacts/composer/composer-revealjs.css

#WORK # …/artifacts/composer/composer.revealjs.css

#WORK # 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](#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](#recommended-workflow), [Configuration Settings](#configuration-settings) and [Precedence Rules](#precedence-rules)):

#WORK # no longer the best way to do this… cd …/presentations cp …/logo.img ./ ln -rs …/.Composer/artifacts/composer/composer.revealjs.css ./.composer-revealjs.css echo ‘override c\_type := revealjs’ >>./.composer.mk make all

– Example: <README.revealjs.html>

### 2.2.6 Microsoft Word & PowerPoint

The internal [Pandoc](https://pandoc.org) templates for these are exported by [Composer](http://www.garybgenett.net/projects/composer), so they are available for customization:

.../artifacts/pandoc/reference.docx
.../artifacts/pandoc/reference.pptx

They are not currently modified by [Composer](http://www.garybgenett.net/projects/composer).

– Example: <README.docx>

### 2.2.7 Plain Text

This output format is still parsable by [Pandoc](https://pandoc.org) as valid [Markdown](https://pandoc.org/MANUAL.html#pandocs-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](https://pandoc.org) [Markdown](https://pandoc.org/MANUAL.html#pandocs-markdown) but the output needs to be in a universally accepted text layout and presentation.

[Composer](http://www.garybgenett.net/projects/composer) currently does not modify this format, other than using the --columns=80 and --wrap=auto options to [Pandoc](https://pandoc.org).

### 2.2.8 Pandoc Markdown

Output [Markdown](https://pandoc.org/MANUAL.html#pandocs-markdown) that is specific to [Pandoc](https://pandoc.org). This is for linting or creating standardized versions of source files for shared archives.

Due to the expressed purposes of this format, [Composer](http://www.garybgenett.net/projects/composer) will never modify it.

## 2.3 Configuration Settings

#WORKING:DOCS###################################################################

### 2.3.1 GNU Make (.composer.mk)

### 2.3.2 Pandoc & Bootstrap (.composer.yml)

[Composer](http://www.garybgenett.net/projects/composer) uses .composer.mk files for persistent settings and definition of [Custom Targets](#custom-targets). By default, they are chained together across their Makefile tree (see [COMPOSER\_INCLUDE](#composer_include) in [Control Variables](#control-variables)). A .composer.mk in the main [Composer](http://www.garybgenett.net/projects/composer) directory will be global to all directories. The targets and settings in the most local file override all others (see [Precedence Rules](#precedence-rules)).

The easiest way to create new .composer.mk and .composer.yml files is with the [template](#template--templateyml--templatemd) and [template.yml](#template--templateyml--templatemd) targets ([Quick Start](#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](#template--templateyml--templatemd) 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](http://www.gnu.org/software/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](#c_toc) would be empty.

Example configuration files:

.../.composer.mk
.../artifacts/.composer.yml

#WORK …/artifacts/README.site.yml …/README.site.html.yml

## 2.4 Precedence Rules

All processing in [Composer](http://www.garybgenett.net/projects/composer) is done in global-to-local order, so that the most local file or value always takes precedence.

### 2.4.1 Configuration Files

Both .composer.mk and .composer.yml files follow the model illustrated in [COMPOSER\_INCLUDE](#composer_include) under [Control Variables](#control-variables). This means that the values in the most local file override all others.

#WORKING:DOCS###################################################################

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

### 2.4.2 Header & CSS Files

#WORK # the same for all…

.../artifacts/composer/composer-pdf.header
.../.composer-pdf.header
./README.pdf.header

#WORK # the same for all…

.../artifacts/composer/composer-html.css
.../.composer-html.css
./README.html.css

#WORK # the [c\_css](#c_css) layering…

1. [c\_site](#c_site) >> [Bootstrap](https://getbootstrap.com)
2. [c\_css](#c_css) #WORK # comment 1. [COMPOSER\_DIR](#composer_dir)/artifacts/composer/composer-[c\_type](#c_type--c_base--c_list).css
3. [COMPOSER\_ART](#composer_art)/composer/composer-[c\_type](#c_type--c_base--c_list).css
4. [COMPOSER\_INCLUDE](#composer_include) >> …/.composer-[c\_type](#c_type--c_base--c_list).css
5. [CURDIR](#curdir)/[c\_base](#c_type--c_base--c_list).<extension>.css
6. [c\_site](#c_site) >> .composer.yml :: [site-config].[css\_overlay]

The first four are core to [Composer](http://www.garybgenett.net/projects/composer), and are always included. [COMPOSER\_INCLUDE](#composer_include) and [CURDIR](#curdir) files are optional, and only used if they exist.

### 2.4.3 Variables & Aliases

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.

Full COMPOSER\_\* variable names should always be used in .composer.mk files, to avoid being overwritten by recursive environment persistence.

### 2.4.4 Pandoc Options

#WORK # does not seem to be documented anywhere… test it, with examples here, regardless… # seems to be: yaml\_metadata, –defaults, –metadata\*, etc.

## 2.5 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](http://www.gnu.org/software/make) syntax in .composer.mk:

LICENSE.html: README.html
subdirs-all-artifacts: subdirs-all-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 subdirs-all-\* syntax in order to avoid conflicts with target names (see [Custom Targets](#custom-targets)).

Chaining of dependencies can be as complex and layered as [GNU Make](http://www.gnu.org/software/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.

## 2.6 Custom Targets

If needed, custom targets can be defined inside a .composer.mk file (see [Configuration Settings](#configuration-settings)), using standard [GNU Make](http://www.gnu.org/software/make) syntax. Naming them as [\*-export](#X1cae58edb4e6d163700a1d4b5205e3b7c031e32), [\*-clean](#clean--clean-all---clean) or [\*-all](#all--all-all---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](#composer_targets).

#WORK # …or, via [Specifying Dependencies](#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](#reserved), along with a list of reserved variables.

Any included .composer.mk files are sourced early in the main [Composer](http://www.garybgenett.net/projects/composer) Makefile, so matching targets and most variables will be overridden. In the case of conflicting targets, [GNU Make](http://www.gnu.org/software/make) will produce warning messages. Variables will have their values changed silently. Changing the values of internal [Composer](http://www.garybgenett.net/projects/composer) variables is not recommended or supported.

A final note is that [\*-export](#X1cae58edb4e6d163700a1d4b5205e3b7c031e32), [\*-clean](#clean--clean-all---clean) and [\*-all](#all--all-all---all) targets are stripped from [COMPOSER\_TARGETS](#composer_targets). In cases where this results in an empty [COMPOSER\_TARGETS](#composer_targets), there will be a message and no actions will be taken.

## 2.7 Repository Versions

There are a few internal variables used by [+update](#Xa8fb5052e33cb3be3321197977bba6b7259754f) to select the repository and binary versions of integrated components (see [Requirements](#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
* FIREBASE\_VER (must be a binary version number)
* FIREBASE\_CMT (defaults to FIREBASE\_VER)

Binaries for [Pandoc](https://pandoc.org), [YQ](https://mikefarah.gitbook.io/yq) and [Google Firebase](https://firebase.google.com) are installed in their respective directories. By moving or removing them, or changing the version numbers and foregoing all relevant variations of [+update](#Xa8fb5052e33cb3be3321197977bba6b7259754f), the system versions will be used instead. This will work as long as the commit versions match, so that supporting files are in alignment, particularly for [Pandoc](https://pandoc.org).

It is possible that changing the versions will introduce incompatibilities with [Composer](http://www.garybgenett.net/projects/composer), which are usually impacts to the prettification of output files (see [Document Formatting](#document-formatting)). There may also be upstream changes to the command-line options for these tools.

# 3 Composer Variables

## 3.1 Formatting Variables

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

| Values ([c\_type](#c_type--c_base--c_list)) | Format | Extension |
| --- | --- | --- |
| html | [HyperText Markup Language](#html) | \*.html |
| pdf | [Portable Document Format](#pdf) | \*.pdf |
| epub | [Electronic Publication](#epub) | \*.epub |
| revealjs | [Reveal.js Presentation](#revealjs-presentations) | \*.revealjs.html |
| docx | [Microsoft Word](#microsoft-word--powerpoint) | \*.docx |
| pptx | [Microsoft PowerPoint](#microsoft-word--powerpoint) | \*.pptx |
| text | [Plain Text (well-formatted)](#plain-text) | \*.txt |
| markdown | [Markdown (for testing)](#pandoc-markdown) | \*.md.txt |

* *Other* [*c\_type*](#c_type--c_base--c_list) *values will be passed directly to* [*Pandoc*](https://pandoc.org)
* *Special* [*c\_css*](#c_css) *values:*
	+ *css\_alt = Use the alternate default stylesheet*
	+ *0 = Revert to the* [*Pandoc*](https://pandoc.org) *default*
* *Special* [*c\_toc*](#c_toc) *value: 0 = List all headers, and number sections*
* *Special* [*c\_level*](#c_level) *value: 0 = Varies by* [*c\_type*](#c_type--c_base--c_list) *(see* [*c\_level*](#c_level)*)*
* *An empty* [*c\_margin*](#c_margin) *value enables individual margins:*
	+ *c\_margin\_top ~ mt*
	+ *c\_margin\_bottom ~ mb*
	+ *c\_margin\_left ~ ml*
	+ *c\_margin\_right ~ mr*

### 3.1.1 c\_site

#WORK

### 3.1.2 c\_type / c\_base / c\_list

The [compose](#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](#c_type--c_base--c_list) input files, in order. The <extension> is selected based on the [c\_type](#c_type--c_base--c_list) table above. Generally, it is not required to use the [compose](#compose) target directly for supported [c\_type](#c_type--c_base--c_list) 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](#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](#c_type--c_base--c_list), such as json or man, for example, can be passed through to [Pandoc](https://pandoc.org) 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](https://pandoc.org) can be created this way. The only limitation is that the input files must be in [Markdown](https://pandoc.org/MANUAL.html#pandocs-markdown) format.

Finally, note that [c\_list](#c_type--c_base--c_list) has alternate meanings for these targets:

* [commit](#commit--commit-all)
* [site-list](#Xcc407f6c3cd768121d4926726707df5b46cc4d5)

### 3.1.3 c\_lang

* Primarily for [PDF](#pdf), this specifies the language that the table of contents ([c\_toc](#c_toc)) and chapter headings ([c\_level](#c_level)) will use.

### 3.1.4 c\_logo

#WORK # # revealjs

#WORK # document /.g/\_data/zactive/coding/composer/artifacts/images

.../artifacts/images

### 3.1.5 c\_icon

#WORK # html # revealjs

### 3.1.6 c\_css

#WORK # document /.g/\_data/zactive/coding/composer/artifacts/theme

.../artifacts/themes

* By default, a CSS stylesheet from [Markdown Viewer](https://github.com/simov/markdown-viewer) is used for [HTML](#html) and [EPUB](#epub), and one of the [Reveal.js](https://revealjs.com) themes is used for [Reveal.js Presentations](#revealjs-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](https://pandoc.org) default.
* [Composer](http://www.garybgenett.net/projects/composer) includes several different CSS files, depending on the [c\_type](#c_type--c_base--c_list) of the file being built. See [Header & CSS Files](#header--css-files) under [Precedence Rules](#precedence-rules) for details on how they are layered together.

### 3.1.7 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.

### 3.1.8 c\_level

* This value has different effects, depending on the [c\_type](#c_type--c_base--c_list) of the output document.
* For [HTML](#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](#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](#html) page). To set the desired value:
	+ part ~ 0
	+ chapter ~ 2
	+ section ~ Any other value
* For [EPUB](#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](#revealjs-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](https://pandoc.org) defaults in all cases.

### 3.1.9 c\_margin

* The default margins for [PDF](#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](#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.

### 3.1.10 c\_options

* In some cases, it may be desirable to add additional [Pandoc](https://pandoc.org) options. Anything put in this variable will be passed directly to [Pandoc](https://pandoc.org) as additional command-line arguments.

## 3.2 Control Variables

| Variable | Purpose | Value |
| --- | --- | --- |
| [MAKEJOBS](#makejobs) | Parallel processing threads | 1 (makejobs) |
| [COMPOSER\_DEBUGIT](#composer_debugit) | Use verbose output | (debugit) |
| [COMPOSER\_DOCOLOR](#composer_docolor) | Enable title/color sequences | (boolean) |
| [COMPOSER\_INCLUDE](#composer_include) | Include all: .composer.mk | 1 (boolean) |
| [COMPOSER\_DEPENDS](#composer_depends) | Sub-directories first: [all](#all--all-all---all) | (boolean) |
| [COMPOSER\_KEEPING](#composer_keeping) | Log entries / cache files | 100 (keeping) |
| [COMPOSER\_LOG](#composer_log) | Timestamped command log | .composer.log |
| [COMPOSER\_EXT](#composer_ext) | Markdown file extension | .md |
| [COMPOSER\_TARGETS](#composer_targets) | See: [all](#all--all-all---all)/[clean](#clean--clean-all---clean) | [config](#X2f1becb3abe57b18fc6c8126d0931db2cf49ad8)/[targets](#X2f1becb3abe57b18fc6c8126d0931db2cf49ad8) |
| [COMPOSER\_SUBDIRS](#composer_subdirs) | See: [all](#all--all-all---all)/[clean](#clean--clean-all---clean)/[install](#install--install-all--install-force) | [config](#X2f1becb3abe57b18fc6c8126d0931db2cf49ad8)/[targets](#X2f1becb3abe57b18fc6c8126d0931db2cf49ad8) |
| [COMPOSER\_EXPORTS](#composer_exports) | See: [c\_site](#c_site)/[export](#X1cae58edb4e6d163700a1d4b5205e3b7c031e32) | [config](#X2f1becb3abe57b18fc6c8126d0931db2cf49ad8) |
| [COMPOSER\_IGNORES](#composer_ignores) | See: [c\_site](#c_site)/[export](#X1cae58edb4e6d163700a1d4b5205e3b7c031e32) | [config](#X2f1becb3abe57b18fc6c8126d0931db2cf49ad8) |

* [*MAKEJOBS*](#makejobs) *~ c\_jobs ~ J*
* [*COMPOSER\_DEBUGIT*](#composer_debugit) *~ c\_debug ~ V*
* [*COMPOSER\_DOCOLOR*](#composer_docolor) *~ c\_color ~ C*
* *(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 none / number to keep / 0 is no limit*
* *(boolean) = empty is disabled / any value enables*

### 3.2.1 MAKEJOBS

#WORK # a small number of large directories will process faster than a large number of small ones, especially with site # windows subsystem for linux (increase memory…): /mnt/c/Users/\*/.wslconfig # [wsl2] # processors=2 # memory=2GB # swap=0

* By default, [Composer](http://www.garybgenett.net/projects/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](http://www.garybgenett.net/projects/composer) supports [GNU Make](http://www.gnu.org/software/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.

### 3.2.2 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](#makejobs) is set to 1.
* Full tracing using 0 outputs complete [GNU Make](http://www.gnu.org/software/make) and [GNU Bash](http://www.gnu.org/software/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](#debug--debug-file) to pass a list of targets to test.

### 3.2.3 COMPOSER\_DOCOLOR

* [Composer](http://www.garybgenett.net/projects/composer) uses colors to make all output and [help](#help--help-all) 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](#debug--debug-file), [+test-file](#internal-targets) and [template](#template--templateyml--templatemd), where plain text is required.

### 3.2.4 COMPOSER\_INCLUDE

* On every run, [Composer](http://www.garybgenett.net/projects/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 reads all of them in order starting from the main [Composer](http://www.garybgenett.net/projects/composer) directory. When this option is disabled, only [Composer](http://www.garybgenett.net/projects/composer) and the current directory will be used.
* In the example directory tree below, 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. With this disabled, only .Composer/.composer.mk and tld/sub/.composer.mk are read.
* This is why it is best practice to have a .Composer directory at the top level for each documentation archive (see [Recommended Workflow](#recommended-workflow)). Not only does it allow for strict version control of [Composer](http://www.garybgenett.net/projects/composer) per-archive, it also provides a mechanism for setting [Composer Variables](#composer-variables) globally.
* This option is enabled by default, so care should be taken with variables that are generally specific to a particular directory or file, and are not meant to be applicable globally. They will be propagated down the tree, which is generally not desired except in very specific cases. Using [COMPOSER\_CURDIR](#composer_curdir) to limit their scope is highly recommended, similar to [template](#template--templateyml--templatemd) (see [Templates](#templates)).
* This setting also causes .composer.yml and .composer-\* files to be processed in an identical manner (see [Configuration Files](#configuration-files) and [Header & CSS Files](#header--css-files) under [Precedence Rules](#precedence-rules)).

Example directory tree (see [Recommended Workflow](#recommended-workflow)):

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

### 3.2.5 COMPOSER\_DEPENDS

* When doing [all-all](#all--all-all---all), [Composer](http://www.garybgenett.net/projects/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](#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 any other targets, such as [install](#install--install-all--install-force) or [clean](#clean--clean-all---clean).

### 3.2.6 COMPOSER\_KEEPING

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

### 3.2.7 COMPOSER\_LOG

* [Composer](http://www.garybgenett.net/projects/composer) appends to a .composer.log log file in the current directory whenever it executes [Pandoc](https://pandoc.org). This provides some accounting, and is used by [list](#list) to determine which \*.md files have been updated since the last time [Composer](http://www.garybgenett.net/projects/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](#clean--clean-all---clean) is run.

### 3.2.8 COMPOSER\_EXT

* The [Markdown](https://pandoc.org/MANUAL.html#pandocs-markdown) file extension [Composer](http://www.garybgenett.net/projects/composer) uses: \*.md. This is for auto-detection of files to add to [COMPOSER\_TARGETS](#composer_targets), files to output for [list](#list), and other tasks. This is a widely used standard, including [GitHub](https://github.com). 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](#composer_targets) to explicitly set the targets list in these situations.

#WORK # add a note that a per-target “override README.html :=” is probably best… # come to think of it, probably should just go back to not allowing an empty value…

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

### 3.2.9 COMPOSER\_TARGETS

#WORK # does not pick up .\* files/directories # these are actually excluded in COMPOSER\_IGNORES now… # wildcard ’\*’ is taken literally

* The list of output files to create or delete with [clean](#clean--clean-all---clean) and [all](#all--all-all---all). [Composer](http://www.garybgenett.net/projects/composer) does auto-detection using [c\_type](#c_type--c_base--c_list) and [COMPOSER\_EXT](#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](#custom-targets)).
* The .null target is special, and when used as a value for [COMPOSER\_TARGETS](#composer_targets) or [COMPOSER\_SUBDIRS](#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](http://www.garybgenett.net/projects/composer).
* An empty value triggers auto-detection.
* Use [config](#X2f1becb3abe57b18fc6c8126d0931db2cf49ad8) or [targets](#X2f1becb3abe57b18fc6c8126d0931db2cf49ad8) to check the current value.

### 3.2.10 COMPOSER\_SUBDIRS

#WORK # wildcard ’\*’ is taken literally

* The list of sub-directories to recurse into with [install](#install--install-all--install-force), [clean](#clean--clean-all---clean), and [all](#all--all-all---all). The behavior and configuration is identical to [COMPOSER\_TARGETS](#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](#X2f1becb3abe57b18fc6c8126d0931db2cf49ad8) or [targets](#X2f1becb3abe57b18fc6c8126d0931db2cf49ad8) to check the current value.

### 3.2.11 COMPOSER\_EXPORTS

#WORK # this one will be complicated… maybe? # has, effectively, the same .null behavior as above… # also overridden by [COMPOSER\_IGNORES](#composer_ignores) # document .targets token… # .null has no special meaning and is removed if present # hidden variables… # /.g/\_data/zactive/coding/composer/+Composer # # # # # wildcard ’\*’ globs

### 3.2.12 COMPOSER\_IGNORES

#WORK # either remove site here, or add it to the ones above… # also, there are also implications for site-library… # .targets has no special meaning and is removed if present # .null has no special meaning and is removed if present # hard-coded +Composer .\* +\* / .\* + *# .* +\* should also be documented in the “Operation” section somewhere… # wildcard ’\*’ globs

* The list of [COMPOSER\_TARGETS](#composer_targets), [COMPOSER\_SUBDIRS](#composer_subdirs) and [COMPOSER\_EXPORTS](#composer_exports) to skip with [export](#X1cae58edb4e6d163700a1d4b5205e3b7c031e32), [site](#site--site-all--site-force), [install](#install--install-all--install-force), [clean](#clean--clean-all---clean), and [all](#all--all-all---all). This allows for selective auto-detection, when the list of items to process is larger than those to leave alone.
* Use [config](#X2f1becb3abe57b18fc6c8126d0931db2cf49ad8) to check the current value.

## 3.3 Helper Variables

| Variable | Purpose | Value |
| --- | --- | --- |
| [CURDIR](#curdir) | [GNU Make](http://www.gnu.org/software/make) current directory | $PWD :: make |
| [COMPOSER\_CURDIR](#composer_curdir) | Detects [COMPOSER\_INCLUDE](#composer_include) | [CURDIR](#curdir) :: .composer.mk |
| [COMPOSER\_DIR](#composer_dir) | Location of [Composer](http://www.garybgenett.net/projects/composer) | …/composer |
| [COMPOSER\_ROOT](#composer_root) | Topmost level of current tree | …/composer |
| [COMPOSER\_EXPORT](#composer_export) | Target: [export](#X1cae58edb4e6d163700a1d4b5205e3b7c031e32) | [COMPOSER\_ROOT](#composer_root)/+Composer (mk) |
| [COMPOSER\_LIBRARY](#composer_library) | Target: [site](#site--site-all--site-force)/[site-library](#site-library) | (yml) |
| [COMPOSER\_SRC](#composer_src) | Repositories and downloads | [COMPOSER\_DIR](#composer_dir)/.sources |
| [COMPOSER\_ART](#composer_art) | [Composer](http://www.garybgenett.net/projects/composer) supporting files | [COMPOSER\_DIR](#composer_dir)/artifacts |
| [COMPOSER\_DAT](#composer_dat) | [Pandoc](https://pandoc.org) supporting files | [COMPOSER\_ART](#composer_art)/pandoc |
| [COMPOSER\_TMP](#composer_tmp) | Cache and working directory | [CURDIR](#curdir)/.composer.tmp |

* *(mk) = configurable in .composer.mk*
* *(yml) = configurable in .composer.yml*

*These are internal variables only exposed within .composer.mk files.* *See* [*Configuration Settings*](#configuration-settings) *and* [*Custom Targets*](#custom-targets) *for more details.*

### 3.3.1 CURDIR

#WORK

### 3.3.2 COMPOSER\_CURDIR

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

* This is set to [CURDIR](#curdir) when reading in a .composer.mk file in the [GNU Make](http://www.gnu.org/software/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](#composer_include) is set or not.
* Uses for this are to limit the availability of targets to the local directory, or to prevent variable values from recursing down to sub-directories.
* Generally speaking, it is best practice to completely encapsulate all .composer.mk files with this, except for the specific portions that need to be passed down, similar to [template](#template--templateyml--templatemd) (see [Templates](#templates)).

Example usage in a .composer.mk file:

ifneq ($(COMPOSER\_CURDIR),)
 ...
endif

### 3.3.3 COMPOSER\_DIR

#WORK

### 3.3.4 COMPOSER\_ROOT

#WORK

### 3.3.5 COMPOSER\_EXPORT

#WORK # hidden variables…

* [\_EXPORT\_DIRECTORY]
* [\_EXPORT\_GIT\_REPO]
* [\_EXPORT\_GIT\_BNCH]
* [\_EXPORT\_FIRE\_ACCT]
* [\_EXPORT\_FIRE\_PROJ]

### 3.3.6 COMPOSER\_LIBRARY

#WORK

### 3.3.7 COMPOSER\_SRC

#WORK

### 3.3.8 COMPOSER\_ART

#WORK

### 3.3.9 COMPOSER\_DAT

#WORK

### 3.3.10 COMPOSER\_TMP

#WORK

# 4 Composer Targets

## 4.1 Primary Targets

| Target | Purpose |
| --- | --- |
| [help](#help--help-all) | Basic help overview (default) |
| [help-all](#help--help-all) | Console version of README.md (no reference sections) |
| [template](#template--templateyml--templatemd) | Print settings template: .composer.mk |
| [template.yml](#template--templateyml--templatemd) | Print settings template: .composer.yml |
| [template.md](#template--templateyml--templatemd) | Print markdown file template |
| [compose](#compose) | Document creation engine (see [c\_type](#c_type--c_base--c_list)) |
| [site](#site--site-all--site-force) | Build [HTML](#html) files as [Static Websites](#static-websites) (see [c\_site](#c_site)) |
| [site-all](#site--site-all--site-force) | Do [site](#site--site-all--site-force) recursively: [COMPOSER\_SUBDIRS](#composer_subdirs) |
| [site-force](#site--site-all--site-force) | Do [site](#site--site-all--site-force) recursively: including [COMPOSER\_LIBRARY](#composer_library) |
| [site-clean](#site-clean) | Remove [c\_site](#c_site) only: [COMPOSER\_LIBRARY](#composer_library)/[COMPOSER\_TMP](#composer_tmp) |
| [install](#install--install-all--install-force) | Current directory initialization: Makefile |
| [install-all](#install--install-all--install-force) | Do [install](#install--install-all--install-force) recursively (no overwrite) |
| [install-force](#install--install-all--install-force) | Recursively force overwrite of Makefile files |
| [clean](#clean--clean-all---clean) | Remove output files: [COMPOSER\_TARGETS](#composer_targets) :: [\*-clean](#clean--clean-all---clean) |
| [clean-all](#clean--clean-all---clean) | Do [clean](#clean--clean-all---clean) recursively: [COMPOSER\_SUBDIRS](#composer_subdirs) |
| [\*-clean](#clean--clean-all---clean) | Any targets named this way will also be run by [clean](#clean--clean-all---clean) |
| [all](#all--all-all---all) | Create output files: [COMPOSER\_TARGETS](#composer_targets) :: [\*-all](#all--all-all---all) |
| [all-all](#all--all-all---all) | Do [all](#all--all-all---all) recursively: [COMPOSER\_SUBDIRS](#composer_subdirs) |
| [\*-all](#all--all-all---all) | Any targets named this way will also be run by [all](#all--all-all---all) |
| [list](#list) | Show updated files: \*[COMPOSER\_EXT](#composer_ext) >> [COMPOSER\_LOG](#composer_log) |

### 4.1.1 help / help-all

* Outputs all of the documentation for [Composer](http://www.garybgenett.net/projects/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](#help--help-all) output.

### 4.1.2 template / template.yml / template.md

* Prints useful templates for creating new files (see [Templates](#templates)):
	+ [Composer](http://www.garybgenett.net/projects/composer) .composer.mk (see [Configuration Settings](#configuration-settings))
	+ [Composer](http://www.garybgenett.net/projects/composer) [c\_site](#c_site) and [Pandoc](https://pandoc.org) .composer.yml (see [Static Websites](#static-websites) and [Configuration Settings](#configuration-settings))
	+ [Pandoc](https://pandoc.org) markdown

### 4.1.3 compose

* This is the very core of [Composer](http://www.garybgenett.net/projects/composer), and does the actual work of the [Pandoc](https://pandoc.org) conversion. Details are in the [c\_type / c\_base / c\_list](#c_type--c_base--c_list) section of [Formatting Variables](#formatting-variables).

### 4.1.4 site / site-all / site-force

#WORK # site rebuilds indexes, force recursively

### 4.1.5 site-clean

#WORK

### 4.1.6 install / install-all / install-force

* Creates the necessary Makefile files to set up a directory or a directory tree as a [Composer](http://www.garybgenett.net/projects/composer) archive. By default, it will not overwrite any existing files.
* Doing a simple [install](#install--install-all--install-force) will only create a file in the current directory, whereas [install-all](#install--install-all--install-force) will recurse through the entire directory tree. A full [install-force](#install--install-all--install-force) is the same as [install-all](#install--install-all--install-force), 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](http://www.garybgenett.net/projects/composer).

### 4.1.7 clean / clean-all / \*-clean

* Deletes all [COMPOSER\_TARGETS](#composer_targets) output files in the current directory, and then runs all [\*-clean](#clean--clean-all---clean) targets.
* Doing [clean-all](#clean--clean-all---clean) does the same thing recursively, through all the [COMPOSER\_SUBDIRS](#composer_subdirs).

### 4.1.8 all / all-all / \*-all

* Creates all [COMPOSER\_TARGETS](#composer_targets) output files in the current directory, and then runs all [\*-all](#all--all-all---all) targets.
* Doing [all-all](#all--all-all---all) does the same thing recursively, through all the [COMPOSER\_SUBDIRS](#composer_subdirs).

### 4.1.9 list

* Outputs all the [COMPOSER\_EXT](#composer_ext) files that have been modified since [COMPOSER\_LOG](#composer_log) was last updated. Acts as a quick reference to see if anything has changed.
* Since the [COMPOSER\_LOG](#composer_log) file is updated whenever [Pandoc](https://pandoc.org) is executed, this target will primarily be useful when [all](#all--all-all---all) is the only target used to create files in the directory.

## 4.2 Additional Targets

| Target | Purpose |
| --- | --- |
| [+release](#Xa8fb5052e33cb3be3321197977bba6b7259754f) | Upgrade all tools and supporting files to next versions |
| [+release-all](#Xa8fb5052e33cb3be3321197977bba6b7259754f) | Also make README.\* files and [Static Websites](#static-websites) |
| [+update](#Xa8fb5052e33cb3be3321197977bba6b7259754f) | Update all included components (see [Requirements](#requirements)) |
| [+update-all](#Xa8fb5052e33cb3be3321197977bba6b7259754f) | Additionally perform all source code builds |
| [+update-list](#Xa8fb5052e33cb3be3321197977bba6b7259754f) | Show changes made to each (see [Repository Versions](#repository-versions)) |
| [+update-\*](#Xa8fb5052e33cb3be3321197977bba6b7259754f) | Complete fetch and build for a specific component |
| [+debug](#debug--debug-file) | Diagnostics, tests targets list in [COMPOSER\_DEBUGIT](#composer_debugit) |
| [+debug-file](#debug--debug-file) | Export [+debug](#debug--debug-file) results to a plain text file |
| [check](#check--check-all) | List system packages and versions (see [Requirements](#requirements)) |
| [check-all](#check--check-all) | Complete [check](#check--check-all) package list, and system information |
| [config](#X2f1becb3abe57b18fc6c8126d0931db2cf49ad8) | Show values of all [Composer Variables](#composer-variables) |
| [config-all](#X2f1becb3abe57b18fc6c8126d0931db2cf49ad8) | Complete [config](#X2f1becb3abe57b18fc6c8126d0931db2cf49ad8), including environment variables |
| [config.\*](#X2f1becb3abe57b18fc6c8126d0931db2cf49ad8) | Export individual [Composer Variables](#composer-variables) values |
| [config.yml](#X2f1becb3abe57b18fc6c8126d0931db2cf49ad8) | JSON export of .composer.yml configuration |
| [targets](#X2f1becb3abe57b18fc6c8126d0931db2cf49ad8) | List all available targets for the current directory |
| [init](#init--init-force) | Create and link a .Composer in current directory |
| [init-force](#init--init-force) | Completely reset and relink an existing .Composer |
| [commit](#commit--commit-all) | [Git](https://git-scm.com) commit of current directory tree or [c\_list](#c_type--c_base--c_list) |
| [commit-all](#commit--commit-all) | Automatic [commit](#commit--commit-all), without $EDITOR step |
| [export](#X1cae58edb4e6d163700a1d4b5205e3b7c031e32) | Synchronize +Composer export of [COMPOSER\_ROOT](#composer_root) |
| [export-all](#X1cae58edb4e6d163700a1d4b5205e3b7c031e32) | Also publish to upstream hosting providers |
| [export-force](#X1cae58edb4e6d163700a1d4b5205e3b7c031e32) | Publish only, without synchronizing first |
| [\*-export](#X1cae58edb4e6d163700a1d4b5205e3b7c031e32) | Any targets named this way will also be run by [export](#X1cae58edb4e6d163700a1d4b5205e3b7c031e32) |
| [site-library](#site-library) | Build or update the [COMPOSER\_LIBRARY](#composer_library) |
| [site-list](#Xcc407f6c3cd768121d4926726707df5b46cc4d5) | [COMPOSER\_LIBRARY](#composer_library) for current directory or [c\_list](#c_type--c_base--c_list) |
| [site-list-all](#Xcc407f6c3cd768121d4926726707df5b46cc4d5) | Do [site-list](#Xcc407f6c3cd768121d4926726707df5b46cc4d5) for current directory tree |
| [site-list-list](#Xcc407f6c3cd768121d4926726707df5b46cc4d5) | All metadata fields and values, sorted by most used |
| [site-list-null](#Xcc407f6c3cd768121d4926726707df5b46cc4d5) | List files which are missing metadata fields |
| [site-list.\*](#Xcc407f6c3cd768121d4926726707df5b46cc4d5) | Direct export of metadata or index, [c\_list](#c_type--c_base--c_list) searchable |

### 4.2.1 +release / +release-all / +update / +update-all / +update-list / +update-\*

#WORK break this up into two sections…

* Using the repository configuration (see [Repository Versions](#repository-versions)), these fetch and build all external components.
* Simply doing [+update](#Xa8fb5052e33cb3be3321197977bba6b7259754f) will fetch all source repositories and pre-built binaries.
* The [+update-all](#Xa8fb5052e33cb3be3321197977bba6b7259754f) target additionally performs all relevant source code builds. For some repositories, this is necessary to create the final output files used by [Composer](http://www.garybgenett.net/projects/composer), and in other cases this builds local binaries which replace the included ones. Additional external tools may be required to perform these steps (see [check-all](#check--check-all)).
* To review the resulting differences between upstream sources and the local directories, use [+update-list](#Xa8fb5052e33cb3be3321197977bba6b7259754f).
* Each component directory has a corresponding [+update-\*](#Xa8fb5052e33cb3be3321197977bba6b7259754f) target which performs the equivalent of [+update-all](#Xa8fb5052e33cb3be3321197977bba6b7259754f) for only that component.
* Finally, [+release](#Xa8fb5052e33cb3be3321197977bba6b7259754f) runs [+update-all](#Xa8fb5052e33cb3be3321197977bba6b7259754f) and [+setup](#internal-targets), which together turn the current directory into a functional clone of [Composer](http://www.garybgenett.net/projects/composer), including overwriting all supporting files.
* Beyond this, [+release-all](#Xa8fb5052e33cb3be3321197977bba6b7259754f) also uses [+setup-all](#internal-targets) and [site-template](#internal-targets) to build the README.\* files and create an example [Static Websites](#static-websites) in the \_site directory.
* One of the unique features of [Composer](http://www.garybgenett.net/projects/composer) is that everything needed to compose itself is embedded in the Makefile, so it is fully self-contained.

Creating a development clone:

#WORK # should create a “development/contributing/support” section, and reference this… # also: https://github.com/garybgenett/gary-os/blob/main/.vimrc

mkdir .../composer
cd .../composer
make -f .../.Composer/Makefile +release

Note that some additional external tools may be required to perform the builds, such as [npm](https://www.npmjs.com) (see [check-all](#check--check-all)).

### 4.2.2 +debug / +debug-file

* This is the tool to use for any support issues. Submit the output file to: composer@garybgenett.net
* Internally, it also runs:
	+ [+test](#internal-targets)
	+ [check-all](#check--check-all)
	+ [config-all](#X2f1becb3abe57b18fc6c8126d0931db2cf49ad8)
	+ [targets](#X2f1becb3abe57b18fc6c8126d0931db2cf49ad8)
* If issues are occurring when running a particular set of targets, list them in [COMPOSER\_DEBUGIT](#composer_debugit).
* For general issues, run in the top-level directory (see [Recommended Workflow](#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

### 4.2.3 check / check-all

* Use [check](#check--check-all) to see the minimum list of required external components and their versions, in relation to the system installed versions.
* Doing [check-all](#check--check-all) will show the complete list of tools that are used by [Composer](http://www.garybgenett.net/projects/composer), along with which targets they are needed by.

### 4.2.4 config / config-all / config.\* / config.yml / targets

#WORK break this up into two sections…

* The current values of all [Composer Variables](#composer-variables) is output by [config](#X2f1becb3abe57b18fc6c8126d0931db2cf49ad8), and [config-all](#X2f1becb3abe57b18fc6c8126d0931db2cf49ad8) will additionally output all environment variables.
* Individual [Composer Variables](#composer-variables) can be exported with [config.\*](#X2f1becb3abe57b18fc6c8126d0931db2cf49ad8). This is useful for scripting in .composer.mk (see [Custom Targets](#custom-targets)).
* A JSON version of the .composer.yml configuration is exported with [config.yml](#X2f1becb3abe57b18fc6c8126d0931db2cf49ad8). This is available for any external scripting, such as in .composer.mk (see [Custom Targets](#custom-targets)), and is parsable with [YQ](https://mikefarah.gitbook.io/yq).
* A structured list of detected targets, [\*-export](#X1cae58edb4e6d163700a1d4b5205e3b7c031e32), [\*-clean](#clean--clean-all---clean) and [\*-all](#all--all-all---all) targets, [COMPOSER\_TARGETS](#composer_targets), and [COMPOSER\_SUBDIRS](#composer_subdirs) is printed by [targets](#X2f1becb3abe57b18fc6c8126d0931db2cf49ad8).
* Together, [config](#X2f1becb3abe57b18fc6c8126d0931db2cf49ad8) and [targets](#X2f1becb3abe57b18fc6c8126d0931db2cf49ad8) reveal the entire internal state of [Composer](http://www.garybgenett.net/projects/composer).

### 4.2.5 init / init-force

#WORK

### 4.2.6 commit / commit-all

* Using the directory structure in [Recommended Workflow](#recommended-workflow), .../ is considered the top-level directory. Meaning, it is the last directory before linking to [Composer](http://www.garybgenett.net/projects/composer).
* If the top-level directory is a [Git](https://git-scm.com) 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](http://www.garybgenett.net/projects/composer) directory, it uses itself as the top-level directory. When calling [Composer](http://www.garybgenett.net/projects/composer) directly using -f, the current directory is used.
* Using [commit-all](#commit--commit-all) automatically does the commit instead of opening the text editor in the $EDITOR variable.
* In the context of [commit](#commit--commit-all), the [c\_list](#c_type--c_base--c_list) variable is repurposed to select the limited list of directories and/or files that should be committed. All selected directories and files must exist in the current directory tree.

Commit title format:

[Composer CMS v3.1 :: 2024-07-03T06:52:35-07:00]

Example using [c\_list](#c_type--c_base--c_list):

make commit c\_list="Makefile artifacts"

### 4.2.7 export / export-all / export-force / \*-export

#WORK # … and then runs all [\*-export](#X1cae58edb4e6d163700a1d4b5205e3b7c031e32) targets. # hidden variables… # /.g/\_data/zactive/coding/composer/+Composer # # # #

### 4.2.8 site-library

#WORK

### 4.2.9 site-list / site-list-all / site-list-list / site-list-null / site-list.\*

#WORK # use site-list-list first, to track down, then site-list-all for details, because it can be expensive to run… # *.metadata and* .index

* In the context of [site-list](#Xcc407f6c3cd768121d4926726707df5b46cc4d5), the [c\_list](#c_type--c_base--c_list) variable is repurposed to #WORK

## 4.3 Internal Targets

| Target | Purpose |
| --- | --- |
| [help-help](#internal-targets) | Complete README.md content (similar to [help-all](#help--help-all)) |
| [.headers](#internal-targets) | Series of targets that handle all informational output |
| [.headers-template](#internal-targets) | For testing default [.headers](#internal-targets) output |
| [.headers-template-all](#internal-targets) | For testing complete [.headers](#internal-targets) output |
| [.make](#internal-targets) | Complete contents of [GNU Make](http://www.gnu.org/software/make) internal state |
| [.targets](#internal-targets) | Extracted list of all targets from [.make](#internal-targets) |
| [.null](#internal-targets) | Placeholder to specify or detect empty values |
| [+setup](#internal-targets) | Extracts embedded files from Makefile |
| [+setup-all](#internal-targets) | Also builds all README.\* output files |
| [+test](#internal-targets) | Test suite, validates all supported features |
| [+test-file](#internal-targets) | Export [+test](#internal-targets) results to a plain text file |
| [+test-dir](#internal-targets) | Only create directory structure, and do [+release](#Xa8fb5052e33cb3be3321197977bba6b7259754f) |
| [+test-list](#internal-targets) | Output available test cases, for running directly |
| [check-help](#internal-targets) | Minimized [check](#check--check-all) output (used for [Requirements](#requirements)) |
| [site-.composer.mk](#internal-targets) | [COMPOSER\_LIBRARY](#composer_library) configured template: .composer.mk |
| [site-.composer.yml](#internal-targets) | [COMPOSER\_LIBRARY](#composer_library) configured template: .composer.yml |
| [site-template](#internal-targets) | [Static Websites](#static-websites) example \_site in [COMPOSER\_DIR](#composer_dir) |
| [site-template-+test](#internal-targets) | Version configured to test specific variations |
| [site-template-config](#internal-targets) | Only create directory structure and source files |
| [subdirs](#internal-targets) | Expands [COMPOSER\_SUBDIRS](#composer_subdirs) into subdirs-\*-\* targets |
| [list-list](#internal-targets) | Same as [list](#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.*

# 5 Reference

## 5.1 Configuration

### 5.1.1 Pandoc Extensions

[Composer](http://www.garybgenett.net/projects/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

### 5.1.2 Templates

The [install](#install--install-all--install-force) 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](#template--templateyml--templatemd) target to create .composer.mk files:

# override MAKEJOBS := 1
# override COMPOSER\_DEBUGIT :=
# override COMPOSER\_DOCOLOR :=
# override COMPOSER\_INCLUDE := 1
# override COMPOSER\_DEPENDS :=
# override COMPOSER\_KEEPING := 100
# override COMPOSER\_LOG := .composer.log
# 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),)

# override COMPOSER\_TARGETS := README.site.html README.html README.pdf README.epub README.revealjs.html README.docx LICENSE.html
# override COMPOSER\_SUBDIRS := .null
# override COMPOSER\_EXPORTS := \*.html \*.pdf \*.epub \*.revealjs.html \*.docx \*.pptx \*.txt \*.md.txt
# 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](#template--templateyml--templatemd) target to create .composer.yml files:

variables:
 title-prefix: null
# site-config:
# brand: null
# homepage: null
# search:
# name: null
# site: null
# call: null
# form: null
# copyright: null
# composer: 1
# header: null
# footer: null
# css\_overlay: dark
# copy\_protect: null
# cols\_break: lg
# cols\_scroll: 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)\*'
# metalist:
# 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
# append: null
# digest\_title: Latest Updates
# digest\_continue: '[...]'
# digest\_permalink: '\*(permalink to full text)\*'
# digest\_chars: 1024
# digest\_count: 10
# digest\_expanded: 0
# digest\_spacer: 1
# lists\_expanded: 0
# lists\_spacer: 1
# sitemap\_title: Site Map
# sitemap\_expanded: 0
# sitemap\_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](#template--templateyml--templatemd) target to create new markdown files:

---
title: "Composer CMS: Content Make System"
date: 2024-07-03
author:
 - Gary B. Genett
tags:
 - Composer
---
\*Happy Making!\*

### 5.1.3 Defaults

The default .composer.mk in the [Composer](http://www.garybgenett.net/projects/composer) directory:

################################################################################
# Composer CMS :: GNU Make Configuration
################################################################################
ifneq ($(COMPOSER\_CURDIR),)
################################################################################

########################################
# Settings

override COMPOSER\_TARGETS := \
 README.site.html \
 README.html \
 README.pdf \
 README.epub \
 README.revealjs.html \
 README.docx \
 LICENSE.html

#>> README.pptx \
#>> README.txt \
#>> README.md.txt \

override COMPOSER\_SUBDIRS := .null

########################################
# Defaults

README.% LICENSE.%: override c\_logo := artifacts/images/logo-v1.0.png
README.% LICENSE.%: override c\_icon := artifacts/images/icon-v1.0.png
README.% LICENSE.%: override c\_toc := 0

########################################
# Files

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 :=

LICENSE.html: override c\_site := 1
LICENSE.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:

 brand: LOGO / BRAND
 homepage: http://www.garybgenett.net/projects/composer
 search:
#>> name: SEARCH
 name: |
 <!-- composer >> icon search -->
 site: https://duckduckgo.com
 call: q
 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 -->
#>> copyright: COPYRIGHT
 copyright: |
 <!-- composer >> icon gpl -->
 <!-- composer >> icon cc-by-nc-nd -->
 <!-- composer >> icon copyright -->
 COPYRIGHT
#>> composer: 1

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

#>> css\_overlay: dark
#>> copy\_protect: null

#>> cols\_break: lg
#>> cols\_scroll: 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)\*"
#>> metalist:
#>> 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

#>> append: null

#>> digest\_title: "Latest Updates"
#>> digest\_continue: "[...]"
#>> digest\_permalink: "\*(permalink to full text)\*"
#>> digest\_chars: 1024
#>> digest\_count: 10
#>> digest\_expanded: 0
#>> digest\_spacer: 1

#>> lists\_expanded: 0
#>> lists\_spacer: 1

#>> sitemap\_title: "Site Map"
#>> sitemap\_expanded: 0
#>> sitemap\_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/introduction.html
 - Layout & Elements:
 - \_: <composer\_root>/examples.html
 - Metainfo Page: <composer\_root>/config/pages.html
 - Metainfo File: <composer\_root>/config/pages/2022-01-01+template\_00.html
 - Themes & Overlays: <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:
 - metalist author
 - metalist 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
 - metalist author
 - metalist 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 library
 - fold-begin 0 0 library DATES
 - library date
 - fold-end
 - fold-begin 0 0 library AUTHORS
 - library author
 - fold-end
 - fold-begin 0 . library TAGS
 - library tags
 - fold-end
 - fold-end group
 END:

########################################
 site-info-top:

 TEXT:
 - \_: |
 TOP TEXT
 INFO:
#>> - metainfo
#>> - metalist author
#>> - metalist 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
#>> - metalist author
#>> - metalist tags
 - readtime
 ICON:

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

## 5.2 Reserved

### 5.2.1 Target Names

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

+debug
+release
+setup
+test
+update
.headers
.make
.null
.targets
all
check
clean
commit
compose
config
export
help
init
install
list
site
subdirs
targets
template

### 5.2.2 Variable Names

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

+debug-output
+setup-targets
+test-.headers
+test-COMPOSER\_INCLUDE-.composer-html.css
+test-COMPOSER\_INCLUDE-.composer.mk
+test-COMPOSER\_INCLUDE-.composer.mk-/
+test-COMPOSER\_INCLUDE-.composer.yml
+test-COMPOSER\_INCLUDE-init
+test-COMPOSER\_INCLUDE-init-run
+test-count
+test-done
+test-fail
+test-find
+test-hold
+test-init
+test-load
+test-log
+test-make
+test-mark
+test-name
+test-pwd
+test-run
+test-speed-init
+test-speed-init-site
+update-.null
+update-all
+update-bin
+update-bin-os
+update-bld
+update-bld-list
+update-commands
+update-src
+update-targets
.
.headers
.headers-action
.headers-compose
.headers-compose-options
.headers-dir
.headers-file
.headers-line
.headers-list-make
.headers-list-path
.headers-note
.headers-options
.headers-options-files
.headers-options-out
.headers-rm
.headers-skip
.headers-subdirs
.headers-table
/
7Z
7Z\_VER
ASPELL
ASPELL\_DIR
BASE64
BASH
BASH\_VER
BOOTLINT\_CMT
BOOTLINT\_DIR
BOOTLINT\_HOME
BOOTLINT\_LIC
BOOTLINT\_NAME
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\_HOME
BOOTSTRAP\_LIC
BOOTSTRAP\_NAME
BOOTSTRAP\_SRC
BOOTSWATCH\_CMT
BOOTSWATCH\_CSS\_ALT
BOOTSWATCH\_CSS\_DARK
BOOTSWATCH\_CSS\_LIGHT
BOOTSWATCH\_CSS\_SOLAR\_DARK
BOOTSWATCH\_CSS\_SOLAR\_LIGHT
BOOTSWATCH\_DIR
BOOTSWATCH\_HOME
BOOTSWATCH\_LIC
BOOTSWATCH\_NAME
BOOTSWATCH\_SRC
CAT
CHECKIT
CHMOD
CLEANER
CODEBLOCK
COLUMNS
COLUMN\_2
COMMA
COMMENTED
COMPOSER
COMPOSER\_ART
COMPOSER\_BASENAME
COMPOSER\_BIN
COMPOSER\_CLOSING
COMPOSER\_CMS
COMPOSER\_COLOR
COMPOSER\_COMPOSER
COMPOSER\_CONTACT
COMPOSER\_CONTENTS
COMPOSER\_CONTENTS\_DIRS
COMPOSER\_CONTENTS\_EXT
COMPOSER\_CONTENTS\_FILES
COMPOSER\_CONV
COMPOSER\_CSS
COMPOSER\_CSS\_PUBLISH
COMPOSER\_CURDIR
COMPOSER\_CUSTOM
COMPOSER\_DAT
COMPOSER\_DEBUGIT
COMPOSER\_DEBUGIT\_ALL
COMPOSER\_DEPENDS
COMPOSER\_DIR
COMPOSER\_DOCOLOR
COMPOSER\_DOMAIN
COMPOSER\_EXPORT
COMPOSER\_EXPORTS
COMPOSER\_EXPORTS\_DEFAULT
COMPOSER\_EXPORTS\_EXT
COMPOSER\_EXPORTS\_LIST
COMPOSER\_EXPORT\_DEFAULT
COMPOSER\_EXPORT\_REGEX
COMPOSER\_EXT
COMPOSER\_EXT\_DEFAULT
COMPOSER\_EXT\_SPECIAL
COMPOSER\_FILENAME
COMPOSER\_FIND
COMPOSER\_FULLNAME
COMPOSER\_HEADLINE
COMPOSER\_HIDDEN\_FILES
COMPOSER\_HOMEPAGE
COMPOSER\_ICON
COMPOSER\_ICON\_VER
COMPOSER\_IGNORES
COMPOSER\_IGNORES\_DEFAULT
COMPOSER\_IGNORES\_EXT
COMPOSER\_IGNORES\_LIST
COMPOSER\_IMAGES
COMPOSER\_INCLUDE
COMPOSER\_INCLUDES
COMPOSER\_INCLUDES\_DIRS
COMPOSER\_KEEPING
COMPOSER\_LIBRARY
COMPOSER\_LIBRARY\_AUTO\_UPDATE
COMPOSER\_LIBRARY\_DIR
COMPOSER\_LIBRARY\_PATH
COMPOSER\_LIBRARY\_ROOT
COMPOSER\_LIBRARY\_ROOT\_REGEX
COMPOSER\_LICENSE
COMPOSER\_LICENSE\_HEADLINE
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\_PANDOC
COMPOSER\_REGEX
COMPOSER\_REGEX\_DEFINE
COMPOSER\_REGEX\_OVERRIDE
COMPOSER\_REGEX\_PREFIX
COMPOSER\_RELEASE
COMPOSER\_REPOPAGE
COMPOSER\_RESERVED
COMPOSER\_RESERVED\_DOITALL
COMPOSER\_RESERVED\_DOITALL\_ENV
COMPOSER\_RESERVED\_SKIP
COMPOSER\_ROOT
COMPOSER\_ROOT\_PATH
COMPOSER\_ROOT\_REGEX
COMPOSER\_SELF
COMPOSER\_SETTINGS
COMPOSER\_SRC
COMPOSER\_SUBDIRS
COMPOSER\_SUBDIRS\_DEFAULT
COMPOSER\_SUBDIRS\_LIST
COMPOSER\_TAGLINE
COMPOSER\_TARGETS
COMPOSER\_TARGETS\_DEFAULT
COMPOSER\_TARGETS\_LIST
COMPOSER\_TEACHER
COMPOSER\_TECHNAME
COMPOSER\_TIMESTAMP
COMPOSER\_TINYNAME
COMPOSER\_TMP
COMPOSER\_TMP\_FILE
COMPOSER\_VERSION
COMPOSER\_YML
COMPOSER\_YML\_DATA
COMPOSER\_YML\_DATA\_METALIST
COMPOSER\_YML\_DATA\_PARSE
COMPOSER\_YML\_DATA\_SKEL
COMPOSER\_YML\_DATA\_SKEL\_COMMENT
COMPOSER\_YML\_DATA\_SKEL\_METALIST
COMPOSER\_YML\_DATA\_VAL
COMPOSER\_YML\_LIST
COMPOSER\_YML\_LIST\_FILE
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\_LPDF\_LATEX
CUSTOM\_PRES\_CSS
CUSTOM\_PUBLISH\_CSS
CUSTOM\_PUBLISH\_CSS\_OVERLAY
CUSTOM\_PUBLISH\_SH
DATE
DATEMARK
DATENOW
DATESTAMP
DATESTRING
DEBUGIT
DEPTH\_DEFAULT
DEPTH\_MAX
DESC\_DOCX
DESC\_EPUB
DESC\_HTML
DESC\_LINT
DESC\_LPDF
DESC\_PPTX
DESC\_PRES
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
DONOTDO
DOSETUP
DO\_HEREDOC
ECHO
ENDOLINE
ENV
ENV\_MAKE
EOL
EXAMPLE
EXPAND
EXPORTS
EXPR
EXTN\_DEFAULT
EXTN\_DOCX
EXTN\_EPUB
EXTN\_HTML
EXTN\_LINT
EXTN\_LPDF
EXTN\_OUTPUT
EXTN\_PPTX
EXTN\_PRES
EXTN\_TEXT
EXT\_ICON\_CC
EXT\_ICON\_GPL
FIND
FINDUTILS\_VER
FIND\_ALL
FIREBASE
FIREBASE\_BIN
FIREBASE\_BIN\_BLD
FIREBASE\_CMT
FIREBASE\_DIR
FIREBASE\_HOME
FIREBASE\_LIC
FIREBASE\_LNX\_BIN
FIREBASE\_LNX\_DST
FIREBASE\_LNX\_SRC
FIREBASE\_LNX\_ZIP
FIREBASE\_MAC\_BIN
FIREBASE\_MAC\_DST
FIREBASE\_MAC\_SRC
FIREBASE\_MAC\_ZIP
FIREBASE\_NAME
FIREBASE\_RUN
FIREBASE\_SRC
FIREBASE\_URL
FIREBASE\_VER
FIREBASE\_VER\_COMPOSER
FIREBASE\_WIN\_BIN
FIREBASE\_WIN\_DST
FIREBASE\_WIN\_SRC
FIREBASE\_WIN\_ZIP
FONTAWES\_CMT
FONTAWES\_DIR
FONTAWES\_HOME
FONTAWES\_LIC
FONTAWES\_NAME
FONTAWES\_SRC
GIT
GITIGNORE\_FIREBASE
GITIGNORE\_GIT
GITIGNORE\_LIST
GITIGNORE\_NPM
GITIGNORE\_WGET
GIT\_LOG\_COUNT
GIT\_LOG\_FORMAT
GIT\_OPTS\_CONVICT
GIT\_REPO
GIT\_REPO\_DO
GIT\_RUN
GIT\_RUN\_COMPOSER
GIT\_RUN\_REPO
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\_PUBLISH\_TESTING
HEREDOC\_COMPOSER\_YML\_README
HEREDOC\_COMPOSER\_YML\_README\_HACK
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\_OVERLAY
HEREDOC\_CUSTOM\_HTML\_CSS\_WATER\_VAR\_SOLAR
HEREDOC\_CUSTOM\_HTML\_PANDOC\_HACK
HEREDOC\_CUSTOM\_HTML\_TEMPLATE\_HACK
HEREDOC\_CUSTOM\_LPDF\_LATEX
HEREDOC\_CUSTOM\_PRES\_CSS
HEREDOC\_CUSTOM\_PRES\_CSS\_HACK
HEREDOC\_CUSTOM\_PUBLISH\_CSS
HEREDOC\_CUSTOM\_PUBLISH\_CSS\_HACK
HEREDOC\_CUSTOM\_PUBLISH\_CSS\_OVERLAY
HEREDOC\_CUSTOM\_PUBLISH\_CSS\_POST
HEREDOC\_CUSTOM\_PUBLISH\_CSS\_PRE
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\_GITATTRIBUTES
HEREDOC\_GITCONFIG
HEREDOC\_GITIGNORE
HEREDOC\_LICENSE
HEREDOC\_SPELL\_WORDLIST
HTML\_BREAK
HTML\_HIDE
HTML\_SPACE
INCLUDE\_FILE\_APPEND
INCLUDE\_FILE\_FOOTER
INCLUDE\_FILE\_HEADER
INPUT
INSTALL
KEY\_FILEPATH
KEY\_UPDATED
LIBRARY\_APPEND
LIBRARY\_APPEND\_ALT
LIBRARY\_APPEND\_MOD
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\_PERMALINK
LIBRARY\_DIGEST\_PERMALINK\_ALT
LIBRARY\_DIGEST\_SPACER
LIBRARY\_DIGEST\_SPACER\_ALT
LIBRARY\_DIGEST\_TITLE
LIBRARY\_DIGEST\_TITLE\_ALT
LIBRARY\_DIGEST\_TITLE\_MOD
LIBRARY\_FOLDER
LIBRARY\_FOLDER\_ALT
LIBRARY\_LISTS\_EXPANDED
LIBRARY\_LISTS\_EXPANDED\_ALT
LIBRARY\_LISTS\_EXPANDED\_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
LIBRARY\_SITEMAP\_TITLE\_MOD
LINERULE
LISTING
LN
LS
LS\_TIME
MAKEFILE
MAKEFILE\_LIST
MAKEFLAGS
MAKEFLAGS\_DOFAIL
MAKEFLAGS\_END
MAKEFLAGS\_ENV
MAKEFLAGS\_NOFAIL
MAKEJOBS
MAKEJOBS\_DEFAULT
MAKEJOBS\_OPTS
MAKE\_DB
MAKE\_VER
MARKER
MDTHEMES\_CMT
MDTHEMES\_DIR
MDTHEMES\_HOME
MDTHEMES\_LIC
MDTHEMES\_NAME
MDTHEMES\_SRC
MDVIEWER\_CMT
MDVIEWER\_CSS\_ALT
MDVIEWER\_CSS\_DARK
MDVIEWER\_CSS\_DIR
MDVIEWER\_CSS\_LIGHT
MDVIEWER\_CSS\_SOLAR\_DARK
MDVIEWER\_CSS\_SOLAR\_LIGHT
MDVIEWER\_DIR
MDVIEWER\_HOME
MDVIEWER\_LIC
MDVIEWER\_MANIFEST
MDVIEWER\_MODULES
MDVIEWER\_NAME
MDVIEWER\_SASS\_VER
MDVIEWER\_SASS\_VER\_HACK
MDVIEWER\_SRC
MENU\_SELF
MKDIR
MV
NEWLINE
NOTHING
NOTHING\_IGNORES
NPM
NPM\_BUILD
NPM\_INSTALL
NPM\_NAME
NPM\_RUN
NPM\_SETUP
NPM\_VER
NULL
OS\_TYPE
OS\_UNAME
OS\_VAR\_LIST
OS\_VAR\_LNX
OS\_VAR\_MAC
OS\_VAR\_WIN
OUTPUT\_FILENAME
OUT\_LICENSE
OUT\_MANUAL
OUT\_README
PANDOC
PANDOC\_BIN
PANDOC\_CMT
PANDOC\_DIR
PANDOC\_EXTENSIONS
PANDOC\_FILES\_CSS
PANDOC\_FILES\_HEADER
PANDOC\_FILES\_LIST
PANDOC\_FILES\_MAIN
PANDOC\_FILES\_OVERRIDE
PANDOC\_FILES\_SPLIT
PANDOC\_FILES\_TYPE
PANDOC\_FROM
PANDOC\_HOME
PANDOC\_JSON\_TO\_LINT
PANDOC\_LIC
PANDOC\_LNX\_BIN
PANDOC\_LNX\_DST
PANDOC\_LNX\_SRC
PANDOC\_LNX\_ZIP
PANDOC\_MAC\_BIN
PANDOC\_MAC\_DST
PANDOC\_MAC\_SRC
PANDOC\_MAC\_ZIP
PANDOC\_MD\_TO\_HTML
PANDOC\_MD\_TO\_JSON
PANDOC\_MD\_TO\_TEXT
PANDOC\_NAME
PANDOC\_OPTIONS
PANDOC\_OPTIONS\_ERROR
PANDOC\_SRC
PANDOC\_URL
PANDOC\_VER
PANDOC\_VER\_COMPOSER
PANDOC\_WIN\_BIN
PANDOC\_WIN\_DST
PANDOC\_WIN\_SRC
PANDOC\_WIN\_ZIP
PATH\_LIST
PDF\_LATEX
PDF\_LATEX\_HOME
PDF\_LATEX\_NAME
PDF\_LATEX\_VER
PHANTOM
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\_C\_MOD
PUBLISH\_COLS\_ORDER\_L
PUBLISH\_COLS\_ORDER\_L\_ALT
PUBLISH\_COLS\_ORDER\_L\_MOD
PUBLISH\_COLS\_ORDER\_R
PUBLISH\_COLS\_ORDER\_R\_ALT
PUBLISH\_COLS\_ORDER\_R\_MOD
PUBLISH\_COLS\_REORDER\_C
PUBLISH\_COLS\_REORDER\_C\_ALT
PUBLISH\_COLS\_REORDER\_C\_MOD
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\_REORDER\_R\_MOD
PUBLISH\_COLS\_RESIZE\_C
PUBLISH\_COLS\_RESIZE\_C\_ALT
PUBLISH\_COLS\_RESIZE\_C\_MOD
PUBLISH\_COLS\_RESIZE\_L
PUBLISH\_COLS\_RESIZE\_L\_ALT
PUBLISH\_COLS\_RESIZE\_L\_MOD
PUBLISH\_COLS\_RESIZE\_R
PUBLISH\_COLS\_RESIZE\_R\_ALT
PUBLISH\_COLS\_RESIZE\_R\_MOD
PUBLISH\_COLS\_SCROLL
PUBLISH\_COLS\_SCROLL\_ALT
PUBLISH\_COLS\_SCROLL\_MOD
PUBLISH\_COLS\_SIZE\_C
PUBLISH\_COLS\_SIZE\_C\_ALT
PUBLISH\_COLS\_SIZE\_C\_MOD
PUBLISH\_COLS\_SIZE\_L
PUBLISH\_COLS\_SIZE\_L\_ALT
PUBLISH\_COLS\_SIZE\_L\_MOD
PUBLISH\_COLS\_SIZE\_R
PUBLISH\_COLS\_SIZE\_R\_ALT
PUBLISH\_COLS\_SIZE\_R\_MOD
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\_OVERLAY
PUBLISH\_CSS\_OVERLAY\_ALT
PUBLISH\_DIRS
PUBLISH\_DIRS\_CONFIGS
PUBLISH\_DIRS\_DEBUGIT
PUBLISH\_DIRS\_PRINTER
PUBLISH\_DIRS\_PRINTER\_LIST
PUBLISH\_EXAMPLE
PUBLISH\_FILES
PUBLISH\_FILE\_APPEND
PUBLISH\_FILE\_FOOTER
PUBLISH\_FILE\_HEADER
PUBLISH\_FOOTER
PUBLISH\_FOOTER\_ALT
PUBLISH\_FOOTER\_MOD
PUBLISH\_HEADER
PUBLISH\_HEADER\_ALT
PUBLISH\_HEADER\_MOD
PUBLISH\_INCLUDE
PUBLISH\_INCLUDE\_ALT
PUBLISH\_INDEX
PUBLISH\_KEEPING
PUBLISH\_LIBRARY
PUBLISH\_LIBRARY\_ALT
PUBLISH\_METAINFO
PUBLISH\_METAINFO\_ALT
PUBLISH\_METAINFO\_MOD
PUBLISH\_METAINFO\_NULL
PUBLISH\_METAINFO\_NULL\_ALT
PUBLISH\_METALIST
PUBLISH\_METALIST\_PRINT
PUBLISH\_METALIST\_PRINT\_ALT
PUBLISH\_METALIST\_PRINT\_MOD
PUBLISH\_METALIST\_TITLE
PUBLISH\_METALIST\_TITLE\_ALT
PUBLISH\_METALIST\_TITLE\_MOD
PUBLISH\_OUT\_README
PUBLISH\_PAGEDIR
PUBLISH\_PAGE\_1
PUBLISH\_PAGE\_1\_CONFIGS
PUBLISH\_PAGE\_1\_CONFIGS\_LINKS
PUBLISH\_PAGE\_1\_INCLUDE
PUBLISH\_PAGE\_1\_NAME
PUBLISH\_PAGE\_2
PUBLISH\_PAGE\_2\_NAME
PUBLISH\_PAGE\_3
PUBLISH\_PAGE\_3\_APPEND
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\_GLOBAL
PUBLISH\_SH\_HELPERS
PUBLISH\_SH\_LOCAL
PUBLISH\_SH\_RUN
PUBLISH\_TESTING
READ\_ALIASES
REALMAKE
REALPATH
REPOSITORIES\_LIST
REVEALJS\_CMT
REVEALJS\_CSS\_ALT
REVEALJS\_CSS\_DARK
REVEALJS\_CSS\_LIGHT
REVEALJS\_CSS\_SOLAR\_DARK
REVEALJS\_CSS\_SOLAR\_LIGHT
REVEALJS\_DIR
REVEALJS\_HOME
REVEALJS\_LIC
REVEALJS\_NAME
REVEALJS\_SRC
RM
RSYNC
RSYNC\_VER
SED
SED\_ESCAPE\_COLOR
SED\_ESCAPE\_CONTROL
SED\_ESCAPE\_LIST
SED\_VER
SORT
SORT\_NUM
SOURCE\_INCLUDES
SPECIAL\_VAL
SPLIT
SUBDIRS
TABLE\_C2
TABLE\_M2
TABLE\_M2\_HEADER\_L
TABLE\_M3
TABLE\_M3\_HEADER\_L
TAIL
TAR
TARGETS
TAR\_VER
TEE
TESTING
TESTING\_DIR
TESTING\_LOGFILE
TESTING\_MAKEFILE
TESTING\_MAKEJOBS
TITLE\_END
TITLE\_LN
TMPL\_DOCX
TMPL\_EPUB
TMPL\_HTML
TMPL\_LINT
TMPL\_LPDF
TMPL\_OUTPUT
TMPL\_PPTX
TMPL\_PRES
TMPL\_TEXT
TOAFILE
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\_HOME
WATERCSS\_LIC
WATERCSS\_NAME
WATERCSS\_SRC
WC
WC\_CHAR
WC\_WORD
WGET
WGET\_PACKAGE
WGET\_PACKAGE\_DO
WGET\_VER
YQ
YQ\_BIN
YQ\_CMT
YQ\_DIR
YQ\_EVAL
YQ\_EVAL\_DATA
YQ\_EVAL\_DATA\_FORMAT
YQ\_EVAL\_FILES
YQ\_EVAL\_MERGE
YQ\_HOME
YQ\_LIC
YQ\_LNX\_BIN
YQ\_LNX\_DST
YQ\_LNX\_SRC
YQ\_LNX\_ZIP
YQ\_MAC\_BIN
YQ\_MAC\_DST
YQ\_MAC\_SRC
YQ\_MAC\_ZIP
YQ\_NAME
YQ\_READ
YQ\_SRC
YQ\_URL
YQ\_VER
YQ\_VER\_COMPOSER
YQ\_WIN\_BIN
YQ\_WIN\_DST
YQ\_WIN\_SRC
YQ\_WIN\_ZIP
YQ\_WRITE
YQ\_WRITE\_FILE
YQ\_WRITE\_JSON
YQ\_WRITE\_OUT
YQ\_WRITE\_OUT\_COLOR
\_
\_C
\_D
\_E
\_EXPORT\_DIRECTORY
\_EXPORT\_FIRE\_ACCT
\_EXPORT\_FIRE\_PROJ
\_EXPORT\_GIT\_BNCH
\_EXPORT\_GIT\_REPO
\_F
\_H
\_M
\_N
\_S
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\_list\_var\_source
c\_logo
c\_margin
c\_margin\_bottom
c\_margin\_left
c\_margin\_right
c\_margin\_top
c\_options
c\_site
c\_toc
c\_type
check-path
clean-clean
compose-.null
compose-dependencies
compose-list
composer-cp
composer-ln
composer-make
composer-makefile
composer-mkdir
composer-mv
composer-note
composer-rm
config-targets
export-config
help-all-custom
help-all-depends
help-all-files
help-all-formatting
help-all-formatting-epub
help-all-formatting-html
help-all-formatting-office
help-all-formatting-pandoc
help-all-formatting-pdf
help-all-formatting-revealjs
help-all-formatting-text
help-all-formatting-websites
help-all-goals
help-all-links
help-all-links\_ext
help-all-overview
help-all-require
help-all-require\_post
help-all-rules
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-list-template
help-targets-format
help-targets-sections
help-targets-titles
install-Makefile
site-+debug-output
site-cache
site-cache-root
site-caches
site-caches-begin
site-caches-end
site-library
site-library-append
site-library-append-src
site-library-digest
site-library-digest-create
site-library-digest-file
site-library-digest-files
site-library-digest-list
site-library-digest-run
site-library-digest-src
site-library-digest-vars
site-library-index
site-library-index-create
site-library-metadata
site-library-metadata-create
site-library-sitemap
site-library-sitemap-create
site-library-sitemap-file
site-library-sitemap-files
site-library-sitemap-list
site-library-sitemap-run
site-library-sitemap-self
site-library-sitemap-src
site-library-sitemap-vars
site-library-sort-sh
site-library-sort-yq
site-list-dir
site-list-file
site-list-output
site-list-rgx-dir
site-list-rgx-file
site-list-sed-dir
site-list-sed-file
site-list-targets
site-list-tst
site-list-tst-dir
site-list-tst-file
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-metalist
site-targets-metalist-done
site-targets-readtime
site-targets-readtime-done
site-template-install
site-template-targets
subdirs-targets
subdirs-template
targets-list
targets-targets
template-print
template-var
template-var-static

*Happy Making!*