Composer CMS: User Guide & Example File

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${\bf Composer}\,\,{\bf CMS}$

"Creating Made Simple."

- Homepage: https://github.com/garybgenett/composer
- License

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Chapter 1

Introduction

Overview

Composer is a simple but powerful CMS based on Pandoc and Make. By default, input files are written in a variation of Markdown.

Traditionally, CMS stands for Content Management System. In the case of Composer, however, CMS really means a Content Make System. For many types of content, maybe even most, simpler is better. Content is very easy to manage when it lives its full life-cycle as plain text, since there are a veritable multitude of solutions available for tracking and managing text and source files. What is really needed is a basic system with advanced capabilities for "making" these simple text files into richer, more capable document types.

This is the goal of Composer.

Figure 1.1: Composer Screenshot

Quick Start

Composer is completely self-documenting. To get the full usage and help output:

• make help

To download/update some necessary 3rd party components:

• make update

To build an example/test directory using all features:

· make test

In the simplest case, Composer can be used to make the conversion of Markdown files to other formats a trivial task. The real strength and goal of Composer, however, is as a recursive build system for any type of output content (websites, manuals/documentation, etc.).

The Readme and License also serve as example source files.

Goals

Composer is really nothing more than a Make-based wrapper to Pandoc. The author started out with the following requirements for an all-purpose documentation production system:

- Minimal dependencies, and entirely command-line driven.
- All source files in plain-text, and readable/usable as stand-alone documents, which means no inline syntax/formatting that is aesthetically displeasing or difficult to integrate/camouflage.
- Clear isolation of content from formatting, so writing and editing/publishing tasks can be performed independently.
- Relatively basic command-line syntax for producing "ad hoc" documents, regardless of the complexity of the source/output.
- Scalable and recursive, so whole directories of information can be managed easily, with websites and large documents (books, manuals, etc.) being primary in mind.
- Support for dependencies and inheritance, with global, per-tree, per-directory and per-file overrides.
- Workflow agnostic, so it can be used by semi-technical team members in a corporate environment.
- Professional output, suitable for business environments or publication.

While support for a multitude of output formats was desired, the following were absolute necessities:

- HTML
- PDF
- Presentation / Slideshow
- DocX (completely negotiable, but valuable)
- ePUB (somewhat negotiable, but highly desired)

A thorough review and test of the large number of available input formats and formatting engines resulted in a very short list of projects which could support the above requirements. Pandoc was selected for a number of reasons:

- Markdown is an increasingly universal/portable and popular plain-text format.
- Required formats worked "out of the box", and intermediary formats like LaTeX were almost completely abstracted
- Did not require any expertise with output or intermediary formats to accomplish advanced results/output.
- Supported a large number of input and output formats, and was designed very intelligently to allow translation from any supported input format to any supported output format.
- Internally, normalizes documents into a single data structure which can be manipulated or modified.
- If necessary, all templates could be modified and the internal conversion could be scripted at a very deep level.

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Pandoc provided the perfect engine, but running long strings of commands was not feasible for quick and simple command-line use, and the thought of writing new scripting/automation each time a large-scale project emerged was not terribly exciting. Thus, Make was selected as a wrapping engine based on it's years of history as one of the most popular and highly used source file processing systems in use.

The final result is Composer, which leverages these two tools to accomplish the original goals with a minimum amount of user knowledge and expertise, and to provide a solid foundation for simplified management of larger content production efforts.

Chapter 2

Details

Compatibility

Composer is developed and tested on a Funtoo/Gentoo GNU/Linux system. An effort has been made to do things in a portable way, but cross-platform development is not an area of expertise for the author.

Output of make —version on development system:

```
GNU Make 3.82
Built for x86_64-pc-linux-gnu

Output of pandoc --version on development system:
```

```
pandoc 1.12.3.3 Compiled with texmath 0.6.6, highlighting-kate 0.5.6.1.
```

If you discover issues, please contact the author directly, with advance thanks. It is highly desirable for Composer to be as "run anywhere" as possible.

Running the commands in the Quick Start section will help you validate whether your system will work as expected. In particular, the make test command validates the proper functioning of all the supported features and uses of Composer.

Versioning

Composer is not really revisioned into "releases" outside of the source code repository. Each commit is tested using make test first, so the latest source should always be ready for production.

If you require greater assurance of stability, use a version of the source that is tagged with a version number.

Dependencies

Composer was designed to have a minimum of external dependencies:

- Pandoc
 - Also need some version of LaTeX installed
- Make
 - GNU version is highly recommended (other versions may not work)

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- Coreutils
 - GNU version is highly recommended (other versions may not work)

In order to download/update the 3rd party components, such as style sheets and formatters, these are also needed:

- Wget
 - General-purpose HTTP/FTP retrieval tool
- Git
 - Distributed version control system

Components from these 3rd party projects are used:

- Markdown Viewer
 - Simple and elegant CSS for HTML files
- Reveal.js
 - Beautifully slick HTML presentation framework
- W3C Slidy2
 - Essentially the grandfather of HTML presentation systems

Basically, any GNU-based system, such as GNU/Linux, Cygwin or FreeBSD (with the GNU tools installed), should work just fine. The biggest external dependency is Pandoc itself and the LaTeX system it uses to produce some of the output formats (namely PDF).

Caveats

There are a couple important items to be aware of when using Composer:

- Portability
 - Running it on non-Linux systems or with different versions of Make (see Compatibility) may not produce expected results.
 - Portability is a goal of the project, and it is written with standards compliance in mind, but it may very
 well depend specifically on the GNU version of Make despite this.
 - An effort has been made to anticipate file names with spaces or other special characters, but horribly named files may produce equally horrible results (this is generally the case with any file-based automation).
 - The "automagic" target detection uses a simple regular expression and is very basic.
- Recursion
 - While it simplifies things quite a bit, it does not completely hide away the complexities of using Make recursively.
 - Recursion handling and the \$(COMPOSER_ABSPATH) variable may be overly-clever and therefore not
 portable.
 - By default, recursion into sub-directories occurs after the current directory targets are run, which makes the output much more readable but precludes dependencies between parent directories and their children.
 - * This behavior can be toggled globally or per-directory using the \$(COMPOSER_DEPENDS) variable as documented.
 - There are some who have made good arguments that systems other than Make should be used for recursion. This author concedes some of their points, but has chosen to ignore them and use the most widely deployed and used Make system available.

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• Variables

- This system gives precedence to environment variables at the top level and in all the examples, which is key to making the inheritance behavior work.

- * If you wish to be insulated from this, you can make all the option variable definitions in children Make files explicit (use override OPTS := instead of override OPTS ?=) and place them below the upstream include statements.
- * The side effect of this will be that each directory will need to define it's own behavior (i.e. no inheritance).
- * This solution is documented in make help, is tested and supported, and does not require any modifications to the main Make file.
- Similarly to the above, the export command should not be used in any Make files read by Composer, other than the provided examples in make help which have been tested.

• Output

- The make help output could be much more kind to those not working on huge terminal windows.

Finally, it could be that Composer introduces more complexity than it does add value, which this author guesses is likely true for many.

The author encourages the reader to review the Goals section and decide for themselves if Composer will be beneficial for their needs.