Exhibition Documentation

Release 0.2.0

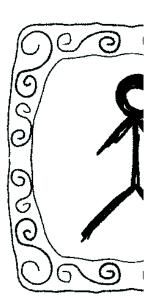
Matt Molyneaux

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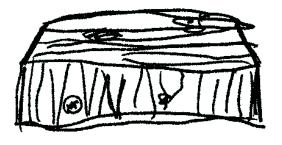
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Say it right:

/gs'hb'()n/

So something like:

eggs hib ish'n

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CHAPTER ONE

WHAT?

A static site generator

4 Chapter 1. What?

TWO

WHERE?

- Download: https://pypi.org/project/exhibition/
- Source: https://github.com/moggers87/exhibition
- Docs: https://exhibition-ssg.readthedocs.io/en/latest/

6 Chapter 2. Where?

CHAPTER
THREE

LICENSE?

GPLv3 or later. See LICENSE for the actual text.

8

Chapter 3. License?

FOUR

WHY THOUGH?

I'd been using Hyde for a number of years, eventually that project stopped receiving updates. Hyde had very limited test coverage, many features that I didn't personally use, and no Python 3 support. This combination made the prospect of maintaining Hyde daunting, so forking was out of the question.

In the end, I wrote Exhibition as other available static site generators would either require massively rewriting the sites I already had or weren't flexible enough to generate the same URL structure.

FIVE

WHAT'S THE STATUS OF THIS PROJECT?

There are tests, there's some documentation, and I currently use it for a number of websites, including my personal blog.

Please feel free to add your site to the wiki if it uses Exhibition, but please make sure its safe for work and not covered in adverts.

5.1 Contributions

I'm always looking for contributions, whether they be bug reports, bug fixes, feature requests, new features, or documentation. Also, feel free to open issues for support requests too - these are very helpful in showing me where documentation is required or needs improving.

SIX

CODE OF CONDUCT

The Exhibition project has adopted the Contributor Covenant Code version 1.4. By contributing to this project, you agree to abide by its terms.

The full text of the code of conduct can be found here

6.1 Getting started

Exhibition is fairly quick to configure.

6.1.1 Minimum setup

At minimum, Exhibition expects to find a YAML file, site.yaml, with at least deploy_path and content_path defined. The path specified in content_path needs to exist.

For example:

```
$ mkdir content
$ cat << EOF > site.yaml
> deploy_path: deploy
> content_path: content
> EOF
```

Note: Exhibition comes with a starter template for new sites. See exhibit create —help for more information.

You can now generate your first Exhibition website!:

```
$ exhibit gen
$ ls deploy
```

Of course, you've got no content so the directory will be empty.

Any file or directory you put in content will appear in deploy when you run exhibit gen.

6.1.2 Templates

Exhibition supports Jinja2 out of the box, but it needs to be enabled:

Listing 1: site.yaml

```
deploy_path: deploy
content_path: content
filter: exhibition.filters.jinja2
```

Now we can create HTML files that use Jinja2 template syntax:

Listing 2: content/index.html

Note: node is the current page being rendered and is passed to Jinja2 as a context variable.

Run exhibit gen and then exhibit serve. If you connect to http://localhost:8000 you'll see the following text:

```
This page has 0 siblings
```

If you add another page, this number will increase when run exhibit gen again.

If you wish to use template inheritance, add the following to site.yaml:

```
templates: mytemplates
```

Where "mytemplates" is whatever directory you will store your templates in. You can either use the extends tag directly or you can specify extends in site.yaml. You can also specify default_block to save you from wrapping every page in {% block content %}:

```
extends: page.j2
default_block: content
```

And then our template:

Listing 3: mytemplates/page.j2

Our index page would be this:

Listing 4: content/index.html

```
This page has {{ node.siblings|length }} siblings
```

The generated HTML will be exactly the same, except now files in content/ will not have to each have their own copy of any headings, page title, links to CSS or whatever.

6.1.3 Meta

Site settings are available in templates as node.meta. For example:

Listing 5: content/otherpage.html

```
Current filter is "{{ node.meta.filter }}"
```

Which will generate the following:

```
Current filter is "exhibition.filters.jinja2"
```

You can reference any data that you put in site.yaml like this - and there's no limit on what you can put in there.

As well as site.yaml there are two additional places that settings can be controlled: meta.yaml and frontmatter.

Meta files

A meta.yaml can be used to define or override settings for a particular directory and any files or subdirectories it contains.

Let's add a blog to our website:

```
$ mkdir content/blog
$ cat << EOF > content/blog/meta.yaml
> extends: blog_post.j2
```

Now all HTML files in content/blog/ will use the blog_post.j2 as their base template rather than page.j2, but files such as content/index.html will still use page.j2 as their base template.

Note: meta.yaml files do not appear as nodes and won't appear in deploy_path

Frontmatter

Frontmatter is the term used to describe YAML metadata put at the beginning of a file. Unlike meta.yaml, any settings defined (or overridden) here will only affect this one file.

For example, we won't want the index page of our blog to use blog_post.j2 as its base template:

Listing 6: content/blog/index.html

```
extends: blog_index.j2
---
{% for post in node.sibling %}
    <a href="{{ post.full_url }}">{{ post.meta.title }}</a>
```

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Listing 7: content/blog/first-post.html

```
title: My First Post
---
<h1>{{ node.meta.title }}
Hey! This is my first blog post!
```

6.1.4 What next?

Checkout the API. File bugs. Submit patches.

Exhibition is still in the early stages of development, so please contribute!

6.2 exhibit commandline script

6.2.1 exhibit

A Python static site generator

```
exhibit [OPTIONS] COMMAND [ARGS]...
```

Options

--version

Show the version and exit.

-v, --verbose

Verbose output, can be used multiple times to increase logging level

create

Generate a starter site with a basic configuration for website.

```
exhibit create [OPTIONS] PATH
```

Options

-f, --force

overwrite destination if it exists

Arguments

PATH

Required argument

gen

Generate site from content_path

```
exhibit gen [OPTIONS]
```

serve

Serve files from deploy_path as a webserver would

```
exhibit serve [OPTIONS]
```

Options

```
-s, --server <server>
Hostname to serve the site at.
```

-p, --port <port>
 Port to serve the site at.

6.3 Configuration

Exhibition draws configuration options from three places:

- site.yaml, which is the root configuration file
- meta.yaml, which there can be one or none in any given folder
- "Frontmatter", which is a YAML header that can be put in any text file. It *must* be the first thing in the file and it *must* start and end with --- both on their own lines.

The difference between these different places to put configuration is explain in detail in the Getting started page.

6.3.1 Inheritance

One important aspect of Exhibition's configuration system is that for a given node (a file or a folder), a key is search for in the following way:

- 1. The current node is checked for the specified key. If it's found, it is returned. Otherwise carry on to 2.
- 2. The parent of the current node is checked, and if the specified key is not found here then *its* parent is checked the same way (and so on), until the root node is found.
- 3. If the root node does not have the specified key, then site.yaml is searched.
- 4. Only once site.yaml has been searched is a KeyError raised if the key cannot be found.

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6.3.2 Mandatory

The following options must be present in site.yaml:

content_path

This is the path to where Exhibition will load data from. It should have the same directory structure and files as you want to appear in the rendered site.

deploy_path

Once rendered, pages will be placed here.

Warning: content_path and deploy_path should only appear in site.yaml.

6.3.3 General

ignore

Matching files are not processed by Exhibition at all. Can be a file name or a glob pattern:

```
ignore: "*.py"
```

As glob patterns are fairly simple, ignore can also be a list of patterns:

```
ignore:
   - "*.py"
   - example.xcf
```

base_url

If your site isn't deployed to the root of a domain, use this setting to tell Exhibition about the prefix so it can be added to all URLs

strip_exts

Specifies if certain files should have their extensions removed when being referenced via Node.full_url. When deploying, this does not change the filename, so you will need to configure your web server to serve those files correctly.

By default, this will be applied to files ending in . html, to disable this feature use the following:

```
strip_exts:
```

You can also specify multiple file extensions:

```
strip_exts:
    - .html
    - .htm
```

index file

Specify the name file name of the "index" file for a directory. By default this is index.html, as it is on most web servers. If you change this settings, be sure to update your web server's configuration to reflect this change.

6.3.4 Filters

filter

The dotted path notation that Exhibition can import to process content on a node.

Exhibition comes with one filter: exhibition.filters.jinja2

filter_glob

Matching files are processed by filter if specified, otherwise this option does nothing.

```
filter_glob: "*.html"
```

As glob patterns are fairly simple, filter_glob can also be a list of patterns:

```
filter_glob:
    - "*.html"
    - "*.htm"
    - "robot.txt"
```

Filters specify their own default glob, refer to the documentation of that filter to find out what that is.

Jinja2

templates

The path where Jinja2 templates will be found. Can be single string or a list.

extends

If specified, this will insert a {% extends %} statement at the beginning of the file content before it is passed to Jinja2.

default block

If specified, this will wrap the file content in {% block %}.

6.3. Configuration 19

markdown_config

Markdown options as specified in the Markdown documentation.

External Command

external_cmd

The command to run. This should use the placeholders {INPUT} and {OUTPUT} for the input and output files respectively. For example:

```
external_cmd: "cat {INPUT} | sort > {OUTPUT}"
```

6.3.5 Cache busting

Cache busting is an important tool that allows static assets (such as CSS files) to bypass the browser cache when the content of such files is updated, while still allowing high value expiry times.

cache_bust_glob

Matching files have their deployed path and URL changed to include a hash of their contents. E.g. media/site.css might become media/site.894a4cd1.css. You can specify globs in the usual manner:

```
cache_bust_glob: "*.css"
```

As glob patterns are fairly simple, cache_bust_glob can also be a list of patterns:

```
cache_bust_glob:
    "*.css"
    "*.jpg"
    "*.jpeg"
```

To refer to cache busted nodes in your Jinja2 templates, do the following:

```
<link rel="stylesheet" href="{{ node.get_from_path("/media/css/site.css").full_url }}

--- type="text/css">
```

6.4 Filters

Exhibition comes with a number of filters. You can also write your own!

6.4.1 Jinja2

exhibition.filters.jinja2 will process the contents of a node via the Jinja2 templating engine. Check the Jinja2 documentation for syntax and a basic understanding of how Jinja2 works.

Unless it is set, filter_glob will default to *.html

Context variables

node The current node

time_now A datetime object that contains the current time in UTC.

Meta

There are some meta options that are used exclusively by Jinja2:

templates Where to search for templates.

extends Automatically add an {% extends %} tag to the start of the content of every affected node.

default_block Wrap the content of affected nodes with the specificity {% block %} tag.

Markdown

markdown is provided as a filter and it can be configured via the markdown_config meta variable, which is passed to the markdown function as keyword arguments.

Please view the Markdown documentation for details.

Pandoc

pandoc is provided as a filter and can be configured by the pandoc_config meta variable, which is passed to the convert_text function as keyword arguments.

Please refer pypandoc project for details.

Note, pypandoc requires pandoc to be installed. It will error without it.

Typogrify

All Typogrify filters are available. See the Typogrify webste for more details.

Exhibition specific filters

metasort

Given a list of nodes, metasort will sort the list like this:

```
{{ node.children.values()|metasort("somekey") }}
```

Where somekey is a key found in each node's meta.

You can also reverse the order like so:

6.4. Filters 21

```
{{ node.children.values() | metasort("somekey", True) }}
```

metaselect and metareject

Given a list of nodes, metaselect will filter out nodes that either do not have that key in their meta or do but the value resolves to something falsey. For example, the following will filter out any nodes that have listable set to False:

```
{{ node.children.values()|metaselect("listable") }}
```

metareject works the same way, except it filters out nodes that don't have falsey values for the given key.

Marked sections

Marked sections are a great way to allow parts of your content to be referenced elsewhere, for example the preamble to a blog post:

```
---
title: My Post
---
{% mark intro %}
Blah blah blah...
{% endmark %}

Some more text
```

In another node you might want to list all the blog posts with their intros:

You can have as many marks as you like in a node and they can be nested.

Raising Errors

Sometimes it can be useful to raise an error, especially if the logic in your template is quite complex!

```
{% if 2 == 3 %}
    {% raise "This shouldn't be true! The Universe is broken!" %}
{% endif %}
```

6.4.2 External Command

The external command filter only has one option: external_cmd, which is the shell command to be run. The specified command should use {INPUT} as the input file and {OUTPUT} as the output file, for example:

```
external_cmd: "cat {INPUT} | base64 > {OUTPUT}"
```

Unless it is set, filter_glob will default to *.* for this filter.

6.4.3 Make Your Own

To create your own filter for Exhibition, your module must implement a function with the following signature:

```
def content_filter(node, content):
    return ""
```

node is the current node being processed.

content is the content of that node, with any frontmatter removed.

content_filter should return a string, which will then become the rendered form of this node.

6.5 exhibition

6.5.1 exhibition package

Subpackages

exhibition.filters package

Submodules

exhibition.filters.external module

External command filter

Use an external command to process a file, like so:

```
filter: exhibition.filters.external
external_cmd: sed 's/this/that/g' {INPUT} > {OUTPUT}
```

```
exhibition.filters.external.content_filter(node, content)
```

This is the actual content filter called by exhibition.main. Node on appropiate nodes.

Parameters

- node The node being rendered
- content The content of the node, stripped of any YAML frontmatter

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exhibition.filters.jinja2 module

Jinja2 template filter

To use, add the following to your configuration file:

```
filter: exhibition.filters.jinja2
```

```
class exhibition.filters.jinja2.Mark(environment)
```

Bases: jinja2.ext.Extension

Marks a section for use later:

```
{% mark intro %}
My Intro
{% endmark %}
Some more text
```

This can then be referenced via Node.marks.

```
identifier = 'exhibition.filters.jinja2.Mark'
parse(parser)
```

If any of the tags matched this method is called with the parser as first argument. The token the parser stream is pointing at is the name token that matched. This method has to return one or a list of multiple nodes.

```
tags = {'mark'}
```

if this extension parses this is the list of tags it's listening to.

```
class exhibition.filters.jinja2.RaiseError(environment)
    Bases: jinja2.ext.Extension
```

Raise an exception during template rendering:

```
{% raise "This is an error" %}
```

```
identifier = 'exhibition.filters.jinja2.RaiseError'
```

```
parse (parser)
```

If any of the tags matched this method is called with the parser as first argument. The token the parser stream is pointing at is the name token that matched. This method has to return one or a list of multiple nodes.

```
tags = {'raise'}
```

if this extension parses this is the list of tags it's listening to.

```
exhibition.filters.jinja2.content_filter(node, content)
```

This is the actual content filter called by exhibition.main.Node on appropiate nodes.

Parameters

- node The node being rendered
- content The content of the node, stripped of any YAML frontmatter

```
exhibition.filters.jinja2.markdown(ctx, text) exhibition.filters.jinja2.metareject(nodes, key) exhibition.filters.jinja2.metaselect(nodes, key)
```

```
exhibition.filters.jinja2.metasort (nodes, key=None, reverse=False)
Sorts a list of nodes based on keys found in their meta objects
exhibition.filters.jinja2.pandoc(ctx, text, fmt=None)
```

Module contents

Submodules

exhibition.command module

Documentation for this module can be found in exhibit commandline script

exhibition.config module

```
class exhibition.config.Config(data=None, parent=None, node=None)
    Bases: object
```

Configuration object that implements a dict-like interface

If a key cannot be found in this instance, the parent Config will be searched (and its parent, etc.)

Parameters

- data Can be one of a string, a file-like object, a dict-like object, or None. The first two
 will be assumed as YAML
- parent Parent Config or None if this is the root configuration object
- node The node that this object to bound to, or None if it is the root configuration object

```
copy()
classmethod from_path(path)
    Load YAML data from a file
get (key, default=None)
get_name()
items()
keys()
load(data)
```

Load data into configutation object

Parameters data – If a string or file-like object, data is parsed as if it were YAML data. If a dict-like object, data is added to the internal dictionary.

Otherwise an AssertionError exception is raised

```
update(*args, **kwargs)
values()
```

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exhibition.node module

class exhibition.node.Node(path, parent, meta=None)

Bases: object

A node represents a file or directory

Parameters

- path A pathlib. Path that is either the content_path or a child of it.
- parent Either another Node or None
- meta A dict-like object that will be passed to a Config instance

add child(child)

Add a child to the current Node

If the child doesn't already have its parent set to this Node, then an AssertionError is raised.

property cache_bust

property content

Get the actual content of the Node

If filter has been specified in meta, that filter will be used to further process the content.

property data

Extracts data from contents of file

For example, a YAML file

classmethod from path(path, parent=None, meta=None)

Given a pathlib.Path, create a Node from that path as well as any children. Children are loaded in Unicode codepoint order - this order is preserved in Node.children if you're unsure what that means.

If the path is not a file or a dir, an AssertionError is raised

Parameters

- path A pathlib.Path that is either the content_path or a child of it.
- parent Either another Node or None
- meta A dict-like object that will be passed to a Config instance

property full_path

Full path of node when deployed

property full_url

Get full URL for node, including trailing slash

get_from_path(path)

Given a relative or absolute path, return the *Node* that represents that path.

Parameters path - A str or pathlib. Path

property index_file

property marks

Marked sections from content

property meta

Configuration object

Finds and processes the YAML front matter at the top of a file

If the file does not start with $---\n$, then it's assumed the file does not contain any meta YAML for us to process

render()

Process node and either create the directory or write contents of file to deploy_path

property siblings

Returns all children of the parent Node, except for itself

```
property strip_exts
```

walk (include_self=False)

Walk through Node tree

exhibition.utils module

Bases: http.server.SimpleHTTPRequestHandler

end_headers()

Send the blank line ending the MIME headers.

translate_path(path)

Translate a /-separated PATH to the local filename syntax.

Components that mean special things to the local file system (e.g. drive or directory names) are ignored. (XXX They should probably be diagnosed.)

```
exhibition.utils.gen(settings)
```

Generate site

Deletes deploy_path first.

exhibition.utils.serve (settings, server_address)

Serves the generated site from $deploy_path$

Respects settings like base url if present.

Module contents

6.6 Security

If you find a security issue with Exhibition, email security@moggers87.co.uk. If you want to send an encrypted report, then please use key id 0x878B5A2A1D47C084.

Exhibition follows the same security reporting model that has worked for other open source projects: If you report a security vulnerability, it will be acted on immediately and a fix with complete full disclosure will go out to everyone at the same time.

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6.7 Changelog

6.7.1 0.2.0

Added

• Add support for a pandoc filter for Jinja2 templates

Removed

• Remove support for Python 3.5, 3.6, and 3.7

Fixed

- Add description to exhibit command
- Use cached_property to make code cleaner

6.7.2 0.1.1

Added

- Allow settings of local HTTP server address and port.
- Added Python 3.8 support.

Removed

Nothing was removed in this release

Fixed

- Set Cache-Control to no-store on HTTP server respones
- HTTP server should ignore GET params and fragments

6.7.3 0.1.0

The "I'd almost recommand it to my friends" release.

Added

- Added Python 3.7 support.
- · Add the external command filter.
- Document Jinja2 filter.
- Add strip_exts as an user configurable setting.
- Add index_file as an user configurable setting.

Removed

• Removed Python 3.4 support.

Fixed

- Reorganised package so that code is easier to manage.
- Make node loading deterministic, meta files loaded first and then alphabetical order for the rest.

6.7.4 0.0.4

- · Added vesrioneer.
- Fix bug where exhibit serve was not serving files with extension stripping enabled.
- A KeyError raised by Config now display the path of the node they are attached to, making debuging missing keys far easier.
- Improved test coverage and fixed numerous bugs.
- Implemented cache busting for static assets (images, CSS, and such). Use the cache_bust_glob option to control which files are cache busted.
- Implemented Node.get_from_path which can fetch a exhibition.main.Node specified by a path.
- Make all Exhibition defined meta keys use underscores not hyphens.

6.7.5 0.0.3

• Fix bug where extension stripping was not being applied.

6.7.6 0.0.2

- Fixed trove classifiers.
- Add __version__ to exhibition.__init__.

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6.7.7 0.0.1

Everything is new! Some choice features:

- Configuration via YAML files and YAML front matter.
- Jinja2 template engine is provided by default.
- A local HTTP server for development work.
- Less than 2000 lines of code, including tests.

SEVEN

INDICES AND TABLES

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- modindex
- search

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