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# **cookiecutter-python-package**

***Release 2.1.0***

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## PYTHON PACKAGE GENERATOR

Generate Python Project and enjoy **streamlined DevOps** using a powerful **CI/CD Pipeline**.

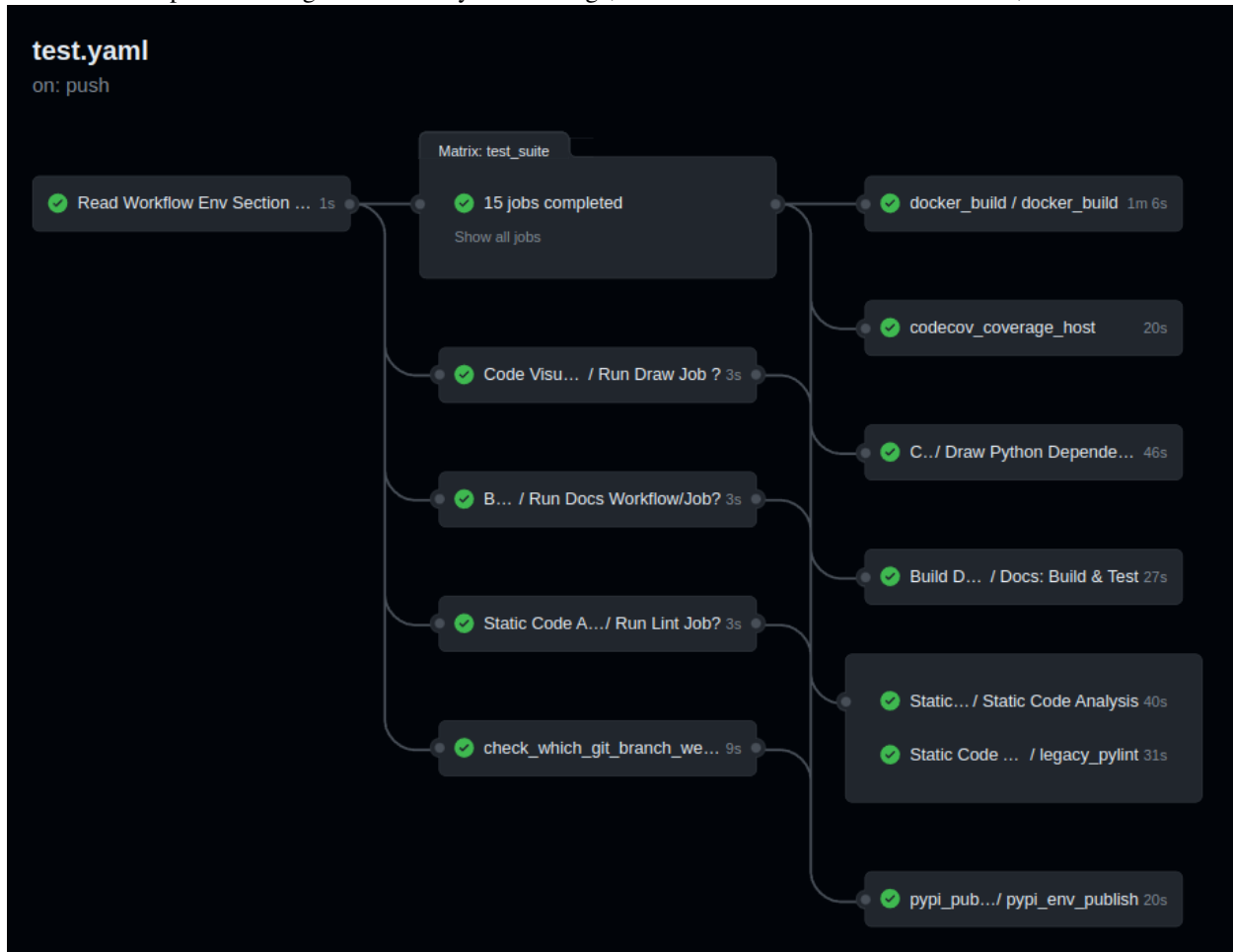
**Documentation** available at <https://python-package-generator.readthedocs.io/>.

### 1.1 What's included?

- **Generator of Python Project** (see [Quickstart](#)), with **CLI** for **Linux**, **MacOS**, and **Windows**
- **Option** to Generate Python Package designed as *module*, *module+cli*, or *pytest-plugin*!
- Scaffold over **24 files**, from [Template](#), to have a *ready-to-develop* **Project equipped** with:
  - Fully-featured **CI/CD Pipeline**, running on [Github Actions](#), defined in `.github/`
  - **Continuous Delivery** to *PyPI* (i.e. [pypi.org](#), [test.pypi.org](#)) and *Dockerhub*
  - **Continuous Integration**, with **Test Suite** running [pytest](#), located in the `tests` dir
  - **Continuous Documentation**, building with *mkdocs* or *sphinx*, and hosting on *readthedocs*, located in the `docs` dir
  - **Static Type Checking**, using [mypy](#)
  - **Lint Check** and *Apply* commands, using the fast [Ruff](#) linter, along with standard [isort](#), and [black](#)
  - **Build Command**, using the [build](#) python package

## 1.2 What to expect?

You can be up and running with a new Python Package, and run workflows on Github Actions, such as:



Link: <https://github.com/boromir674/biskotaki/actions/runs/4157571651>

1. **CI Pipeline**, running on Github Actions, defined in `.github/`
  - a. **Job Matrix**, spanning different *platform*'s and *python version*'s
    1. Platforms: *ubuntu-latest*, *macos-latest*
    2. Python Interpreters: *3.6*, *3.7*, *3.8*, *3.9*, *3.10*
  - b. **Parallel Job** execution, generated from the *matrix*, that runs the *Test Suite*
  - c. **Artifact** store of **Source** and **Wheel** Distributions, factoring Platform and Python Version

### 1.2.1 Auto Generated Sample Package Biskotaki

Check the **Biskotaki Python Package Project**, for a taste of the project structure and capabilities this Template can generate!

It is entirely generated using this **Python Package Template**:

**Source Code** hosted on *Github* at <https://github.com/boromir674/biskotaki>

**Python Package** hosted on *pypi.org* at <https://pypi.org/project/biskotaki/>

**CI Pipeline** hosted on *Github Actions* at <https://github.com/boromir674/biskotaki/actions>

## 1.3 Quickstart

To **install** the latest Generator in your environment, run:

```
pip install cookiecutter-python
```

The generate-python (executable) CLI should now be available in your environment.

Next, **create** a file, let's call it `gen-config.yml`, with the following content:

```
default_context:
  project_name: Demo Generated Project
  project_type: module+cli
  full_name: John Doe
  email: john.doe@something.org
  github_username: john-doe
  project_short_description: 'Demo Generated Project Description'
  initialize_git_repo: no
  interpreters: {"supported-interpreters": ["3.8", "3.9", "3.10", "3.11"]}
```

To **generate** a Python Package Project, run:

```
mkdir gen-demo-dir
cd gen-demo-dir

generate-python --config-file ../gen-config.yml --no-input
```

Now, you should have generated a new Project for a Python Package, based on the [Template](#)!

The Project should be located in the newly created `demo-generated-project` directory.

To leverage all out-of-the-box development operations (ie scripts), install `tox`:

```
python3 -m pip install --user 'tox<4'
```

To verify `tox` available in your environment, run: `tox --version`

Please, do a `cd` into the newly created directory, ie `cd <my-great-python-package>`.

To run the Test Suite, `cd` into the newly created Project folder, and run:

```
tox -e dev
```

All Tests should pass, and you should see a *coverage* report!

To run Type Checking against the Source Code, run:

```
tox -e type
```

All Type Checks should pass!

To setup a Git Repository, run:

```
git init
git add .
git checkout -b main
git commit -m "Initial commit"
```

To setup a Remote Repository, run for example:

```
git remote add origin <remote-repository-url>
git push -u origin main
```

To trigger the CI/CD Pipeline, run:

```
git push
```

Navigate to your [github.com/username/your-repo/actions](https://github.com/username/your-repo/actions) page, to see the CI Pipeline running!

Develop your package's **Source Code** (*business logic*) inside *src/my\_great\_python\_package* dir :)

Develop your package's **Test Suite** (ie *unit-tests*, *integration tests*) inside *tests* dir :-)

Read the Documentation's [Use Cases](#) section for more on how to leverage your generated Python Package features.

### 1.3.1 Next Steps

To prepare for an Open Source Project Development Lifecycle, you should visit the following websites:

- PyPI, [test.pypi.org](https://test.pypi.org), Dockerhub, and Read the Docs, for setting up Release and Documentation Pipelines
- [github.com](https://github.com)/your-account to configure Actions, through the web UI
- Codecov, Codacy, and Codeclimate, for setting up Automated Code Quality, with CI Pipelines
- <https://www.bestpractices.dev/> for registering your Project for OpenSSF Best Practices Badge

**Happy Developing!**

## 1.4 License

- [GNU Affero General Public License v3.0](#)

### 1.4.1 Free/Libre and Open Source Software (FLOSS)

#### Introduction

This is **Cookiecutter Python Package**, a *Template Project* used to *generate* fresh new open source *Python Package*'s. The Template is implemented as a *cookiecutter* and it is available both as source code and as a Python Package in itself.

Goal of this project is to automate the process of creating a new Python Package, by providing the user with a “bootstrap” method,

to quickly set up all the *support* files required to seamlessly build and publish the package on [pypi.org](https://pypi.org) (the official Python Package Index public server).

Additionally, it instruments a basic **Test Suite**, multiple **Commands**, as well as a **CI** pipeline, with parallel execution of the *build matrix*, running on *Github Actions*.

This documentation aims to help people understand what are the features of the library and how they can use it. It presents some use cases and an overview of the library capabilities and overall design.



## Why this Generator?

*So, why choose this Python Package Generator?*

### Robust CLI

You want an *easy-to-use, cross-platform* CLI.

- It offers an **1-click** command, or option for an interactive *wizard*
- **Tested on 15 different setups**, across multiple *Platforms* and *Python Interpreters*
  - **OS:** {Ubuntu, MacOS, Windows} X **Python:** {3.7, 3.8, 3.9, 3.10, 3.11}
- Built on established software, such as *cookiecutter* and *jinja2*

### “DevOps”: aka Automations and CI/CD

You want to focus on your *business logic* and *test cases*, in new Python projects.

- Scaffolded project is **one push** away from triggering its **CI/CD pipeline** on Github Actions.
- **Continuous Deployment**, publishing at *pypi.org*, *Docker Hub*, and *Read The Docs*
- Designed for **GitOps**, supporting various *automated developer activities*
- **Automations** with same entrypoint for both **CI and Local** run, via *tox*
- Stress-Testing, with **Job Matrix** spanning multiple *Python Interpreters*, *Operating Systems*

### Approved Tooling

You want the best tools under your belt, for your development lifecycle.

- *tox*, *poetry*, *ruff*, *mypy*, *pytest*, *black*, *isort*, *mkddocs*, *sphinx*

### Template Variant

You want *poetry*, but what if you want to develop a *pytest plugin*?

- Generate *module*: a Python Distribution, with python API/sdk
  - configured with *poetry* backend
- Generate *module+cli*: a Python Distribution, with a CLI and a python API/sdk
  - configured with *poetry* backend
- Generate *pytest-plugin*: a Python Distribution, designed for a *pytest plugin*
  - configured with *setuptools* backend, as Required by *pytest*!

## Generate Python Project

Our Python Generator **Project** was designed to be installable via *pip* and then invoked through the `generate-python` entrypoint to the CLI.

## Getting the CLI

**Cookiecutter Python Package**, available as *source code* on github, with published **Distribution** on *pypi.org* **PyPI**, and **Docker Image** on *hub.docker.com* **Registry**.

Install in virtual env, and make available globally in your (host) machine.

```
pipx install cookiecutter-python
```

Now, the `generate-python` executable should be available.  
Pull the latest Stable image from Docker Hub

```
docker pull boromir674/generate-python:master
```

Now, the CLI should be available, via  
`docker run -it --rm boromir674/generate-python:master`

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**Hint:** Not to be confused with the ‘latest’ (channel) image tag advertised by dockerhub, which my no means promises to contain a stable release.

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**Hint:** We promise stable releases on ‘**master**’ tag, since on git, ‘all tagged production releases are on ‘master’ branch. They are the same to correspond to PyPI Distributions as well.

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Install in virtual env

```
virtualenv env --python=python3
source env/bin/activate

pip install cookiecutter-python
```

Make available to current user

```
ln -s env/bin/generate-python ~/.local/bin/generate-python
```

Now, the `generate-python` executable should be available (assuming `~/.local/bin` is in your PATH).

## Check installation

You can verify by running the following:

```
generate-python --version
```

---

**Hint:** All methods demonstrated for **getting the CLI**, *download* the **Latest Stable** (Release).

---

## Using the CLI

Using the cli is as simple as invoking *generate-python* from a console.

You can run the following to see all the available parameters you can control:

```
generate-python --help
```

```
docker run -it --rm boromir674/generate-python:master --help
```

The most common way to generate a new Python Package Project is to run:

```
generate-python
```

```
docker run -it --rm boromir674/generate-python:master
```

This will prompt you to input some values and create a fresh new Project in the current directory!

Now, simply *cd* into the generated Project's directory and enjoy some of the features the generator supplies new projects with!

More on use cases in the next section.

## Generated Python Project Use Cases

Ready to enjoy some of your newly generated Python Package Project **features** available out-of-the-box!?

For instance:

1. Leverage the supplied *tox environments* to automate various **Testing** and **DevOps** related activities.

Assuming you have *tox* installed (example installation command: *python3 -m pip install --user tox*) and you have done a *cd* into the newly generated Project directory, you can do for example:

- a. Run the **Test Suite** against different combinations of *Python versions* (ie 3.7, 3.8) and different ways of installing (ie 'dev', 'sdist', 'wheel') the *<my\_great\_python\_package>* package:

```
tox -e "py{3.7, 3.8}-{dev, sdist, wheel}"
```

- b. Check the code for **compliance** with **best practises** of the *Python packaging ecosystem* (ie PyPI, pip), build *sdist* and *wheel* distributions and store them in the *dist* directory:

```
tox -e check && tox -e build
```

- c. **Deploy** the package's distributions in a *pypi* (index) server:

1. Deploy to **staging**, using the *test pypi* (index) server at [test.pypi.org](https://test.pypi.org):

```
TWINE_USERNAME=username TWINE_PASSWORD=password PACKAGE_DIST_VERSION=1.0.0_
↳ tox -e deploy
```

2. Deploy to **production**, using the *production pypi* (index) server at [pypi.org](https://pypi.org):

```
TWINE_USERNAME=username TWINE_PASSWORD=password PACKAGE_DIST_VERSION=1.0.0_
↳ PYPI_SERVER=pypi tox -e deploy
```

---

**Note:** Setting `PYPI_SERVER=pypi` indicates to deploy to *pypi.org* (instead of *test.pypi.org*).

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**Note:** Please modify the `TWINE_USERNAME`, `TWINE_PASSWORD` and `PACKAGE_DIST_VERSION` environment variables, accordingly.

`TWINE_USERNAME` & `TWINE_PASSWORD` are used to authenticate (user credentials) with the targeted pypi server.

PACKAGE\_DIST\_VERSION is used to avoid accidentally uploading distributions of different versions than intended.

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2. Leverage the **CI Pipeline** and its **build matrix** to run the **Test Suite** against a combination of different Platforms, different Python interpreter versions and different ways of installing the subject Python Package: *Trigger the **Test Workflow** on the **CI server**, by *pushing* a git commit to a remote branch (ie *master* on github).*  
*Navigate to the **CI Pipeline web interface** (hosted on *Github Actions*) and inspect the **build** results!*
- 

**Note:** You might have already *pushed*, in case you answered *yes*, in the *initialize\_git\_repo* prompt, while generating the Python Package, and in that case, the **Test Workflow** should have already started running! Out-of-the-box, *triggering* the **Test Workflow** happens only when pushing to the *master* or *dev* branch.

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## References

Here, you will find the cookiecutter\_python's **Python API Reference Documentation**.

### cookiecutter\_python package

#### Subpackages

#### cookiecutter\_python.backend package

#### Subpackages

#### cookiecutter\_python.backend.error\_handling package

#### Submodules

#### cookiecutter\_python.backend.error\_handling.handler\_builder module

```
class cookiecutter_python.backend.error_handling.handler_builder.CriticalHandlerBuilder
    Bases: object
class cookiecutter_python.backend.error_handling.handler_builder.HandlerBuilder
    Bases: object
    subclasses: Dict[str, type] = {'critical': <class
    'cookiecutter_python.backend.error_handling.handler_builder.CriticalHandlerBuilder'>,
    'non-critical': <class 'cookiecutter_python.backend.error_handling.handler_builder.
    NonCriticalHandlerBuilder'>}}
class
cookiecutter_python.backend.error_handling.handler_builder.NonCriticalHandlerBuilder
    Bases: object
```

## Module contents

**class** `cookiecutter_python.backend.error_handling.HandlerBuilder`

Bases: `object`

**subclasses:** `Dict[str, type] = {'critical': <class 'cookiecutter_python.backend.error_handling.handler_builder.CriticalHandlerBuilder'>, 'non-critical': <class 'cookiecutter_python.backend.error_handling.handler_builder.NonCriticalHandlerBuilder'>}`

`cookiecutter_python.backend.generator` package

Submodules

`cookiecutter_python.backend.generator.generator` module

Module contents

`cookiecutter_python.backend.hosting_services` package

Submodules

`cookiecutter_python.backend.hosting_services.check_engine` module

**class** `cookiecutter_python.backend.hosting_services.check_engine.Engine`(*config\_file: None | str, default\_config: None | bool, services\_info: Tuple, checker: Checker = NOTHING, handlers: Handlers = NOTHING*)

Bases: `object`

**check**(*servers: List[str]*)

Request Future per supported server, for web hosting service checks

For each server the dedicated 'checker' is called, which tries to return a Future.

Returns None checker's 'activation' boolean flag was off at runtime. Returns None if internal mechanism for determining server URL fails to derive the URL (atm URL is only tried to be read from User Config yaml)

**Parameters**

**servers** (*List[str]*) – [description]

**Returns**

[description]

**Return type**

[type]

**checker:** `Checker`

**config\_file:** `None | str`

**static create**(*config\_file: str, default\_config: bool*)

Initialize objects, for Asynchronous http with 3rd-party Services

Objects are designed to Ask PyPI and Read The Docs, if the soon to be generated package name, and readthedocs project slug are available.

These 'Checker' objects make asynchronous http requests to PyPI and RTD web servers, for non-blocking IO, and to avoid blocking the main thread.

Checkers are initialized as 'Activated' if User Config is given and Default Config is False.

Then each Checker (pypi, rtd) requires: - PyPI requires the 'pkg\_name' in User's yaml Config - RTD requires the 'readthedocs\_project\_slug' in User's yaml Config to derive the URLs for Future Requests

#### Parameters

- **config\_file** (*str*) – user’s yaml config file
- **default\_config** (*bool*) – default config flag

**default\_config:** `None | bool`

**handle**(*request\_result*)

**handlers:** [Handlers](#)

**services\_info:** `Tuple`

### cookiecutter\_python.backend.hosting\_services.check\_service module

```
class cookiecutter_python.backend.hosting_services.check_service.ServiceChecker(name_extractor:
    Callable[[str],
    str],
    web_service_checker:
    WebHost-
    ingSer-
    viceChecker,
    acti-
    vate_flag:
    bool, con-
    fig_file_path:
    str)
```

Bases: `object`

**activate\_flag:** `bool`

**config\_file\_path:** `str`

**static create**(*hosting\_service\_info*, *activate\_flag:* *bool*, *config\_file\_path*)

**name\_extractor:** `Callable[[str], str]`

**property service\_name**

**web\_service\_checker:** [WebHostingServiceChecker](#)

### cookiecutter\_python.backend.hosting\_services.check\_web\_hosting\_service module

```
class cookiecutter_python.backend.hosting_services.check_web_hosting_service.WebHostingServiceChecker(url_getter:
    Callable[[str],
    str])
```

Bases: `object`

Check if CI config is out-of-the-box ok to integrate with hosting services

**static create**(*hosting\_service*)

**url\_getter:** `Callable[[str], str]`

### cookiecutter\_python.backend.hosting\_services.checker module

```
class cookiecutter_python.backend.hosting_services.checker.Checker(config_file: None | str,
    default_config: None | bool,
    checkers: Checkers)
```

Bases: `object`

**checkers:** [Checkers](#)

**config\_file:** `None | str`

**default\_config:** `None | bool`

**static from\_hosting\_info**(*config\_file, default\_config, hosting\_infos*)

Activate Web Host Checks if user config and NOT default config

### cookiecutter\_python.backend.hosting\_services.checkers module

**class** cookiecutter\_python.backend.hosting\_services.checkers.**Checkers**(*checkers: MutableMapping*)

Bases: object

**static from\_hosting\_info**(*hosting\_infos, activate\_flag, config\_file*)

### cookiecutter\_python.backend.hosting\_services.exceptions module

**exception**

cookiecutter\_python.backend.hosting\_services.exceptions.**ContextVariableDoesNotExist**

Bases: Exception

Raised when a Context Variable does not exist, in a dict-like object.

### cookiecutter\_python.backend.hosting\_services.extract\_name module

**class** cookiecutter\_python.backend.hosting\_services.extract\_name.**NameExtractor**(*name\_extractor: Callable[[Mapping], str]*)

Bases: object

Extract Context Value, from a User's Config (YAML) file.

**static create**(*hosting\_service\_info*)

**name\_extractor:** Callable[[Mapping], str]

### cookiecutter\_python.backend.hosting\_services.handle\_hosting\_service\_check module

**class** cookiecutter\_python.backend.hosting\_services.handle\_hosting\_service\_check.**CheckHostingServiceHandl**

Bases: object

**check\_hosting\_service:** Callable[[str], bool]

**package\_name:** str

**service\_name:** str

## cookiecutter\_python.backend.hosting\_services.handler module

```
class cookiecutter_python.backend.hosting_services.handler.CheckHostingServiceResultHandler(service_name:
                                                    str)

    Bases: object
    static is_future_response_200(result) → bool
    service_name: str

class cookiecutter_python.backend.hosting_services.handler.Handlers(handlers: Mapping)

    Bases: object
    static from_checkers(checkers)
    handlers: Mapping
```

## cookiecutter\_python.backend.hosting\_services.value\_extractor module

```
class cookiecutter_python.backend.hosting_services.value_extractor.BaseValueExtractor(key_name:
                                                    str)

    Bases: ValueExtractor
    key_name: str

class cookiecutter_python.backend.hosting_services.value_extractor.ValueExtractor

    Bases: object
```

## cookiecutter\_python.backend.hosting\_services.web\_hosting\_service module

```
class cookiecutter_python.backend.hosting_services.web_hosting_service.HostingServiceInfo

    Bases: object
    create(*args, **kwargs)
        Factory method for creating WebHostingService instances.
        Raises
            NotImplementedError – [description]
    property service
    property variable_name: str

class cookiecutter_python.backend.hosting_services.web_hosting_service.HostingServices

    Bases: object
    subclasses: Dict[str, type] = {'pypi': <class 'cookiecutter_python.backend.
    hosting_services.web_hosting_service.PyPIServerFactory'>, 'readthedocs': <class
    'cookiecutter_python.backend.hosting_services.web_hosting_service.
    ReadTheDocsServerFactory'>}

class cookiecutter_python.backend.hosting_services.web_hosting_service.HostingServicesInfo(*args)

    Bases: SubclassRegistry[HostingServiceInfo]

class cookiecutter_python.backend.hosting_services.web_hosting_service.PyPIServerFactory

    Bases: HostingServiceInfo
    create(*args, **kwargs)
        Factory method for creating WebHostingService instances.
        Raises
            NotImplementedError – [description]
    property variable_name: str

class
cookiecutter_python.backend.hosting_services.web_hosting_service.ReadTheDocsServerFactory

    Bases: HostingServiceInfo
```



```

create(*args, **kwargs)
    Factory method for creating WebHostingService instances.
    Raises
        NotImplementedError – [description]
    property variable_name: str
class cookiecutter_python.backend.hosting_services.web_hosting_service.URLGetter(url_pattern:
                                                                    str, ser-
                                                                    vice_name:
                                                                    str)

Bases: object
service_name: str
url_pattern: str
class cookiecutter_python.backend.hosting_services.web_hosting_service.WebHostingService(url:
                                                                    URL-
                                                                    Get-
                                                                    ter)

Bases: object
static create(url_pattern: str, service_name: str)
url: URLGetter

```

## Module contents

```

class cookiecutter_python.backend.hosting_services.Engine(config_file: None | str, default_config:
                                                                    None | bool, services_info: Tuple,
                                                                    checker: Checker = NOTHING,
                                                                    handlers: Handlers = NOTHING)

Bases: object
check(servers: List[str])
    Request Future per supported server, for web hosting service checks
    For each server the dedicated ‘checker’ is called, which tries to return a Future.
    Returns None checker’s ‘activation’ boolean flag was off at runtime. Returns None if internal mechanism
    for determining server URL fails to derive the URL (atm URL is only tried to be read from User Config
    yaml)
    Parameters
        servers (List[str]) – [description]
    Returns
        [description]
    Return type
        [type]
checker: Checker
config_file: None | str
static create(config_file: str, default_config: bool)
    Initialize objects, for Asynchronous http with 3rd-party Services
    Objects are designed to Ask PyPI and Read The Docs, if the soon to be generated package name, and
    readthedocs project slug are available.
    These ‘Checker’ objects make asynchronous http requests to PyPI and RTD web servers, for non-blocking
    IO, and to avoid blocking the main thread.
    Checkers are initialized as ‘Activated’ if User Config is given and Default Config is False.
    Then each Checker (pypi, rtd) requires: - PyPI requires the ‘pkg_name’ in User’s yaml Config - RTD
    requires the ‘readthedocs_project_slug’ in User’s yaml Config
    to derive the URLs for Future Requests

```

#### Parameters

- **config\_file** (*str*) – user’s yaml config file
- **default\_config** (*bool*) – default config flag

**default\_config:** `None | bool`

**handle**(*request\_result*)

**handlers:** *Handlers*

**services\_info:** `Tuple`

### cookiecutter\_python.backend.sanitization package

#### Subpackages

### cookiecutter\_python.backend.sanitization.string\_sanitizers package

#### Submodules

### cookiecutter\_python.backend.sanitization.string\_sanitizers.base\_sanitizer module

**class** `cookiecutter_python.backend.sanitization.string_sanitizers.base_sanitizer.`

#### **AbstractSanitizer**

Bases: *SanitizerInterface*, ABC

**exception\_msg:** `str`

**abstract log\_message**(*error, data*) → `Tuple`

**verify:** `Callable[[Any], None]`

**class** `cookiecutter_python.backend.sanitization.string_sanitizers.base_sanitizer.BaseSanitizer`(*verify:*  
*Callable[[Any], None],*  
*exception\_msg:*  
*str,*  
*log\_func:*  
*Callable[[str], None],*  
*Tuple])*

Bases: *AbstractSanitizer*

**exception\_msg:** `str`

**log\_message**(*error: str, data*) → `Tuple`

**verify:** `Callable[[Any], None]`

**class** `cookiecutter_python.backend.sanitization.string_sanitizers.base_sanitizer.`

#### **SanitizerInterface**

Bases: ABC

Sanitizer for the Generator Input Parameters.



## Module contents

### Submodules

#### cookiecutter\_python.backend.sanitization.input\_sanitization module

```
class cookiecutter_python.backend.sanitization.input_sanitization.Sanitize
    Bases: object
    property exceptions: Mapping[str, Type[Exception] | Tuple]
    exceptions_map: Dict[str, List[Type[Exception]]] = {'interpreters': [<class
'cookiecutter_python.backend.sanitization.interpreters_support.
InvalidInterpretersError'>], 'module-name': [<class
'cookiecutter_python.backend.sanitization.string_sanitizers.sanitize_reg_input.
InputValueError'>], 'semantic-version': [<class
'cookiecutter_python.backend.sanitization.string_sanitizers.sanitize_reg_input.
InputValueError'>]}
    classmethod register_exception(sanitizer_identifier: str)
        Add an Exception to the sanitizers' expected exceptions registry.
        Parameters
            sanitizer_identifier (str) – [description]
    classmethod register_sanitizer(sanitizer_identifier: str)
        Add a callback to the sanitizers' registry.
        Parameters
            sanitizer_identifier (str) – [description]
    sanitizers_map: Dict[str, Callable[[Any], None]] = {'interpreters': <function
verify_input_interpreters>, 'module-name': <function sanitize_module_name>,
'semantic-version': <function sanitize_version>}
```

#### cookiecutter\_python.backend.sanitization.interpreters\_support module

##### exception

```
cookiecutter_python.backend.sanitization.interpreters_support.InvalidInterpretersError
```

Bases: Exception

```
cookiecutter_python.backend.sanitization.interpreters_support.unsupported_interpreters(interpreters:
Sequence[str])
→
Iterator[str]
cookiecutter_python.backend.sanitization.interpreters_support.verify_input_interpreters(interpreters:
Sequence[str])
→
None
```

## Module contents

### Submodules

#### cookiecutter\_python.backend.check\_server\_result module

**class** cookiecutter\_python.backend.check\_server\_result.**CheckWebServerResult**

Bases: ABC

Interface for checking the result of a web server request.

**abstract property future**

**abstract property name:** str

The name of the resource requested to search on the web server.

**Returns**

the name of the resource (ie python package slug, rtd project)

**Return type**

str

**abstract property service\_name:** str

The name of the web server.

**Returns**

the name (slug) of the web server

**Return type**

str

#### cookiecutter\_python.backend.gen\_docs\_common module

Internal configuration for Documentation Generation.

cookiecutter\_python.backend.gen\_docs\_common.**get\_docs\_gen\_internal\_config**() → Dict[str, str]

Derive the internal configuration for Documentation Generation.

**Information included:**

- the folder where we each docs builder will generate the docs. We locate the template folder for each docs builder, which is the Single Source of Truth for the docs builder's output folder.

#### cookiecutter\_python.backend.helpers module

cookiecutter\_python.backend.helpers.**parse\_context**(*config\_file: str*)

#### cookiecutter\_python.backend.load\_config module

**exception** cookiecutter\_python.backend.load\_config.**InvalidYamlFormatError**

Bases: Exception

**exception** cookiecutter\_python.backend.load\_config.**UserYamlDesignError**

Bases: Exception

cookiecutter\_python.backend.load\_config.**get\_interpreters\_from\_yaml**(*config\_file: str*) → Mapping[str, Sequence[str]] | None

Parse the 'interpreters' variable out of the user's config yaml file.

**Parameters**

**config\_file** (*str*) – path to the user's config yaml file

**Raises**

- **InvalidYamlFormatError** – if yaml parser fails to load the user's config
- **UserYamlDesignError** – if yaml does not contain the 'default\_context' key

**Returns**

dictionary with interpreters as a sequence of strings,  
mapped to the 'supported-interpreters' key

**Return type**

GivenInterpreters

`cookiecutter_python.backend.load_config.load_yaml(config_file) → MutableMapping`

### cookiecutter\_python.backend.main module

`cookiecutter_python.backend.main.generate(no_input=False, offline=False, extra_context=None, replay=False, overwrite=False, output_dir='.', config_file=None, skip_if_file_exists=False, default_config=False, password=None, directory=None, checkout=None) → str`

Create Python Project, with CI/CD pipeline, from the project template.  
Generate/Scaffold a new Python Project, including configuration enabling automations such as CI and Continuous Delivery of Docker and Python 'artifacts', and Continuous Documentation of the Python Project.

### cookiecutter\_python.backend.post\_main module

**exception** `cookiecutter_python.backend.post_main.CheckWebServerError`

Bases: `Exception`

Raised on Connection Error, when Requesting a Web Server's Future.

`cookiecutter_python.backend.post_main.post_main(request)`

Check if any CI 'deployment' (ie in pypi), would require minor tweak.

### cookiecutter\_python.backend.pre\_main module

`cookiecutter_python.backend.pre_main.pre_main(request)`

Do preparatory steps Generation process, by settings things as the Template Context.

**Parameters**

**\*\*kwargs** – Arbitrary keyword arguments.

### cookiecutter\_python.backend.proxy module

**class** `cookiecutter_python.backend.proxy.BaseProxy(proxy_subject: ProxySubject)`

Bases: `Proxy[T], Generic[T]`

**static** `log_info_args(message: str, *args, **kwargs) → Tuple[str, str]`

### cookiecutter\_python.backend.request module

**class** `cookiecutter_python.backend.request.Request(*, config_file: str, default_config: bool, web_servers: List[str], no_input: bool, extra_context: dict, check: Any | None = None, check_results: None | Iterable[CheckWebServerResult] = None, offline: bool = False)`

Bases: `object`

**check:** `Any`

**check\_results:** `None | Iterable[CheckWebServerResult]`

**config\_file:** `str`

**default\_config:** `bool`

```

extra_context: dict
no_input: bool
offline: bool
web_servers: List[str]

```

## cookiecutter\_python.backend.user\_config\_proxy module

### Module contents

**exception** cookiecutter\_python.backend.**CheckWebServerError**

Bases: Exception

Raised on Connection Error, when Requesting a Web Server's Future.

cookiecutter\_python.backend.**generate**(*no\_input=False, offline=False, extra\_context=None, replay=False, overwrite=False, output\_dir='.', config\_file=None, skip\_if\_file\_exists=False, default\_config=False, password=None, directory=None, checkout=None*) → str

Create Python Project, with CI/CD pipeline, from the project template.

Generate/Scaffold a new Python Project, including configuration enabling automations such as CI and

Continuous Delivery of Docker and Python 'artifacts', and Continuous Documentation of the Python Project.

cookiecutter\_python.backend.**get\_docs\_gen\_internal\_config**() → Dict[str, str]

Derive the internal configuration for Documentation Generation.

**Information included:**

- the folder where we each docs builder will generate the docs. We locate the template folder for each docs builder, which is the Single Source of Truth for the docs builder's output folder.

## cookiecutter\_python.handle package

### Subpackages

#### cookiecutter\_python.handle.dialogs package

### Subpackages

#### cookiecutter\_python.handle.dialogs.lib package

### Submodules

#### cookiecutter\_python.handle.dialogs.lib.project\_name module

**class** cookiecutter\_python.handle.dialogs.lib.project\_name.**ProjectNameDialog**

Bases: object

**dialog**(*cookie\_vars*) → Mapping[str, str]

## Module contents

```
class cookiecutter_python.handle.dialogs.lib.InteractiveDialog
    Bases: object
    subclasses = {'project-name': <class
'cookiecutter_python.handle.dialogs.lib.project_name.ProjectNameDialog'>}
```

## Submodules

### cookiecutter\_python.handle.dialogs.dialog module

```
class cookiecutter_python.handle.dialogs.dialog.Dialog
    Bases: object
    abstract dialog(*args, **kwargs)
class cookiecutter_python.handle.dialogs.dialog.DialogRegistry(*args)
    Bases: SubclassRegistry[Dialog]
class cookiecutter_python.handle.dialogs.dialog.InteractiveDialog
    Bases: object
    subclasses = {'project-name': <class
'cookiecutter_python.handle.dialogs.lib.project_name.ProjectNameDialog'>}
```

## Module contents

```
class cookiecutter_python.handle.dialogs.InteractiveDialog
    Bases: object
    subclasses = {'project-name': <class
'cookiecutter_python.handle.dialogs.lib.project_name.ProjectNameDialog'>}
```

## Submodules

### cookiecutter\_python.handle.interactive\_cli\_pipeline module

Handles sequence of Interactive User Dialogs, for Context Information.

```
class cookiecutter_python.handle.interactive_cli_pipeline.InteractiveDialogsPipeline
    Bases: object
    Handles sequence of Interactive User Dialogs, for Context Information.
    dialogs = ['project-name']
    process(request)
        Process sequence of Interactive User Dialogs, for Context Information.
```

### cookiecutter\_python.handle.node\_base module

```
class cookiecutter_python.handle.node_base.DialogNode(dialog)
    Bases: Node[List, Mapping[str, Any]]
    Handles a single Interactive User Dialog, for Context Information.
    process(request)
        Process a single Interactive User Dialog, for Context Information.
```



## cookiecutter\_python.handle.node\_factory module

**class** cookiecutter\_python.handle.node\_factory.**NodeFactory**

Bases: object

**static** **create**(*dialog\_name: str*)

## cookiecutter\_python.handle.node\_interface module

**class** cookiecutter\_python.handle.node\_interface.**Node**

Bases: ABC, Generic[T, TT]

**abstract** **process**(*request: T*) → TT | None

## Module contents

### cookiecutter\_python.hooks package

#### Submodules

#### cookiecutter\_python.hooks.post\_gen\_project module

Post Cookie Hook: Templated File with jinja2 syntax

Cookiecutter post generation hook script that handles operations after the template project is used to generate a target project.

cookiecutter\_python.hooks.post\_gen\_project.**CLI\_ONLY**(*x*)

cookiecutter\_python.hooks.post\_gen\_project.**PYTEST\_PLUGIN\_ONLY**(*x*)

**exception** cookiecutter\_python.hooks.post\_gen\_project.**PostFileRemovalError**

Bases: Exception

cookiecutter\_python.hooks.post\_gen\_project.**get\_context**() → OrderedDict

Get the Context, that was used by the Templating Engine at render time

cookiecutter\_python.hooks.post\_gen\_project.**get\_request**()

cookiecutter\_python.hooks.post\_gen\_project.**git\_commit**(*request*)

Commit the staged changes in the generated project.

cookiecutter\_python.hooks.post\_gen\_project.**initialize\_git\_repo**(*project\_dir: str*)

Initialize the Git repository in the generated project.

cookiecutter\_python.hooks.post\_gen\_project.**is\_git\_repo\_clean**(*project\_directory: str*) → bool

Check to confirm if the Git repository is clean and has no uncommitted changes. If its clean return True otherwise False.

cookiecutter\_python.hooks.post\_gen\_project.**iter\_files**(*request*)

cookiecutter\_python.hooks.post\_gen\_project.**main**()

Delete irrelevant to Project Type files and optionally do git commit.

cookiecutter\_python.hooks.post\_gen\_project.**post\_file\_removal**(*request*)

Preserve only files relevant to Project Type requested to Generate.

Delete files that are not relevant to the project type requested to generate.

For example, if the user requested a 'module' project type, then delete the files that are only relevant to a 'module+cli' project.

#### Parameters

**request** ([*type*]) – [description]

cookiecutter\_python.hooks.post\_gen\_project.**post\_hook**()

Delete irrelevant to Project Type files and optionally do git commit.

cookiecutter\_python.hooks.post\_gen\_project.**run\_process\_python36\_n\_below**(\*args, \*\*kwargs)

```
cookiecutter_python.hooks.post_gen_project.run_process_python37_n_above(*args, **kwargs)
cookiecutter_python.hooks.post_gen_project.subprocess_run(*args, **kwargs)
```

### cookiecutter\_python.hooks.pre\_gen\_project module

Pre Cookie Hook: Templated File with jinja2 syntax

**exception** `cookiecutter_python.hooks.pre_gen_project.InputSanitizationError`

Bases: `Exception`

```
cookiecutter_python.hooks.pre_gen_project.get_request()
```

```
cookiecutter_python.hooks.pre_gen_project.hook_main(request)
```

```
cookiecutter_python.hooks.pre_gen_project.input_sanitization(request)
```

```
cookiecutter_python.hooks.pre_gen_project.main()
```

## Module contents

### Submodules

#### cookiecutter\_python.cli module

Main *cookiecutter\_python* CLI.

```
cookiecutter_python.cli.version_msg()
```

Message about Python Generator version, location and Python version.

#### cookiecutter\_python.cli\_handlers module

```
cookiecutter_python.cli_handlers.handle_error(error)
```

#### cookiecutter\_python.exceptions module

```
cookiecutter_python.exceptions.error_2_str(error)
```

#### cookiecutter\_python.utils module

```
cookiecutter_python.utils.load(interface: Type[T], module: str | None = None) → List[Type[T]]
```

Dynamically import all class objects that implement the given interface.

The classes (class objects) are discovered and imported in the namespace, by searching within each module found inside the input ‘dire’ (path) directory.

Each class object is an attribute found in a module’s namespace. We classify an attribute as a (correct) “class to import”, if the following python boolean expression evaluates to True:

```
isclass(attribute) and issubclass(attribute, interface)
```

If ‘dire’ is not given then we consider the modules that are inside the same directory as the one where the module of the invoking code resides.

#### Parameters

- **interface** (*Type[T]*) – the type (ie class) that the imported classes should ‘inherit’ (subclass) from
- **module** (*str*) – module containing the modules to inspect. Defaults to the same module (directory) as the one where the module of the invoking code resides.

## Module contents

### Developer's Corner

Here we present the **Software Architecture** and offer **Guides** on how to leverage the **CI/CD** to do various Development Operations, in a **GitOps** way.

### CI/CD Pipeline

### CI/CD Pipeline

### Architecture

### Software Architecture

Here you can find the software architecture of the project.

### Module Dependencies

Here you can find the dependencies between the modules of the project.

The dependencies are Visualized as a Graph, where Nodes are the modules and the Edges are python `import` statements.

The dependencies are visualized, after running the following command:

```
tox -e pydeps
```

### First-party Dependencies

### All Dependencies - A

### All Dependencies - B

### All Dependencies - C

### GitOps Guides

*How to* use our System for **Automated Git Ops**.

## Streamline Documentation Updates

1. Branch off *main* Branch, and checkout your *topical branch (tb)*.
2. Create Docs-only changes and commit them to your *tb*.
3. Push git tag *quick-release*, to trigger the Docs Release Workflow, on the CI

A new PR, is expected to **open** from *tb* to a *dedicated docs* branch, and automatically **merge** if Docs Build passed on *rd* CI.

Then, a new PR, is expected to **open** from *dedicated docs* branch to *main*, with extra commits with Sem Ver Bump, and Changelog updates.

4. Wait for second PR to open, go to github web IU to review it, and merge it.

A new **tag** is expected to be created (on the new main/master commit), and a *PyPI* distribution will be uploaded, a new Docker Image on Dockerhub, and a new Github Release will be created.

## Workflows References

- `quick-docs.yaml` : Listens to *quick-release* git tag, and merges *tb* → *db*, after opening PR.

## Release Candidate / Test Deployment

From your branch, run

```
rc_tag=$(grep -E -o '^version\s*=\s*\".*\"' pyproject.toml | cut -d'"' -f2)
rc_tag="${rc_tag}-rc"

git tag "$git_tag" || (git tag -d "$git_tag" && git tag "$git_tag")
git push origin -d "$git_tag"; git push origin "$git_tag"
```

This will, trigger the CI/CD Pipeline and instruct it to do a **Test Deployment**.

Test Deployment is a full deployment of the package to the test environment.

And is the closest thing to a real (production) deployment.

The CI/CD Pipeline will:

1. make wheel builds (and unit test them) for the package using a Job Matrix factoring OS x Py Versions
2. Do as normal measuring of Code Coverage, Static Code Analysis, Docker Build
3. Publish Python Wheel Distribution in Test Environment, at test.pypi.org

## Docker Build

### Dockerfile - Build Process

## 1.5 Indices and tables

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- `modindex`
- `search`

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