



# pygitversionhelper

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User Manual

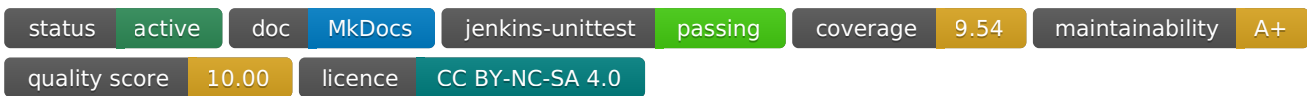
prune

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## 1. pyGitVersionHelper

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A tiny library to help versioning management of git python projects

Because a good developer is a lazy developer and version management in CI/CD can be very time consuming.

Checkout [Latest Documentation](#).

### 1.1 Features

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- list tags
- get last tag
- get last version
- get current version (bumped)
- convert / switch from SemVer to PEP440 (both ways)
- automatic version format detection (SemVer by default)
- get commit message history

### 1.2 Options

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- restrict to same branch
- both SemVer and PEP440 support
- custom output format
- configurable default bump type: major, minor, patch or dev
- configurable default bump strategy: post, pre-patch, pre-minor, pre-major
- ignore non-version tag
- force version format

### 1.3 Process

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- full CI/CD development: Gitea / Jenkins + few python libs (pylint, coverage, unittest, mkdocs)
- documentation generated mkdocs and self-hosted
- CI/CD on Linux, manually tested in Windows environment

## 2. Usage

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### 2.1 Installation

---

From pypi repository (prefered):

```
> python -m pip install pygitversionhelper
```

From downloaded .whl file:

```
> python -m pip install pygitversionhelper-<VERSION>-py3-none-any.whl
```

From master git repository:

```
> python -m pip install git+https://chacha.ddns.net/gitea/chacha/pygitversionhelper.git@master
```

### 2.2 Import in your project

---

Add this line on the top of your python script:

```
from pygitversionhelper import gitversionhelper
```

[optionnal] If you need to catch exception from this module:

```
from pygitversionhelper import gitversionhelperException
```

### 2.3 Basic API

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All the API commands are static so it is not needed to create instantiate any object.

They are all executed in the current active directory.

One easy way to change directory:

```
import os
os.chdir("<YOUR DIRECTORY>")
```

#### 2.3.1 sub-lib: repository

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To check if a repository is dirty:

```
if gitversionhelper.repository.isDirty():
    print("repository is dirty")
```

#### 2.3.2 sub-lib: tag

---

List all tags [default to taggerdate order]:

```
for tag in gitversionhelper.tag.getTags():
    print(f"found tag: {tag}")
```

List all tags [using git refname order]:

```
for tag in gitversionhelper.tag.getTags("v:refname"):
    print(f"found tag: {tag}")
```

Get the last tag:

```
print(f"most recent repository tag: {gitversionhelper.tag.getLastTag()}")
```

Get the last tag [only on same branch]:

```
print(f"most recent repository tag: {gitversionhelper.tag.getLastTag(same_branch=True)}")
```

Get the distance from HEAD to last tag:

```
print(f"number of commit since last tag: {gitversionhelper.tag.getDistanceFromTag()}")
```

Get the distance from HEAD to last tag [only on same branch]:

```
print(f"number of commit since last tag: {gitversionhelper.tag.getDistanceFromTag(same_branch=True)}")
```

### 2.3.3 sub-lib: version

Get the last found version in the repository [return MetaVersion object]:

```
print(f"most recent repository version: {gitversionhelper.version.getLastVersion()}")
```

Get the last found version in the repository [return formatted string]:

```
print(f"most recent repository version: {gitversionhelper.version.getLastVersion(formated_output=True)}")
```

Others kwargs available to this function:

- `version_std`: string to force a version standard for rendering ["PEP440" or "SemVer"]
- `same_branch`: boolean to force searching on same branch
- `ignore_unknown_tags`: boolean to allow unknown tag to be ignored

Get the current version of the repository, automatically bump it if the last commit is not tagged [returns MetaVersion object]:

```
print(f"current repository version: {gitversionhelper.version.getCurrentVersion()}")
```

Or with formatted output:

```
print(f"current repository version: {gitversionhelper.version.getCurrentVersion(formated_output=True)}")
```

Typical usage in CI/CD env:

```
bumped_version = gitversionhelper.version.getCurrentVersion(
    formated_output=True, \
    version_std="PEP440", \
    bump_type="dev", \
    bump_dev_strategy="post")
print(f"current repository version: {bumped_version}")
```

kwargs available to this function:

- All same args as `getLastVersion()`
- `bump_type`: if version need to be pump, allow to configure next release update type: **major**, **minor**, **patch**, **dev**
- `bump_dev_strategy`: if `bump_type` is dev, allow to choose dev update strategy: **post**, **pre-patch**, **pre-minor**, **pre-major**

A version object can also be manually formatted:

```
_version = gitversionhelper.tag.getCurrentVersion()
```

Then;

```
_version.doFormatVersion()
```

or;

```
gitversionhelper.version.doFormatVersion(_version)
```

kwargs available to this function:

- `output_format`: string to choose a rendering format ["Auto", "PEP440" or "SemVer"]

## 2.4 Limitations

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There is unfortunately some technical limitation :

- MultiThreading and async behavior is not tested / supported.
- Multiple tag on the same commit is not supported.
- Branch filter when searching for a version is only tested with -no-ff strategy

## 3. Reference

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### 3.1 Pygitversionhelper

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#### 3.1.1 Gitversionhelper

This project try to help doing handy operations with git when dealing with project versioning and tags on python project - at least for project using PEP440 or SemVer standards.

One requirement is to keep it compact and to not cover too much fancy features. This is the reason why it is one single file with nested classes.

This library is made for repository that uses tags as version. Support for non-version tags is optional and not well tested.

This module is the main project file, containing all the code.

Read the read me for more information. Check the unittest s for usage samples.

#### Note

Other Parameters are **\*\*kwargs**

ATTRIBUTE	DESCRIPTION
TKwargs	Kwargs type definition for type hints

#### Attributes

TKWARGS MODULE-ATTRIBUTE

```
TKwargs = TypedDict('TKwargs', {'version_std': Optional[str], 'same_branch': Optional[bool], 'formatted_output': Optional[bool], 'bump_type': Optional[str], 'bump_dev_strategy': Optional[str], 'merged_output': Optional[bool], 'ignore_unknown_tags': Optional[bool], 'output_format': Optional[str], 'ignore_merged': Optional[bool]}, total=False)
```

#### Classes

GITVERSIONHELPER

main gitversionhelper class

Classes

commit

class containing methods focusing on commits

Classes

commitException

Bases: gitversionhelperException

generic commit exception

commitNotFound

Bases: commitException

tag not found exception

Functions

`getFromTag` classmethod

```
getFromTag(tag: str) -> str
```

retrieve a commit from repository associated to a tag

PARAMETER	DESCRIPTION
tag	tag of the commit <b>TYPE:</b> str

RETURNS	DESCRIPTION
str	the commit Id

`getLast` classmethod

```
getLast(**kwargs: Unpack[TKwargs]) -> str
```

retrieve last commit from repository

PARAMETER	DESCRIPTION
kwargs/same_branch	force searching only in the same branch <b>TYPE:</b> bool
kwargs/ignore_merged	ignore merged commits <b>TYPE:</b> bool

RETURNS	DESCRIPTION
str	the commit Id

`getMessage` classmethod

```
getMessage(commit_hash: str) -> str
```

retrieve a commit message from repository

PARAMETER	DESCRIPTION
commit_hash	id of the commit <b>TYPE:</b> str

RETURNS	DESCRIPTION
str	the commit message

`getMessagesSinceTag` classmethod

```
getMessagesSinceTag(tag: str, **kwargs: Unpack[TKwargs]) -> str | List[str]
```

Retrieve a commits message history from repository. Start from Latest found commit until the given tag.

PARAMETER	DESCRIPTION
tag	tag of the commit where search will stop <b>TYPE:</b> str

PARAMETER	DESCRIPTION
kwargs/merged_output	Output one single merged string <b>TYPE:</b> bool
kwargs/same_branch	Force searching only in the same branch <b>TYPE:</b> bool
kwargs/ignore_merged	ignore merged commits <b>TYPE:</b> bool

RETURNS	DESCRIPTION
str   List[str]	the commit message

repository

class containing methods focusing on repository

Classes

notAGitRepository

Bases: repositoryException

not-a-git-repository repository exception

repositoryDirty

Bases: repositoryException

dirty-repository repository exception

repositoryException

Bases: gitversionhelperException

generic repository exeption

Functions

isDirty classmethod

```
isDirty() -> bool
```

check if the repository is in dirty state

RETURNS	DESCRIPTION
bool	True if it is dirty

tag

class containing methods focusing on tags

Attributes

`__validGitTagSort` class-attribute instance-attribute

```
_validGitTagSort = ['', 'v:refname', '-v:refname', 'taggerdate', 'committerdate', '-taggerdate', '-committerdate']
```

## Classes

moreThanOneTag

Bases: tagException

more-than-one-tag tag exception

tagException

Bases: gitversionhelperException

generic tag exception

tagNotFound

Bases: tagException

tag-not-found tag exception

## Functions

getDistanceFromTag classmethod

```
getDistanceFromTag(tag: Optional[str] = None, **kwargs: Unpack[TKwargs]) -> int
```

retrieve the distance between Latest commit and tag in the repository

PARAMETER	DESCRIPTION
tag	reference tag, if None the most recent one will be used
	<b>TYPE:</b> Optional[str] <b>DEFAULT:</b> None

PARAMETER	DESCRIPTION
kwargs/same_branch	force searching only in the same branch
	<b>TYPE:</b> bool

RETURNS	DESCRIPTION
int	the tag

getLastTag classmethod

```
getLastTag(**kwargs: Unpack[TKwargs]) -> str
```

retrieve the Latest tag from a repository

PARAMETER	DESCRIPTION
kwargs/same_branch	force searching only in the same branch
	<b>TYPE:</b> bool

RETURNS	DESCRIPTION
str	the tag

getTags classmethod

```
getTags(Sort: str = 'taggerdate', **kwargs: Unpack[TKwargs]) -> List[str]
```

retrieve all tags from a repository

PARAMETER	DESCRIPTION
Sort	sorting constraints (git format) <b>TYPE:</b> str <b>DEFAULT:</b> 'taggerdate'

PARAMETER	DESCRIPTION
kwargs/same_branch	force searching only in the same branch <b>TYPE:</b> bool

RETURNS	DESCRIPTION
List[str]	the tags list

unknownGITErrors

Bases: gitversionhelperException

unknown git error generic exception

unknownGITFatalError

Bases: unknownGITErrors

unknown fatal git error generic exception

version

class containing methods focusing on versions

Attributes

DefaultInputFormat class-attribute instance-attribute

```
DefaultInputFormat = 'Auto'
```

TVersionStds class-attribute instance-attribute

```
TVersionStds = TypedDict('TVersionStds', {'regex': str, 'regex_preversion_num': str, 'regex_build_num': str}, total=False)
```

VersionStds class-attribute instance-attribute

```
VersionStds: dict[str, TVersionStds] = {'SemVer': {'regex': '^(?P<major>[0-9]\\d*)\\.?(?P<minor>[0-9]\\d*)\\.?(?P<patch>[0-9]\\d*)(?:(?P<prerelease>(?:[0-9]\\d*|[a-zA-Z][0-9a-zA-Z-]*)(?:\\.(?:[0-9]\\d*|[a-zA-Z][0-9a-zA-Z-]*))*)?(?:\\.(?P<buildmetadata>[0-9a-zA-Z-]+(?:\\.[0-9a-zA-Z-]+)*))?$'}, 'regex_preversion_num': '(?:\\.)?(?P<num>(?:\\d+(?!\\w)+))', 'regex_build_num': '(?:\\.)?(?P<num>(?:\\d+(?!\\w)+))', 'PEP440': {'regex': VERSION_PATTERN}}
```

\_\_versionReseted class-attribute instance-attribute

```
__versionReseted = False
```

Classes

MetaVersion

```
MetaVersion(version_std: TVersionStd = 'Auto', major: int = 0, minor: int = 1, patch: int = 0, pre_count: int = 0, post_count: int = 0, raw: str = '0.1.0')
```

generic version object

Attributes

BumpDevStrategies class-attribute instance-attribute

```
BumpDevStrategies: set[TBumpDevStrategies] = {'post', 'pre-patch', 'pre-minor', 'pre-major'}
```

BumpTypes class-attribute instance-attribute

```
BumpTypes: set[TBumpTypes] = {'major', 'minor', 'patch', 'dev'}
```

**DefaultBumpDevStrategy** class-attribute instance-attribute

```
DefaultBumpDevStrategy: TBumpDevStrategies = 'post'
```

**DefaultBumpType** class-attribute instance-attribute

```
DefaultBumpType: TBumpTypes = 'patch'
```

**TBumpDevStrategies** class-attribute instance-attribute

```
TBumpDevStrategies = Literal['post', 'pre-patch', 'pre-minor', 'pre-major']
```

**TBumpTypes** class-attribute instance-attribute

```
TBumpTypes = Literal['major', 'minor', 'patch', 'dev']
```

**TVersionStd** class-attribute instance-attribute

```
TVersionStd = Literal['Auto', 'PEP440', 'SemVer']
```

**major** class-attribute instance-attribute

```
major: int = major
```

**minor** class-attribute instance-attribute

```
minor: int = minor
```

**patch** class-attribute instance-attribute

```
patch: int = patch
```

**post\_count** class-attribute instance-attribute

```
post_count: int = post_count
```

**pre\_count** class-attribute instance-attribute

```
pre_count: int = pre_count
```

**raw** class-attribute instance-attribute

```
raw: str = raw
```

**version\_std** class-attribute instance-attribute

```
version_std: TVersionStd = version_std
```

**Functions**

**bump**

```
bump(amount: int = 1, **kwargs: Unpack[TKwargs]) -> gitversionhelper.version.MetaVersion | str
```

bump the version to the next one

PARAMETER	DESCRIPTION
amount	number of revision to bump <b>TYPE:</b> int <b>DEFAULT:</b> 1

PARAMETER	DESCRIPTION
kwargs/bump_type	the given bump_type (can be None) <b>TYPE:</b> str
kwargs/bump_dev_strategy	the given bump_dev_strategy (can be None) <b>TYPE:</b> str

RETURNS	DESCRIPTION
MetaVersion   str	the bumped version

doFormatVersion

```
doFormatVersion(**kwargs: Unpack[TKwargs]) -> str
```

output a formatted version string

PARAMETER	DESCRIPTION
kwargs/output_format	output format to render ("Auto" or "PEP440" or "SemVer")

RETURNS	DESCRIPTION
str	formatted version string

PreAndPostVersionUnsupported

Bases: versionException

pre and post release can not be present at the same time

noValidVersion

Bases: versionException

no valid version found exception

versionException

Bases: gitversionhelperException

generic version exception

Functions

doFormatVersion classmethod

```
doFormatVersion(inputversion: MetaVersion, **kwargs: Unpack[TKwargs]) -> str
```

output a formatted version string from a MetaVersion object

PARAMETER	DESCRIPTION
kwargs/output_format	output format to render ("Auto" or "PEP440" or "SemVer") <b>TYPE:</b> str

PARAMETER	DESCRIPTION
inputversion	version to be rendered <b>TYPE:</b> MetaVersion

RETURNS	DESCRIPTION
str	formatted version string

getCurrentFormattedVersion classmethod

```
getCurrentFormattedVersion(**kwargs: Unpack[TKwargs]) -> str
```

same as getCurrentVersion() with formatted\_output kwarg forced activated.

PARAMETER	DESCRIPTION
kwargs/version_std	the given version_std (can be None) <b>TYPE:</b> str
kwargs/same_branch	force searching only in the same branch <b>TYPE:</b> bool
kwargs/bump_type	the given bump_type (can be None) <b>TYPE:</b> str
kwargs/bump_dev_strategy	the given bump_dev_strategy (can be None) <b>TYPE:</b> str
kwargs/output_format	output format to render ("Auto" or "PEP440" or "SemVer") <b>TYPE:</b> str

RETURNS	DESCRIPTION
str	the last version

getCurrentVersion classmethod

```
getCurrentVersion(**kwargs: Unpack[TKwargs]) -> gitversionhelper.version.MetaVersion | str
```

get the current version or bump depending of repository state.

PARAMETER	DESCRIPTION
kwargs/version_std	the given version_std (can be None) <b>TYPE:</b> str
kwargs/same_branch	force searching only in the same branch <b>TYPE:</b> bool
kwargs/formated_output	output a formated version string <b>TYPE:</b> bool
kwargs/bump_type	the given bump_type (can be None) <b>TYPE:</b> str
kwargs/bump_dev_strategy	the given bump_dev_strategy (can be None) <b>TYPE:</b> str
kwargs/output_format	output format to render ("Auto" or "PEP440" or "SemVer") <b>TYPE:</b> str

RETURNS	DESCRIPTION
MetaVersion   str	the last version

getLastVersion classmethod

```
getLastVersion(**kwargs: Unpack[TKwargs]) -> gitversionhelper.version.MetaVersion | str
```

get the last version from tags

PARAMETER	DESCRIPTION
kwargs/version_std	the given version_std (can be None) <b>TYPE:</b> str
kwargs/same_branch	force searching only in the same branch <b>TYPE:</b> bool
kwargs/formated_output	output a formated version string <b>TYPE:</b> bool
kwargs/ignore_unknown_tags	skip tags with not decoded versions (default to False) <b>TYPE:</b> bool

RETURNS	DESCRIPTION
MetaVersion   str	the last version in MetaVersion object or string

wrongArguments

Bases: gitversionhelperException

wrong argument generic exception

GITVERSIONHELPEREXCEPTION

Bases: Exception

general Module Exception