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*sphinxgen* is used to generate files from python packages and modules found in a specified set of directories. It is intended for generating sphinx autodoc stub files, but can be used for other purposes. Files are generated using jinja templates to provide maximum flexibility. You can use a set of built-in templates, or provide your own.
1.1 README

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1.1.1 tl;dr

What?

sphinxgen is used to generate files from python packages and modules found in a specified set of directories. It is intended for generating sphinx autocdoc stub files, but can be used for other purposes. Files are generated using jinja templates to provide maximum flexibility. You can use a set of built-in templates, or provide your own.

Install?

Install with pip:

$ pip install sphinxgen

Or, from source:

$ python setup.py install
Examples?

```bash
> sphinxgen -o sphinx/source src/python/my_package src/python/my_other_package
```

You can also use it as a `setuptools` command:

```bash
# setup.cfg

[sphinxgen]
package_dirs = src/python/my_package, src/python/my_other_package
output = sphinx/source

> setup.py sphinxgen
```

Dependencies?

`sphinxgen` is developed against `python` version 2.7.

Other dependencies are handled by `pip`.

For building the docs from source with `sphinx`, you will need the packages listed under `sphinx/requirements.pip`.

Docs?

- Read The Docs (.org)
- Python Hosted (.org)

### 1.1.2 Misc.

Contact Information

This project is currently hosted on bitbucket, at https://bitbucket.org/bmearns/sphinxgen. The primary author is Brian Mearns, whom you can contact through bitbucket at https://bitbucket.org/bmearns.

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1.2 Command Line Interface

1.2.1 sphinxgen

Generate sphinx stub files for all modules in a python package.

**package_dir**
The package directories to process.

-h, --help
show this help message and exit

-o <output>, --output <output>
The directory where output will be written. The default is the current directory.

--prefix <prefix>
A prefix to use for every generated file name. If --index is used, the prefix will not be used for the generated index file.

--overwrite
Overwrite any existing files.

-n, --dry-run
Do a dry run, do not actually generate any files, just print what would happen if we did.

--index <path>
The path to the index file to generate (without extension). The default is “index”, with appropriate prefix as specified by the –prefix option. If you explicitly use this option, the prefix will not be added.

--no-index
Do not generate an index file.

--no-modules
Do not generate separate files for modules, only packages.

--package-template <path>
The path to the jinja2 template file to use for generating package files. If not given, a built-in template will be used.

--module-template <path>
The path to the jinja2 template file to use for generating module files. See --package-template for more details. The default is “module.rst”.

--index-template <path>
The path to the jinja2 template file to use for generating the index file. See --package-template for more details. The default is “index.rst”.

--dump-templates <template_dir>
Dump the built-in template files to the specified directory. This is useful as a starting point for creating your own template files. The template files are named package.rst, module.rst, and index.rst.

--debug
Print detailed logs for debugging.

--version
show program’s version number and exit
1.3 Jinja Template Contexts

`sphinxgen` uses Jinja templates for generating the output files.

There are three types of files generated, each has its own template: `package` files, `module` files, and `index` files. The following sections describe the template contexts available for each type of file:

### 1.3.1 The Package Template

The `package` files are used for python packages, which are directories that contain an `__init__.py` file. Packages may contain `modules` as well as subpackages. The purpose of the package file is generally to document the top-level contents of the package (i.e., objects in the package's `__init__.py` module) and link to the documentation for the contained modules and sub packages. Alternatively, you can use the `--no-modules` option to suppress generation of individual module files, and document the modules directly in the package documentation file.

The context for the package template is a dictionary describing the package itself. The following variables are defined for use in the template:

- **name**
  The base name of the package, without any hierarchical information. This is simply the name of the package directory. For instance, the name of package `foo.bar.baz` is simply `'baz'`.

- **doc_name**
  The name of the document being generated. This is the basename of the file, without extension (`.rst`) or directory. This includes any prefix specified by the `--prefix` option.

- **package**
  The fully qualified name of the parent package, if there is any, or `None` if this appears to be a top-level package. For instance, for package `foo.bar.baz`, this value will be `foo.bar`, where as for package `foo`, it would be `None`.

  Note that we don’t actually search the file system for parent packages, packages that were specified as a `PACKAGE_DIR` on the command line are assumed to be top-level packages.

- **fullname**
  This is simply the fully qualified name of the package, which includes the package’s base `name` and it’s parent `package`. For `foo.bar.baz`, this would be `foo.bar.baz`.

- **path**
  The filesystem path for where this directory is defined. These are derived from the `PACKAGE_DIR` values specified on the command line, and are not resolved to absolute or normalized paths.

- **modules**
  A list of dictionaries describing each of the modules contained in this package. These are the same objects that will be used as the context for the `module template`; see that section for a description of these objects.

  Note that the order of the list is arbitrary, so you may want to sort it. Also note that this only contains immediate children of the package, no deeper descendants.

- **sub_packages**
  A list of dictionaries describing each of the sub-packages contained in this package. These are the same objects that provide the context for the package template to generate the files for those packages, so they have the same structure as this dictionary itself.

  Note that the order of the list is arbitrary, so you may want to sort it. Also note that this only contains immediate children of the package, no deeper descendants.

- **children**
  For convenience, this field is a concatenation of `sub_packages` and `modules`. 
1.3.2 The Module Template

The module files are used to document individual python modules, each of which corresponds to a single python source file.

Basic information about each module is placed in a dictionary which provides the context for this template. The same dictionary is also used to represent the module in the modules member of the package template context.

The following variables are defined for use in the template (note that these are all essentially duplicates of the fields in the package context):

name
The base name of the module, without any hierarchical information. This is simply the base name of the module's file. For instance, the name of module foo.bar.baz is simply 'baz'.

doc_name
The name of the document being generated. This is the basename of the file, without extension (.rst) or directory. This includes any prefix specified by the --prefix option.

package
The fully qualified name of the parent package. For instance, for module foo.bar.baz, this value with be 'foo.bar'.

fullname
This is simply the fully qualified name of the module, which includes the module's base name and it's parent package. For foo.bar.baz, this would be 'foo.bar.baz'.

path
The filesystem path to this module's source file. These are derived from the PACKAGE_DIR values specified on the command line, and are not resolved to absolute or normalized paths.

1.3.3 The Index Template

A single index file is generated by an invocation of sphinxgen. It's intended purpose is to create a toctree for all of the top-level packages specified on the command line. It can also be used to provide high-level information about the project if appropriate.

There is only a single variable defined for this template:

packages
A list of all the top-level packages processed by sphinxgen. Each element is a dictionary describing the package, as documented under the package section, above. These appear in the same order as they were specified on the command line.

1.4 sphinxgen python package

1.4.1 sphinxgen.version module

The version module provides version numbering for the entire package.
Versioning

This package uses a five part version number, plus an incremental release number. Either the version number or the release number can be used to identify a released version of the code.

Version Number

The version number is a four part dotted number, with an optional suffix on the end. Formally, a version number looks like:

\[
\text{version number} := \text{<Major>}, \text{<minor>}, (\text{.<patch>}, (\text{.<semantic>}))[\text{-x-}<\text{suffix}>
\]

With each new released version of the code, exactly one of the four numbers will increase, and any numbers to its right will reset to 0.

The easiest way to understand version numbers is from the perspective of someone who has written client code: i.e., code that makes use of a particular version of the library. From this perspective, the version number indicates whether or not your client code can be expected to work with different versions of this package.

Major Version

The <Major> component is the major version number, and it describes backward compatibility. Going to a newer version of the package, your code should continue to work as long as the major version doesn’t change.

The major version is changed only when something is removed from the public interface. For instance, if a function is no longer supported, the major version number would have to increase, because client code which relied on that function would no longer work.

The major version number can be accessed through the MAJOR member of this module.

Minor Version

The <minor> component is the minor version number, and it describes forward compatibility. Going to an older version of the package, your code will continue to work as long as the minor version doesn’t change. (As before, your code will also work for newer versions, as long as the major version number hasn’t changed).

The minor version number is changed only when something is added to the public interface, for instance a new function is added. Such a change maintains backward compatibility (as described above), but loses forward compatibility, because any client code written again this new version may not work with an older version.
The minor version number can be accessed through the MINOR member of this module.

**Patch Version**  The `<patch>` component is the patch number, and it describes changes that do not affect compatibility, either forwards or backwards. Your client code will continue to work with an older or newer version of the package as long as the major and minor version numbers are the same, regardless of the patch number.

Patch changes are code changes that do not effect the interface, for instance bug-fixes or performance enhancements. (although some bugs effect the interface and may therefore cause a higher version number to change).

The patch number can be accessed through the PATCH member of this module.

**Semantic Version**  The `<semantic>` component is the semantic version number, and it describes changes that do not affect how the code runs at all. This generally means that documentation or other auxiliary files included in the package have changed.

The semantic version number can be accessed through the SEMANTIC member of this module.

**Compatibility Summary**  The following table summarizes compatibility for a hypothetical client application built against released version M.n.p.s:

<table>
<thead>
<tr>
<th>Component</th>
<th>Compatible (all)</th>
<th>Incompatible (any)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major</td>
<td>M</td>
<td>!M = M</td>
</tr>
<tr>
<td>minor</td>
<td>&gt;= n</td>
<td>&lt; n</td>
</tr>
<tr>
<td>patch</td>
<td>any</td>
<td></td>
</tr>
<tr>
<td>semantic</td>
<td>any</td>
<td></td>
</tr>
</tbody>
</table>

**Version Suffix**  The `<suffix>` component is the version suffix, which is used only for non-released code. The suffix has one of the following forms:

```
version suffix ::=   << empty >>
    dev[-<rev>]
    blood-<branch>[-<rev>]
```

The first form is an empty suffix, and is reserved for released (tagged) code only.

The second form, "dev", is for non-released code in the trunk. This is the main line of development. Dev code may not be completely functional, and may even break the existing interface.

The third form, "blood-...", if for non-released code on a branch. The `<branch>` component of this form should be the name of the branch. This is considered bleeding-edge code and may be highly unstable.

The optional `<rev>` component on both the second and third forms can be used to specify a specific revision for committed development code. This must be an globally unambiguous identifier for the revision, for instance the change set id.

**Development code**  A non-empty version suffix indicates a development version of the code. In this case, the four version numbers remain unchanged until the code is released (in which case it is no longer development code, and the suffix is changed to empty).

In other words, anytime you see a non-empty version suffix, the version numbers shown refer to version from which the development code is derived. This is done because it is not generally known until release what the next released version number will be, since it is not known what types of changes will be included in it.
Specifying a version number  When specifying a version number, the major and minor version numbers should always be included. Additionally, all non-zero version numbers should be included, and any version number to the left of a non-zero version number should be included.

The suffix should always be included in the version number, with the indicated hyphen separating the semantic version number and the suffix. The only exception is for released code, in which case the suffix is empty and should be omitted, along with the joining hyphen.

The optional "x-" shown preceding the suffix in the version number is for compatibility with setup-tools so that versions compare correctly.

The above rules will unambiguously describe any released version of the package.

Interface Version  Because any change to the public interface requires a change to either the major or minor version numbers, the interface can be specified by a shortened two part version:

\[ \text{interface version} \quad ::= \quad <\text{Major}>,<\text{minor}> \]

Note that this only applies for released versions: development versions may modify the public interface prior to changing the version numbers.

Release Number

The release number is a simple integer which increments by one for every public release of the code. It does not convey any information about compatibility with other versions, but it does provide a simple alternative to identifying released versions.

The release number should be written with a leading "r" or "rel". For instance, the first release was "r1".

For release code, the release number may be used in place of the suffix in the version number. This is optional because the version number and the release number are synonymous. However, including them both in the version string is a useful way to provide both pieces of information.

This alternative form of the version number is:

\[ \text{alt. version number} \quad ::= \quad <\text{Major}>,<\text{minor}>[.<\text{patch}>[.<\text{semantic}>]]-r<\text{release}> \]

Module Contents

sphinxgen.version.RELEASE = 1
The current Release Number.

sphinxgen.version.MAJOR = 1
The current major version number.

sphinxgen.version.MINOR = 0
The current minor version number.

sphinxgen.version.PATCH = 0
The current patch version number.

sphinxgen.version.SEMANTIC = 0
The current semantic version number.
sphinxgen.version.

**SUFFIX** = 'dev'

The current Version Suffix.

Suffix options are **None**, "dev", and "blood-

- **None** means this is a released/tagged version.
- "dev" means this is a development version from the trunk/mainline.
- "blood-" means it’s on a branch. After the dash, fill in the name of the branch.

Dev and blood versions are still numbered for the previous version, because we may not know what the next version will be until we’re finished.

sphinxgen.version.

**COPYRIGHT** = 2014

The copyright year for the code.

sphinxgen.version.

**YEAR** = 2014

The year in which the code was released.

See also:

- **MONTH**
- **DAY**
- **datestr**

sphinxgen.version.

**MONTH** = 11

The month in which the code was released. This is 1 indexed, in [1, 12].

See also:

- **YEAR**
- **DAY**
- **datestr**
- **MONTH_NAMES**

sphinxgen.version.

**DAY** = 20

The day of the month on which the code was released.

See also:

- **YEAR**
- **MONTH**
- **datestr**

sphinxgen.version.

**MONTH_NAMES** = ['Jan', 'Feb', 'Mar', 'Apr', 'May', 'Jun', 'Jul', 'Aug', 'Sep', 'Oct', 'Nov', 'Dec']

A sequence giving the names of months, for use by **datestr**. Standard values are three-letter English-language abbreviations for the months of the Gregorian calendar.

sphinxgen.version.

**setuptools_string()**

Returns the version string used by **setuptools**. This takes one of two forms:

```
setuptools_string ::= <Major>.<minor>.<patch>.<semantic>-x-<suffix>
                   <Major>.<minor>.<patch>.<semantic>-r<release>
```

1.4. **sphinxgen python package**
The first form is used for development code (i.e., when `SUFFIX` is not `None`), and the second it used for released code.

This is similar to `string`, except for the additional `x-` for development versions, which is used to ensure that `setuptools` sorts versions correctly. (specifically, so that released versions are earlier than development versions which are derived from them).

`sphinxgen.version.tag_name()`

Returns the tag name for the most recent release.

`sphinxgen.version.short_string()`

Returns a string describing the Interface Version (i.e., `<Major>.<minor>`).

`sphinxgen.version.string()`

Like `setuptools_string`, except leaves out the `x-` for development versions.

`sphinxgen.version.datestr()`

Returns a simple string giving the date of release. Format of this string is unspecified, it intended to be human readable, not machine parsed. For machine processing, use the individual variables, as listed below.

See also:

- `YEAR`
- `MONTH`
- `DAY`
- `MONTH_NAMES`

A utility module for generating basic sphinx rest files for each module and package specified, recursively.

---

**Note:** Please forgive me for this crappy code and crappier documentation. I hacked this together while working on another project. It’s worth refactoring, if you’d like to do so, please feel free and send me a pull request: https://bitbucket.org/bmearns/sphinxgen

---

```python
class sphinxgen.TemplateLoader(args)
    Bases: jinja2.loaders.BaseLoader

    A jinja2 template loaded that loads templates needed by SphinxGen.

    get_source(environment, template)

    Returns the source for the named template.

class sphinxgen.SphinxGen(parsed_args, log=None)
    Bases: object

    The class that actually does the work.

    Initializing an instance runs the operation as well.

    Parameters parsed_args -- This should be the namespace object returned by the argument_parser after parsing the command line options.

    generate_output(template, context, opath)

    Writes output to the specified file. Given a jinja2 template object and the context for the template, it renders the template and writes the results to the specified path.

    If the path exists, it is not modified unless overwrite is set. If dry_run is set, no output is actually generated.
```
**build_package** *(package_name, package_dir, output_dir)*

Does all the work (recursively) for a particular package, which is a directory with an __init__.py file in it. Returns None if the specified directory (package_dir) is not actually a package (has not __init__.py file). Otherwise returns a dictionary representing the some basic information about the package, it's subpackages, and its submodules (python files in the package directory).

Generates the file for the package as well, plus all it’s submodules, and all its sub packages. This is done through `generate_output`, so if `dry_run` is set, nothing will actually be written out.

```python
sphinxgen.argument_parser = ArgumentParser(prog='sphinxgen', usage='%(prog)s [options] PACKAGE_DIR [PACKAGE_DIR ...]
%(prog)s ... version=None, formatter_class=<class 'argparse.RawDescriptionHelpFormatter'>, conflict_handler='error', add_help=True)
```

An `ArgumentParser` instance that can be used to parse the command line options for the command line program. It is populated when the module is constructed.

```python
sphinxgen.main(args=None)
```

The command line program. If this module is invoked as the main module, this function is called.

This simply parses the `args` with `argument_parser`, and passes them on to the `SphinxGen` factory method.

**Parameters**

- `args` – A sequence of command line arguments (like `sys.argv`) or None (in which case `sys.argv` is used).

```python
class sphinxgen.sphinxgen(dist, **kw)
Bases: setuptools.Command
description = 'Generate base sphinx ReST files for python packages and modules.'
user_options = [('output=', 'o', 'The directory where output will be written. The default is the current directory.'), ('p',
initialize_options()
finalize_options()
run()
```

### 1.5 LICENSE (GPLv3)

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Version 3, 29 June 2007

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CHAPTER 2

Indices and tables

- genindex
- modindex
- search
This documentation is for sphinxgen 1.0 (v1.0.0.0-x-dev).
CHAPTER 4

Project Resources

• sphinxgen project homepage (bitbucket)
• sphinxgen on pypi

• Online documentation:
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