CMake/Other docs with Sphinx

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SPHINX
Python Documentation Generator

Home Get it Docs Extend/Develop

Note
You are not using the most up to date version of the library. 1.5.2 is the newest version.

Welcome

Sphinx is a tool that makes it easy to create intelligent and beautiful documentation, written by Georg Brandl and licensed under the BSD license.

It was originally created for the Python documentation, and it has excellent facilities for the documentation of software projects in a range of languages. Of course, this site is also created from reStructuredText sources using Sphinx! The following features should be highlighted:

What users say:

"Cheers for a great tool that actually makes programmers **want** to write documentation!"

- **Output formats:** HTML (including Windows HTML Help), LaTeX (for printable PDF versions), ePub, Texinfo, manual pages, plain text
- **Extensive cross-references:** semantic markup and automatic links for functions, classes, citations, glossary terms and similar pieces of information
- **Hierarchical structure:** easy definition of a document tree, with automatic links to siblings, parents and children
- **Automatic indices:** general index as well as a language-specific module indices
- **Code handling:** automatic highlighting using the Pygments highlighter
- **Extensions:** automatic testing of code snippets, inclusion of docstrings from Python modules (API docs), and more
- **Contributed extensions:** more than 50 extensions contributed by users in a second repository; most of them installable from PyPI

Sphinx uses reStructuredText as its markup language, and many of its strengths come from the power and straightforwardness of reStructuredText and its parsing and translating suite, the Docutils.

Documentation

First steps with Sphinx
overview of basic tasks

Search page
search the documentation

A project

Download

Current version: **1.5.1**

Get Sphinx from the Python Package Index, or install it with:

```
pip install -U Sphinx
```

Questions? Suggestions?

Join the sphinx-users mailing list on Google Groups:

your@email Subscribe

or come to the `#sphinx-doc` channel on FreeNode.

You can also open an issue at the tracker.

Quick search

- Caveat: I have only used sphinx for one project!

Sphinx Overview

- Write documentation using reStructuredText, organised into “master” document and sub pages/sections/chapters in files or via markup

- Write/generate a “conf.py” to control things like styles.

- Run “`sphinx-build -b <builder> <opts>`”
  - “builder” is output format, e.g HTML

- Easy to integrate build with CMake, or use `sphinx-quickstart` to create UNIX or Nmake Makefiles (plus template master/conf files)

Experience: Documenting CMake

- Since version 3, CMake uses reST and Sphinx for general and API (cf. C++/Doxygen) documentation.

- Used this to document CMake modules in a project that proposed updates to FNAL's "cetbuildtools" CMake system:
  - https://github.com/drbenmorgan/cetbuildtools2

- NB: Doc structure ~~ripped off from~~ inspired by CMake's approach, so probably not optimal for Geant4 use cases

- Combination of direct .rst files and inline markup. Fine for CMake, general docs, less suitable for C++ (but see later)

drbenmorgan / cetbuildtools2

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Branch: develop ▾ cetbuildtools2 / documentation / | Create new file | Find file | History

drbenmorgan Implement find module for CppUnit ... Latest commit 9b4993b on 30 Sep 2016

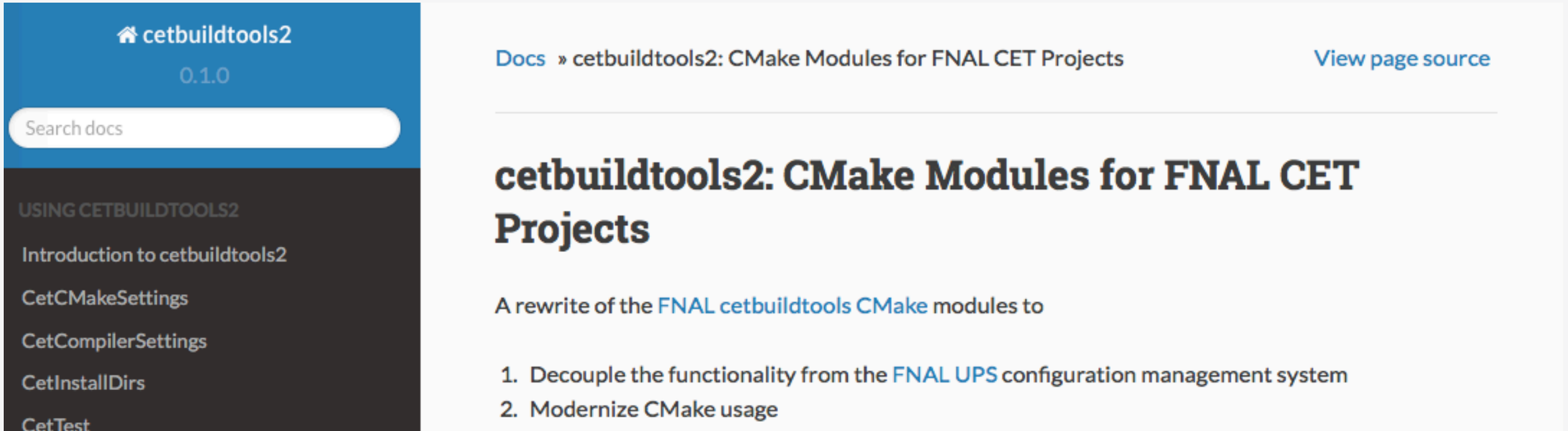
..		
developers	Use and documentation section marking charcters	a year ago
find-modules	Implement find module for CppUnit	4 months ago
users	Allow usage of basic_plugin without UPS	8 months ago
CMakeLists.txt	Add license file to output docs	9 months ago
cmake.py	Minimal Module documentation with Sphinx	a year ago
conf.py.in	Minimal Module documentation with Sphinx	a year ago
index.rst	Implement find module for CppUnit	4 months ago
inventory.py	Minimal Module documentation with Sphinx	a year ago

Subsections/pages

Sphinx Config

Master page

Basic file layout



Example HTML output with readthedocs styling

Thoughts/Findings with Sphinx/reST

- Generally very easy to setup and generate nice output.

- reST can be a little bit picky on formatting, especially spaces/indent, but errors usually obvious, and sphinx-build usually helpful. Slightly steeper learning curve than Markdown, but much nicer than XML!!

- Nice feature is cross-referencing with “intersphinx”
  - In cetbuildtools2, could cross-reference to CMake docs
  - That should be very useful for Geant4 Application/Physics guides
- Not tried full readthedocs, but basics of sphinx/reST look good

Additional Notes

- Sphinx/reST not a direct solution for documenting C++ code inline
- There is “Breathe” which provides a bridge from Doxygen XML output to Sphinx:
  - https://breathe.readthedocs.io/en/latest/
- Don’t necessarily have to use same system for both, though cross-referencing from, say App Dev’s guide to the API documentation of a class would be extremely useful!
- Hosting should be easy as HTML bundles appear fully relocatable (but not looked at Drupal integration yet)