

Technical Documentation Using Sphinx and reST

Summary

Sphinx is a documentation generator or a tool that translates a set of reStructuredText source files into various output formats, automatically producing cross-references, indices, etc. That is, if you have a directory containing a bunch of reStructuredText or Markdown documents, Sphinx can generate a series of HTML files, a PDF file (via LaTeX), man pages and much more.

ReStructuredText is a **lightweight markup language** that is used in static site generators like Sphinx.

It contains robust tools for **semantic markup**, **reusing content**, and **content filters** for different kinds of outputs. It's also **easily extendible** using custom directives that you can create yourself, allowing you to satisfy a wide variety of documentation needs.

Motivation

Goals

- **Multiple Output formats:** HTML, PDF, eBook
- Documents are written as plain text files (restructured 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
- **Extensions:** Automatic testing of code snippets, inclusion of docstrings from Python modules (API docs), and more
- **Auto-generates** document using uploaded source code.
- **Version control (Gitlab):** For collaborative work and to track of different document versions.
- Themes and layouts can be replaced using available online Sphinx themes.
- Writer concentrates on content, layout and output comes from Sphinx.
- Implement **Readthedocs**

- You can add Versions to your project for each tag & branch.
- You can alerts for when your doc build fails
- You can search across the full set of docs

Non-Goals

NA

Proposal

The most preferred mark-up language for writing technical documentation as per the Open Source community is reST. The proposal is to setup the documentation environment using Sphinx, ReadTheDoc, and use reST to write the documents.

Following are the requirement to setup the doc environment.

- **Python 3.6**
- **Sphinx**
- **Pandoc:** To convert files from one markup format into another MD > RST (one time activity).
- **Read the Docs:** It simplifies software documentation by automating building, versioning, and **hosting** of the docs.
 - Automatic Documentation Deployment
 - Custom Domains & White Labeling
 - Versioned Documentation
 - Downloadable Documentation
 - Full-Text Search
 - Open Source and Customer Focused

User Stories

The conclusion to implement Sphinx and reST was done after extensive research and comparison with MD and ASCiIDoc features. After comparison between all the best practices available to document an Open Source project, considering end to end development and publishing, this procedure was finalized. This document will help the new team or user who wants to start an Open Source project and need to know how to go about documentation aspect can turn to this document and find all the required details. All the pros and cons of the Sphinx and reST implementation is listed in this SIG document.

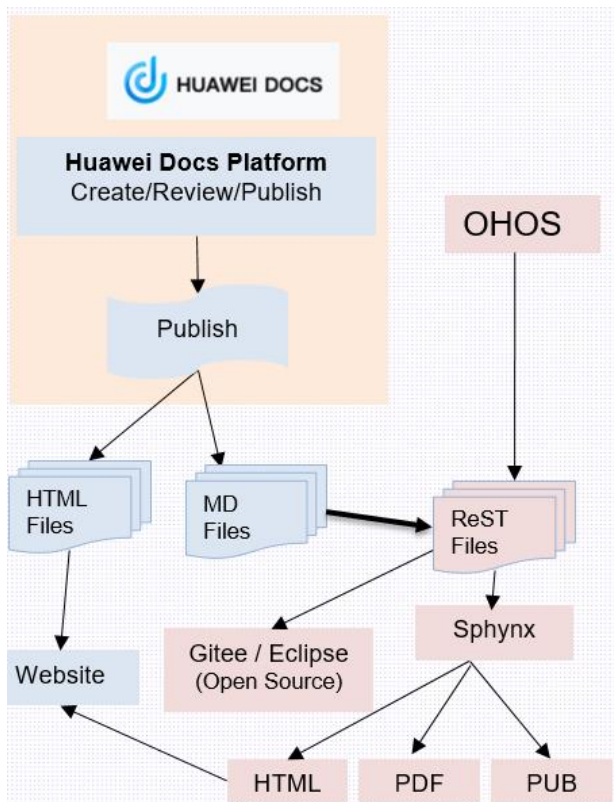
Notes

All Open Source tools can be customized as per our requirements.

Risks and Mitigations

NA

Design Details



Graduation Criteria

NA

Upgrade/Downgrade Strategy

NA

Implementation History

- Updated Harmony OS documentation using sphinx open source tool.
- Converted **.md** files to **.rst** files and manually updated TOC Tree for its topic reference.
- Uploaded source files in Gitlab for publishing the document.
- Published complete HTML document using Readthedocs.

Drawbacks

- MD files generated has HTML tags embedded which makes it impossible to edit and update.
- The MD files are only for reference and cannot be used directly for any processing (publishing in different format)

- MD files are suggested only for blogging/single html and not suggested for Software Documentation
- Toc Tree must be edited manually to update the cross reference which is time consuming process and manual efforts are required.

Alternatives to Sphinx

NA

Infrastructure Needed

NA

References

- <https://www.sphinx-doc.org/en/master/usage/quickstart.html>
- <https://docutils.sourceforge.io/docs/user/rst/quickref.html>
- <https://www.sphinx-doc.org/en/master/usage/installation.html>
- <https://www.sphinx-doc.org/en/master/usage/restructuredtext/index.html>