



# Example Documentation table of contents

*Release arno.2015.1.0 (71fa5c6)*

**OPNFV**

February 01, 2016



## CONTENTS

<b>1</b>	<b>How to setup the workflow of automatic documentation build for your project</b>	<b>3</b>
<b>2</b>	<b>Variant 1 - standard</b>	<b>7</b>
<b>3</b>	<b>Variant 2 - custom</b>	<b>9</b>
<b>4</b>	<b>NOTE:</b>	<b>13</b>
<b>5</b>	<b>Project Name: Documentation</b>	<b>15</b>
5.1	Project description: . . . . .	15
5.2	Scope: . . . . .	15
5.3	Dependencies: . . . . .	16
5.4	Committers and Contributors: . . . . .	16
5.5	Planned deliverables . . . . .	16
5.6	Proposed Release Schedule: . . . . .	16
<b>6</b>	<b>Creating/Configuring/Verifying Jenkins Jobs</b>	<b>19</b>
<b>7</b>	<b>Other options to generate documentation that we tested</b>	<b>23</b>
<b>8</b>	<b>Indices and tables</b>	<b>25</b>





Contents:



## HOW TO SETUP THE WORKFLOW OF AUTOMATIC DOCUMENTATION BUILD FOR YOUR PROJECT

**Setup you repository and then clone locally:**

```
ssh-add your-ssh.key

git clone ssh://<username>@gerrit.opnfv.org:29418/<project>

cd <project>
```

**Inside the repository create the following structure::**

```
gerrit.opnfv.org/<project>
    |-- docs/
    |   |-- some-project-description.rst
    |   |-- other-doc-1.rst
    |   |-- images/
    |       |-- *.png|*.jpg
    |-- release/
    |   |-- some-release-doc.rst
    |   |-- images/
    |       |-- *.png|*.jpg
    |-- requirements/
    |   |-- requirements.rst
    |   |-- images/
    |       |-- *.png|*.jpg
    |-- design_docs/
    |   |-- some-design-doc.rst
    |   |-- images/
    |       |-- *.png|*.jpg
    |-- some_project_file.py
    |-- some_shell_script.sh
    |-- INFO
    `-- README
```

More details about the default structure you can find [here](#) at paragraph “How and where to store the document content files in your repository”.

**In order to obtain a nice .html & .pdf at then end you must write you documentation using reSt markup**

quick guides:

- <http://docutils.sourceforge.net/docs/user/rst/quickref.html>
- <http://rest-sphinx-memo.readthedocs.org/en/latest/ReST.html>

- [http://www.math.uiuc.edu/~gfrancis/illimath/windows/aszgard\\_mini/movpy-2.0.0-py2.4.4/manuals/docutils/ref/rst/directives.html](http://www.math.uiuc.edu/~gfrancis/illimath/windows/aszgard_mini/movpy-2.0.0-py2.4.4/manuals/docutils/ref/rst/directives.html)

An nice online editor that will help you write reSt and see your changes live. After done editing you can copy the source document in the repository and follow the workflow.

### Clone the releng repository so you can created jobs for JJB:

```
git clone ssh://<username>@gerrit.opnfv.org:29418/releng
```

Enter the project settings:

```
cd releng/jjb/<project>/
```

### Create the verify & build scripts

The scripts are the same for most projects and if you need customizations copy them under your project in releng/jjb/<project>/:

```
cp releng/jjb/opnfvdocs/build-docu.sh releng/jjb/<your-project>/
```

and change according to you needs.

If standard will suffice for you skip this step and jump to **Edit <your-project>.yml, Variant 1 - standard**

### docu-build.sh:

```
#!/bin/bash
set -e
set -o pipefail

project="$(git remote -v | head -n1 | awk '{{print $2}}' | sed -e 's,.*,:(.*)\?\?, ' -e 's/\.\.git$//')
export PATH=$PATH:/usr/local/bin/

git_shal="$(git rev-parse HEAD)"
docu_build_date="$(date)"

files=()
while read -r -d ''; do
    files+=("$REPLY")
done < <(find * -type f -iname '*.rst' -print0)

for file in "${files[@]}"; do

    file_cut="${file%.*}"
    gs_cp_folder="${file_cut}"

    # sed part
    # add one '_' at the end of each trigger variable; ex: _shal + '_' & _date + '_' on both of ti
    # they were added here without the '_' suffix to avoid sed replacement
    sed -i "s/_shal/$git_shal/g" $file
    sed -i "s/_date/$docu_build_date/g" $file

    # rst2html part
    echo "rst2html $file"
    rst2html --halt=2 $file | gsutil cp -L gsoutput.txt - \
    gs://artifacts.opnfv.org/"$project"/"$gs_cp_folder".html
    gsutil setmeta -h "Content-Type:text/html" \
        -h "Cache-Control:private, max-age=0, no-transform" \
        gs://artifacts.opnfv.org/"$project"/"$gs_cp_folder".html
    cat gsoutput.txt
```



```
rm -f gsoutput.txt

echo "rst2pdf $file"
rst2pdf $file -o - | gsutil cp -L gsoutput.txt - \
gs://artifacts.opnfv.org/"$project"/"$gs_cp_folder".pdf
gsutil setmeta -h "Content-Type:application/pdf" \
                -h "Cache-Control:private, max-age=0, no-transform" \
                gs://artifacts.opnfv.org/"$project"/"$gs_cp_folder".pdf

cat gsoutput.txt
rm -f gsoutput.txt
```

**done**

```
images=()
while read -r -d ''; do
    images+=("$REPLY")
done <<(find * -type f \( -iname \*.jpg -o -iname \*.png \) -print0)
```

**for** img in "\${images[@]}"; **do**

```
    # uploading found images
    echo "uploading $img"
    cat "$img" | gsutil cp -L gsoutput.txt - \
gs://artifacts.opnfv.org/"$project"/"$img"
    gsutil setmeta -h "Content-Type:image/jpeg" \
                    -h "Cache-Control:private, max-age=0, no-transform" \
                    gs://artifacts.opnfv.org/"$project"/"$img"

    cat gsoutput.txt
    rm -f gsoutput.txt
```

**done**

*#the double {{ in file\_cut="\$\${file%.\*}" is to escape jjb's yaml*

**docu-verify.sh:**

```
#!/bin/bash
set -e
set -o pipefail

project="$(git remote -v | head -n1 | awk '{{print $2}}' | sed -e 's,.*:\(.*\)\/\?.*,' -e 's\/\.git$\/\?')'
export PATH=$PATH:/usr/local/bin/

git_shal="$(git rev-parse HEAD)"
docu_build_date="$(date)"

files=()
while read -r -d ''; do
    files+=("$REPLY")
done <<(find * -type f -iname '*.rst' -print0)

for file in "${files[@]}"; do

    file_cut="$${file%.*}"
    gs_cp_folder="$${file_cut}"

    # sed part
    # add one '_' at the end of each trigger variable; ex: _shal + '_' & _date + '_' on both of t
```

```
# they were added here without the '_' suffix to avoid sed replacement
sed -i "s/_shal/$git_shal/g" $file
sed -i "s/_date/$docu_build_date/g" $file

# rst2html part
echo "rst2html $file"
rst2html --exit-status=2 $file > $file_cut".html"

echo "rst2pdf $file"
rst2pdf $file -o $file_cut".pdf"
```

**done**

```
#the double {{ in file_cut="{{file%.*}}" is to escape jjb's yaml
```

**Edit <your-project>.yml:**

```
vi releng/jjb/<your-project>/<your-project>.yml
```

Make sure you have the job-templates set correctly as below.

**example::** vi releng/jjb/opnfvdocs/opnfvdocs.yml # make sure you are using one of the variants below and that !include-raw directive is present

## VARIANT 1 - STANDARD

By choosing **Variant 1** you will use the scripts from opnfvdocs project.

**<your-project>.yaml:**

```
- job-template:
  name: 'opnfvdocs-daily-{stream}'

  node: master
  ...
  builders:
    - shell:
      !include-raw ../opnfvdocs/docu-build.sh

- job-template:
  name: 'opnfvdocs-verify'

  node: master
  ...
  builders:
    - shell:
      !include-raw ../opnfvdocs/docu-verify.sh

- job-template:
  name: 'opnfvdocs-merge'

  node: master
  ...
  builders:
    - shell:
      !include-raw ../opnfvdocs/docu-build.sh
```



## VARIANT 2 - CUSTOM

<your-project>.yaml:

```
- job-template:
  name: 'opnfvdocs-daily-{stream}'

  node: master
  ...
  builders:
    - shell:
      !include-raw docu-build.sh

- job-template:
  name: 'opnfvdocs-verify'

  node: master
  ...
  builders:
    - shell:
      !include-raw docu-verify.sh

- job-template:
  name: 'opnfvdocs-merge'

  node: master
  ...
  builders:
    - shell:
      !include-raw docu-build.sh
```

“node: master” is important here as all documentations are built on Jenkins master node for now.

Please refer to the releng repository for the correct indentation as JJB is very picky with those and also for the rest of the code that is missing in the example code and replaced by “...”. Also you must have your documentation under docs/ in the repository or gsutil will fail to copy them; for customizations you might need to adapt build-docu.sh as we did for genesis project as different documents need to go into different places.

Stage files example:

```
git add docu-build.sh docu-verify.sh <project>.yaml
```

Commit change with --signoff:

```
git commit --signoff
```

Send code for review in Gerrit:

```
git review -v
```

Create the documentation using the recommended structure in your repository and submit to gerrit for review

### Jenkins will take over and produce artifacts in the form of .html & .pdf

Jenkins has the proper packages installed in order to produce the artifacts.

### Artifacts are stored on Google Storage (still to decide where, structure and how to present them)

<http://artifacts.opnfv.org/>

Here you can download the PDF version of this guide.

### Scrape content from html artifacts on wiki

This section describes how the html build artifacts can be made visible on Wiki using the scrape method. DokuWiki speeds up browsing through the wiki by caching parsed files<sup>1</sup>). If a currently cached version of a document exists, this cached copy is delivered instead of parsing the data again. On editing and previewing no cache is used.

To prevent a page from ever being cached, use the NOCACHE tag anywhere in the document. This is useful if the page contains dynamic content, e.g. PHP code that pulls in outside information, where the caching would prevent the most recent information from being displayed. Same applies if documentation artifacts are rebuilt the cached version is shown if the NOCACHE tag is not used.

<https://www.dokuwiki.org/caching>

In order to have your documentation on Wiki you need to create a wiki page and include an adaptation of the code below:

example:

```
~~NOCACHE~~
{{scrape>http://artifacts.opnfv.org/opnfvdocs/docs/enable_docu_gen.html}}
```

Please try to write documentation as accurate and clear as possible as once reviewed and merged it will be automatically built and displayed on Wiki and everyone would appreciate a good written/nice looking guide.

If you want to see on wiki what code is scraped from the built artifacts click “Show pagesource” in the right (it will appear if you hover over the magnifier icon); this way you know what is written straight on wiki and what is embedded with “scrape”. By knowing these details you will be able to prevent damages by manually updating wiki.

### Wiki update - how it works

Edit Wiki page <https://wiki.opnfv.org/<page>> and look for `{{scrape>http://artifacts.opnfv.org/<project>/<folder>/<docfile>.html}}` Click “Preview” and see if the change you submitted to Git is present; add a short description in “Edit summary” field, then click “Save” to update the page. This extra step is needed as Wiki does not auto update content for now.

### How to track documentation

You must include at the bottom of every document that you want to track the following:

```
**Documentation tracking**
Revision:
Build date:  _date_
```

### Image inclusion for artifacts

Create a folder called images in the same folder where your documentation resides and copy .jpg or .png files there, according to the guide here: <https://wiki.opnfv.org/documentation>

Here is an example of what you need to include in the .rst files to include an image:

```
.. image:: images/smiley.png
   :height: 200
   :width: 200
   :alt: Just a smiley face!
   :align: left
```

The image will be shown in both .html and .pdf resulting artifacts.





**NOTE:**

In order to generate html & pdf documentation the needed packages are rst2pdf & python-docutils if the Jenkins is CentOS/RHEL; many variants have been tested but this is the cleanest solution found. For html generation it also supports css styles if needed.

**Documentation tracking**

Revision:

Build date: `_date_`



## PROJECT NAME: DOCUMENTATION

- Proposed name for the project: ‘opnfv documentation’
- Proposed name for the repository: ‘opnfvdocs’
- Project Categories: Documentation

### 5.1 Project description:

- Produce documentation for OPNFV releases including but not limited to:
  - Release notes
  - Installation guide
  - User guide
    - \* Any relevant references and interface specifications for OPNFV projects or components.
  - Include any architecture diagrams or specifications, reference to OPNFV requirements list.
  - Provide guidelines and tooling for documentation handling across all OPNFV projects

### 5.2 Scope:

- Set up a structure, and a template, for document development with source control (same as source code). Leveraging upstream documentation structure and tools.
- Following as close as possible the same contribution process & tools as our source code
- Structure OPNFV documentation logically
- Develop initial set of release documents:
  - Release note
  - Install guide
  - User Guide
  - API reference (if there is content in release 1)
  - Interface specification (if there is content in release 1)
- Provide language options for documentation where applicable: In first release English only, Wiki (via HTML scraping from Gerrit), and PDF.
- Provide tooling and processes for OPNFV projects to implement and follow for consistency

## 5.3 Dependencies:

- All OPNFV projects participating in a release.
- Upstream project documentation to be referenced
- Where there are external fora or standard development organization dependencies, list informative and normative references & specifications.

## 5.4 Committers and Contributors:

- Name of and affiliation of the project leader :
  - Christopher Price: [christopher.price@ericsson.com](mailto:christopher.price@ericsson.com)
- Names and affiliations of the committers
  - Christopher Price: [christopher.price@ericsson.com](mailto:christopher.price@ericsson.com)
  - Wenjing Chu (Dell): [wenjing\\_chu@dell.com](mailto:wenjing_chu@dell.com)
  - Ashiq Khan (NTTdocomo): [khan@nttdocomo.com](mailto:khan@nttdocomo.com)
  - Fatih Degirmenci: [fatih.degirmenci@ericsson.com](mailto:fatih.degirmenci@ericsson.com)
  - Rodriguez, Iben: [Iben.Rodriguez@spirent.com](mailto:Iben.Rodriguez@spirent.com)
  - Malla Reddy Sama: [sama@docomolab-euro.com](mailto:sama@docomolab-euro.com)
- Any other contributors
  - Bryan Sullivan (AT&T)
  - Trevor Cooper: [trevor.cooper@intel.com](mailto:trevor.cooper@intel.com)

Description of roles in the documentation project:

- Committers (Editors): has overall responsibility of document structure, editing, style and toolchains
- opnfvdocs contributors: individual section will have contributors who are domain experts in those areas, other contributors may simply help out working on the documentation and tools as needed.
- other projects: Committers will be responsible for maintaining documentation artifacts in project repositories.

## 5.5 Planned deliverables

- Project release documentation for OPNFV
  - Including collation of all release relevant project documentations
- Establishment and maintenance of the OPNFV documentation processes and toolchains

## 5.6 Proposed Release Schedule:

- opnfvdocs will follow each OPNFV release and produce needed documentation
  - Release 1 will provide basic documentation including revision control.
  - By release 2 a multi-project toolchain will be in place with processes and version control

- Iterative improvements to the processes and toolchains are expected on a release by release basis.

**Documentation tracking**

Revision:

Build date: \_date\_



## CREATING/CONFIGURING/VERIFYING JENKINS JOBS

Clone the repo:

```
git clone ssh://YOU@gerrit.opnfv.org:29418/releng
```

make changes:

```
git commit -sv
git review
remote: Resolving deltas: 100% (3/3)
remote: Processing changes: new: 1, refs: 1, done
remote:
remote: New Changes:
remote:  https://gerrit.opnfv.org/gerrit/51
remote:
To ssh://agardner@gerrit.opnfv.org:29418/releng.git
 * [new branch]      HEAD -> refs/publish/master
```

Follow the link to gerrit <https://gerrit.opnfv.org/gerrit/51> in a few moments the verify job will have completed and you will see Verified +1 jenkins-ci in the gerrit ui.

If the changes pass the verify job <https://build.opnfv.org/ci/view/builder/job/builder-verify-jjb/> The patch can be submitted by a committer.

Job Types

- Verify Job
- Trigger: **recheck** or **reverify**
- Merge Job
- Trigger: **remerge**

The verify and merge jobs are retriggerable in Gerrit by simply leaving a comment with one of the keywords listed above. This is useful in case you need to re-run one of those jobs in case if build issues or something changed with the environment.

You can add below persons as reviewers to your patch in order to get it reviewed and submitted.

- Ulrich Kleber ([Ulrich.Kleber@huawei.com](mailto:Ulrich.Kleber@huawei.com))
- Fatih Degirmenci ([fatih.degirmenci@ericsson.com](mailto:fatih.degirmenci@ericsson.com))
- Xinyu Zhao(Jerry) ([zhaoxinyu@huawei.com](mailto:zhaoxinyu@huawei.com))

Or just email a request for submission to [opnfv-helpdesk@rt.linuxfoundation.org](mailto:opnfv-helpdesk@rt.linuxfoundation.org)

The Current merge and verify jobs for jenkins job builder as pulled from the repo:

```
- project:
  name: builder-jobs
  jobs:
    - 'builder-verify-jjb'
    - 'builder-merge'

  project: 'releng'

- job-template:
  name: builder-verify-jjb

  project-type: freestyle

  logrotate:
    daysToKeep: 30
    numToKeep: 10
    artifactDaysToKeep: -1
    artifactNumToKeep: -1

  parameters:
    - project-parameter:
      project: '{project}'
    - gerrit-parameter:
      branch: 'master'

  scm:
    - gerrit-trigger-scm:
      credentials-id: '{ssh-credentials}'
      refspec: '$GERRIT_REFSPEC'
      choosing-strategy: 'gerrit'

  wrappers:
    - ssh-agent-credentials:
      user: '{ssh-credentials}'

  triggers:
    - gerrit:
      trigger-on:
        - patchset-created-event:
          exclude-drafts: 'false'
          exclude-trivial-rebase: 'false'
          exclude-no-code-change: 'false'
        - draft-published-event
        - comment-added-contains-event:
          comment-contains-value: 'recheck'
        - comment-added-contains-event:
          comment-contains-value: 'reverify'

  projects:
    - project-compare-type: 'ANT'
      project-pattern: 'releng'
      branches:
        - branch-compare-type: 'ANT'
          branch-pattern: '**/master'
      file-paths:
        - compare-type: ANT
          pattern: jjb/**
        - compare-type: ANT
          pattern: jjb-templates/**
```



```
builders:
  - shell: |
      source /opt/virtualenv/jenkins-job-builder/bin/activate
      jenkins-jobs test /opt/jenkins-ci/builder/

- job-template:
  name: 'builder-merge'

  # builder-merge job to run JJB update
  #
  # This job's purpose is to update all the JJB

  project-type: freestyle

  logrotate:
    daysToKeep: 30
    numToKeep: 40
    artifactDaysToKeep: -1
    artifactNumToKeep: 5

  parameters:
    - project-parameter:
        project: '{project}'
    - gerrit-parameter:
        branch: 'master'

  scm:
    - gerrit-trigger-scm:
        credentials-id: '{ssh-credentials}'
        refspec: ''
        choosing-strategy: 'default'

  wrappers:
    - ssh-agent-credentials:
        user: '{ssh-credentials}'

  triggers:
    - gerrit:
        trigger-on:
          - change-merged-event
          - comment-added-contains-event:
              comment-contains-value: 'remerge'
        projects:
          - project-compare-type: 'ANT'
            project-pattern: 'releng'
            branches:
              - branch-compare-type: 'ANT'
                branch-pattern: '**/master'
            file-paths:
              - compare-type: ANT
                pattern: jjb/**

builders:
  - shell: |
      source /opt/virtualenv/jenkins-job-builder/bin/activate
      cd /opt/jenkins-ci/releng
      git pull
      jenkins-jobs update --delete-old jjb/
```

**Documentation tracking**

Revision:

Build date: \_date\_

## OTHER OPTIONS TO GENERATE DOCUMENTATION THAT WE TESTED

### Doxygen plugin -> HTML published plugin (html)/ LaTeX (pdf)

Description: This was the first discovered method

- html: using Doxygen plugin + HTML publisher It involves some customization at doxygen level + custom html header/footer
- pdf: it generates a .pdf using latex
- Input files: .md , .rst
- Output: .html & .pdf
- Pros:
  - standard tools: doxygen, html publisher, LaTeX suite
  - doxygen plugin available in Jenkins, you just need to install it; html publisher plugin available in Jenkins, you just need to install it
  - destination files are generated fast
  - standard reStructuredText or Markdown
- Cons:
  - takes some time to customize the output in matters of template, requires custom html header/footer
  - latex suite is quite substantial in amount of packages and consumed space (around 1.2 GB)
- Tested: roughly, functional tests only

### Maven & clouddocs-maven-plugin (actually used to generate openstack-manuals)

Description: It represents the standard tool to generate Openstack documentation manuals, uses maven, maven plugins, clouddocs-maven-plugins; location of finally generated files is the object of a small Bash script that will reside as Post-actions

- Input files: .xml
- Output: .html & .pdf
- Pros:
  - quite easy for initial setup
  - uses openstack documentation generation flows as for openstack-manuals (clouddocs-maven-plugin), maven installs all you need generate the documentation
- Cons:

- could be tricky to generate a custom layout, knowledge about Maven plugins required, .pom editing
- dependent of multiple maven plugins
- input files are .xml and xml editing knowledge is required
- Tested: roughly, functional tests only

### **Sphinx & LaTeX suite**

Description: The easiest to install, the cleanest in matter of folder & files structure, uses standard tools available in repositories; location of finally generated files is the object of a small Bash script that will reside as Post-actions

- Input files: .rst as default
- Output: .html & .pdf
- Pros:
  - standard tools: Python Sphinx, LaTeX suite
  - destination files are generated fast
  - standard reStructuredText as default; other inputs can be configured
  - Sphinx's installation is very clean in matters of folder structure; the cleanest from all tested variants
  - latex suite is also easy to install via yum/apt and available in general repos
  - everyone is migration from other tools to Spinx lately; it provides more control and better looking documentation
  - can be used also for source-code documentation, specially if you use Python
- Cons:
  - takes some time to customize the output in matters of template, requires custom html header/footer
  - latex suite is quite substantial in amount of packages and consumed space (around 1.2 GB)
- Tested: roughly, functional tests only

### **Documentation tracking**

Revision:

Build date: `_date_`

## INDICES AND TABLES

- search

Revision:

Build date: February 01, 2016