
yaml4rst Documentation

Release 0.1.6

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yaml4rst introduction

yaml4rst is a linting/checking/reformatting tool for YAML files documented with inline RST which goes hand in hand with [yaml2rst](#).

It has been written to help with keeping the `defaults/main.yml` file in Ansible roles of [DebOps](#) up-to-date and to assist with writing or including new roles. [DebOps](#) uses [Sphinx](#) to generate Ansible role documentation which also includes the default role variables. Refer to [debops/docs](#) for details.

1.1 Usage

The typical use case for this program is to improve the defaults YAML file of Ansible roles.

The recommended way to do this is to commit all your changes in the repository of the role, then run:

```
yaml4rst -e 'ansible_full_role_name=ROLE_OWNER.ROLE_NAME' defaults/main.yml -i
```

from the root of the role repository. Be sure to replace `ROLE_OWNER.ROLE_NAME` with the particular Ansible role name.

This will check and reformat the `defaults/main.yml` file in place.

Now you can check the reformatted file with a diffing/editing tool of your choosing and fix any warning which `yaml4rst` might have emitted.

Refer to `input_files` and `output_files` in the [tests](#) directory for automatically tested examples of input and output files.

Note that for continues usage `yaml4rst` is invoked from [debops-optimize](#) when `yaml4rst` is installed so you might want to try [debops-optimize](#).

1.2 Features

Checks for:

- Reasonable variable namespace
- Undocumented variables

Automatically fixes:

- RST sections which are not folds
- Undocumented variables (adds a `FIXME` for the user)

- Documented variables which are not folds
- YAML documents without a defined header
- Spacing between variables and sections

1.3 Known limitations

- Does not handle folds with implicit level and missing closing fold marker.
Status: Should be doable but currently not needed nor implemented. A `NotImplementedError` exception is thrown which causes the CLI program to terminate immediately with an error and reference to this section. As workaround just strip out the opening folds with your favorite editor as `yaml4rst` will add missing folds for sections and variables anyway. Refer to the [Makefile](#) (`prepare-real-data` target) where such a workaround is used for integration testing. Note that this is not perfect as can be seen on the `debops.appt_install` test case.

1.4 Repository

- [GitHub](#) (primary repo with issue tracker)

1.5 Documentation

- [Read the Docs](#)

1.6 Authors

- [Robin Schneider](#)

1.7 License

GNU Affero General Public License v3 (AGPL-3.0)

Only Python 3.3 or later is supported currently.

2.1 Latest release

You can install `yaml4rst` by invoking the following commands:

```
gpg --recv-keys 'C505 B5C9 3B0D B3D3 38A1 B600 5FE9 2C12 EE88 E1F0'
mkdir --parent /tmp/yaml4rst && cd /tmp/yaml4rst
wget -r -nd -l 1 https://pypi.python.org/pypi/yaml4rst --accept-regex '^https://
↪(test)?pypi\.python\.org/packages/.*\.whl.*'
current_release="$(find . -type f -name '*.whl' | sort | tail -n 1)"
gpg --verify "${current_release}.asc" "${current_release}" && pip3 install --upgrade "
↪${current_release}"
```

Refer to [Verifying PyPI and Conda Packages](#) for more details. Note that this might pull down dependencies in an unauthenticated way! You might want to install the dependencies yourself beforehand.

Or if you feel lazy and agree that [pip/issues/1035](#) should be fixed you can also install `yaml4rst` like this:

```
pip3 install yaml4rst
```

2.2 Development version

If you want to be more on the bleeding edge of `yaml4rst` development consider cloning the git repository and installing from it:

```
gpg --recv-keys 'EF96 BC32 AC57 CFC7 2DF0 1D8C 489A 4D5E C353 C98A'
git clone https://github.com/ypid/yaml4rst.git
cd yaml4rst && git verify-commit HEAD
echo 'Check if the HEAD commit has a good signature and only proceed in that case!' &&
↪ read -r fnord
echo 'Then chose one of the commands below to install yaml4rst and its dependencies:'
pip3 install --upgrade .
./setup.py develop --user
./setup.py install --user
./setup.py install
```


Linting/reformatting tool for YAML files documented with inline RST

```
usage: yamll4rst [-h] [-V] [-d] [-v] [-q] [-n]
                [-o OUTPUT_FILE [OUTPUT_FILE ...]] [-i] [-p PRESET]
                [-e CONFIG_KV]
                input_file [input_file ...]
```

3.1 Positional Arguments

input_file One or more file paths to be processed. '-' will read from STDIN.

3.2 Named Arguments

-V, --version show program's version number and exit

-d, --debug Write debugging and higher to STDOUT/STDERR.

-v, --verbose Write information and higher to STDOUT/STDERR.

-q, --quiet, --silent Only write errors and higher to STDOUT/STDERR.

-n, --no-warn-summary If multiple warnings occur in quiet mode, a summary error message is emitted. This switch suppresses it.
Default: True

-o, --output-file One or more file paths where the output should be written to. Defaults to '-' which will write the output from a single input file to STDOUT. If multiple input files where given, and -in-place is not used then the number of output files must match the number of input files.
Default: ['-']

-i, --in-place Edit the input file(s) in place.
Default: False

-p, --preset Which preset to use. Default: "debops/ansible".
Default: "debops/ansible"

-e, --config-kv Additional configuration, refer to the docs of yamll4rst for details.

`ansible_full_role_name`

Ansible role name. Example: `debops.apt`.

No default.

`closing_fold_format_spec`

Format string in `str.format` syntax used defining how closing folds should look like.

Defaults to:

```
{:>72}
```

`wanted_empty_lines_between_items`

Number of empty lines wanted between sections and/or variables. Note that the closing folds are by default space indented and also count as “empty lines” for that matter.

Defaults to:

```
2
```

`add_string_for_missing_comment`

The string to add when a undocumented variable/section was found.

Defaults to:

```
FIXME(yaml4rst): Describe what this variable is doing.
```

`top_level_section_suffix`

The string to add to the top level section heading. It was once a standard in DebOps to surround the whole `defaults/main.yml` file in a fold by setting this variable to ”`[[[`“.

Defaults to:

`header_include_rst_file`

The string specify a RST file path which should be included using the `include` RST directive in the header. It was once a standard in DebOps to include `includes/all.rst` in the header.

Defaults to:

Design principles

- Idempotent.
The program can be run against its output and should not make any changes to it. This property is checked by integration testing.
This allows users to integrate the program into their workflow and let **yaml4rst** do the repetitive tasks.
- Keep it simple.
The Python implementation is thought to be close to the way a human would solve the problem. It basically just parses each line of input into fold sections and checks if something needs to be changed. At the end, the sections are formatted back to lines and written to the output.
- Committed to excellence.
This program is reasonably small and its scope can be clearly defined so that it is possible even for one person to try to follow most of the best practices in Python programming which includes:
 - Extensive unit and integration testing
 - 100 % unit test [code coverage](#) (including [branch coverage](#))
 - Python version test matrix
 - Python linting tools like **pylint**
 - Documentation build testing
 - No redundancyFurthermore, most of the best practices listed above are automatically checked (where possible) on each commit and before PRs get accepted.
- Why not do it manually? Hoped to be helpful.
“How long can you work on making a routine task more efficient before you’re spending more time than you save?” (Ref: [xkcd 1205](#))
“I spend a lot of time on this task. I should write a program automating it!” (Ref: [xkcd 1319](#))
Based on the analysis of [git-hours](#) it took ypid 118 hours for the initial public commit. This equals 14.75 days (assuming 8 hours a day). The time for ongoing maintenance of the program is not included and can be estimated based on the public commits.
From that it is clear that for ypid, it took much longer to automate the task then it would have been to do it manually. But that is only part of the story because ypid is not the only person doing this kind of maintenance. So it is believed that this effort will still pay off in saving time for everyone doing this and lead to more productivity and higher quality. (Ref: [Collective](#))
- No formal parsing/lexing.
Existing parsers for YAML were found to be unsuited for the use in a static analyser/reformatter like this program.
Also, ypid is more familiar with this hacky approach than he would like to confess (ref: [opening_hours.js](#)).
- Don’t reimplement error checking from Ansible or RST parsers.

The input is not extensively checked. Use Ansible and RST before and/or after the reformatting through this program.

6.1 Submodules

6.2 `yaml4rst.cli` module

Command line interface of `yaml4rst`
`yaml4rst.cli.main()`

6.3 `yaml4rst.reformatter` module

Reformatting class of `yaml4rst`

exception `yaml4rst.reformatter.YamlRstReformatterError`

Bases: `exceptions.Exception`

Exception which is thrown by `YamlRstReformatter` when a unrecoverable error occurred.

class `yaml4rst.reformatter.YamlRstReformatter` (*preset='debops/ansible',* *template_path='/home/docs/checkouts/readthedocs.org/user_builds/yaml4rst/tem-*
plate_path='/home/docs/checkouts/readthedocs.org/user_builds/yaml4rst/tem-
plate_path='/home/docs/checkouts/readthedocs.org/user_builds/yaml4rst/tem-
config=None)

Bases: `object`

YAML+RST linting/reformatting class with the following features:

Checks for:

- Reasonable variable namespace
- Undocumented variables

Automatically fixes:

- RST sections which are not folds
- Undocumented variables (adds a `FIXME` for the user)
- Documented variables which are not folds
- YAML documents without a defined header
- Spacing between variables and sections

get_content ()

Return one string containing all lines.

is_input_and_output_different ()

read_file (*input_file*)

Read the given input file path and save its content for later processing.

reformat ()

Process (check/lint/reformat) the instance lines.
write_file (*output_file*, *only_if_changed=False*)
Write the instance lines to the given output file path and save its content for later processing.

6.4 yaml4rst.defaults module

Default configuration of yaml4rst

6.5 yaml4rst.helpers module

Helper functions of yaml4rst

```
yaml4rst.helpers.get_first_match(pattern, strings, ind_offset=None, limit_pattern=None,  
                                 break_pattern=None, match=True)  
yaml4rst.helpers.get_last_index(input_list, search_elems, fallback=None)  
yaml4rst.helpers.get_last_match(pattern, strings, ind_offset=None, limit_pattern=None,  
                                 match=True)  
yaml4rst.helpers.insert_list(base_list, ind, add_list)  
yaml4rst.helpers.list_index(input_list, elem, fallback=None)  
yaml4rst.helpers.strip_list(input_list)
```

6.6 Module contents

Linting/reformatting Python package for YAML files documented with inline RST

CHAPTER 7

Contributing and issue reporting

You can contribute and report issues in the usual way as [documented by GitHub](#).

If you found a security vulnerability that might put users at risk please send your report/patch to ypid@riseup.net.

Please consider using OpenPGP to encrypt your email.

CHAPTER 8

Copyright

```
# -*- coding: utf-8 -*-  
  
"""  
Meta information about yam14rst  
"""  
  
# https://stackoverflow.com/a/16084844  
__version__ = '0.1.6'  
  
__license__ = 'AGPL-3.0'  
__author__ = 'Robin Schneider <ypid@riseup.net>'  
__copyright__ = 'Copyright (C) 2016-2017 Robin Schneider <ypid@riseup.net>'  
  
__all__ = ['__version__', '__license__', '__author__', '__copyright__']  
  
# yam14rst is free software: you can redistribute it and/or modify  
# it under the terms of the GNU Affero General Public License as  
# published by the Free Software Foundation, version 3 of the  
# License.  
#  
# yam14rst is distributed in the hope that it will be useful,  
# but WITHOUT ANY WARRANTY; without even the implied warranty of  
# MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the  
# GNU Affero General Public License for more details.  
#  
# You should have received a copy of the GNU Affero General Public License  
# along with this program. If not, see <https://www.gnu.org/licenses/>.
```


This project adheres to [Semantic Versioning](#) and [human-readable changelog](#).

9.1 yaml4rst master - unreleased

9.2 yaml4rst v0.1.6 - 2017-04-29

9.2.1 Added

- Only write output file in `--in-place` mode when the input and generated output actually differ to save write cycles :) [ypid]

9.2.2 Fixed

- Fix YAML block detection and make it more robust. Previously, when the indentation of YAML block content changed from one line to the next, it might not be recognized as YAML block leading to wrong YAML comment inclusion which became part of the YAML block string. [ypid]

9.3 yaml4rst v0.1.5 - 2017-03-16

9.3.1 Fixed

- Fix RST section level detection for folded sections. [ypid]
- End fold started by an unfolded RST section when a new RST section with the same section level begins instead of including the following RST section in the fold. [ypid]

9.4 yaml4rst v0.1.4 - 2017-02-21

9.4.1 Security

- The default `yaml.load` method from PyYAML which is used to validate the input YAML file is unsafe. As a result `yaml4rst` would have executed arbitrary code given in the YAML input file. Refer to the issue [Make load safe_load](#). This has been fixed by switching to `yaml.safe_load`. [ypid]

9.5 yaml4rst v0.1.3 - 2017-02-14

9.5.1 Changed

- Make the FIXME note which yaml4rst adds for missing variable comments more precise. [ypid]

9.5.2 Fixed

- Fix YAML block detection which lead to wrong indentation of closing folds. [ypid]

9.6 yaml4rst v0.1.2 - 2016-11-18

9.6.1 Fixed

- Python packaging which previously included and installed the unit tests as separate “tests” Python package. Now the built distribution release (Wheel) only contains the actual Python package “yaml4rst” without the unit tests. Checkout the source distribution or the git repository for hacking on the project. Thanks very much to [ganto](#) for reporting and providing a patch! [ypid]

9.7 yaml4rst v0.1.1 - 2016-11-05

9.7.1 Fixed

- Fix legacy reST section detection when heading is directly follows by a comment. [ypid]
- Fix YAML block detection which lead to wrong indentation of closing folds. [ypid]

9.8 yaml4rst v0.1.0 - 2016-10-28

9.8.1 Added

- Initial coding and design. [ypid]

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