



Tutorial: writing/contributing easyconfigs

4th EasyBuild User Meeting

January 30th 2019 - Louvain-la-Neuve (Belgium)

https://users.ugent.be/~kehoste/EasyBuild_20190130_tutorial-easyconfigs.pdf

kenneth.hoste@ugent.be

easybuild@lists.ugent.be

<https://easybuilders.github.io/easybuild>

<https://easybuild.readthedocs.io>



**GHENT
UNIVERSITY**

<https://www.ugent.be/hpc>



Vlaanderen
is computing

<https://www.vscentrum.be>

Contributing to EasyBuild



<http://easybuild.readthedocs.io/en/latest/Contributing.html>

EasyBuild has improved significantly thanks to the community.

You too can contribute back, by:

- sending feedback
- reporting bugs
- joining the discussion (mailing lists, IRC/Slack, EasyBuild conf calls)
- sharing suggestions/ideas for enhancements & additional features
- contributing easyconfigs, enhancing easyblocks, adding support for new software...
- extending & enhancing documentation

Adding support for additional software



- for each software installation, an **easyconfig file** is required
 - defines easyconfig parameters that specify to EasyBuild what to install, and how
 - existing easyconfig files can serve as examples
 - for version or toolchain updates, a tweaked easyconfig can be *generated* via `eb --try-*`
 - see https://easybuild.readthedocs.io/en/latest/Writing_easyconfig_files.html
- for 'standard' installation procedures, a **generic easyblock** can be used
 - installation can be controlled where needed via easyconfig parameters
- for custom installation procedures, a **software-specific easyblock** is required
 - see https://easybuild.readthedocs.io/en/latest/Implementing_easyblocks.html

Writing easyconfig files



https://easybuild.readthedocs.io/en/latest/Writing_easyconfig_files.html

- set of values for easyconfig parameters
(strictly speaking order doesn't matter, but we maintain a preferred order & style)
- required:
`name, version, toolchain, homepage, description`
- commonly used:
`easyblock, versionsuffix, source_urls, sources,`
`(build)dependencies, (pre)configopts, (pre)buildopts,`
`(pre)installopts, exts_list, sanity_check_paths, moduleclass`

Common generic easyblocks



http://easybuild.readthedocs.io/en/latest/version-specific/generic_easyblocks.html

- **ConfigureMake**
standard './configure' - 'make' - 'make install' installation procedure
- **CMakeMake**
same as ConfigureMake, but using 'cmake' for configuring
- **PythonPackage**
installing an individual Python package ('python setup.py install', 'pip install', ...)
- **PythonBundle**
installing a bundle of Python packages
- **MakeCp**
no (standard) configuration step, build with 'make', install by copying binaries/libraries
- **Tarball**: just unpack sources and copy everything to installation directory
- **Binary**: run binary installer (specified via 'install_cmd' easyconfig parameter)

Easyconfig files vs easyblocks



<http://easybuild.readthedocs.io/en/latest/Implementing-easyblocks.html>

- thin line between using custom easyblock and 'fat' easyconfig with generic easyblock
- custom easyblocks are "do once and forget", **central solution to build peculiarities**
- reasons to consider implementing a software-specific easyblock include:
 - 'critical' values for easyconfig parameters required to make installation succeed
 - toolchain-specific aspects of the build and installation procedure (e.g., configure options)
 - interactive commands that need to be run
 - custom (configure) options for dependencies
 - having to create or adjust specific (configuration) files
 - 'hackish' usage of a generic easyblock

Some useful EasyBuild features



- `eb --inject-checksums *.eb`
 - inject (SHA256) checksums for all sources/patches (incl. extensions)
 - requirement to contribute back easyconfigs
- `eb --check-contrib *.eb`
 - check whether easyconfigs is ready to contribute back
 - checks for (some) code style issues (equivalent to `--check-style`)
 - does not (yet) take into account order of easyconfig parameters
 - also verifies whether SHA256 checksums are present for all sources/patches

How to contribute easyconfig files

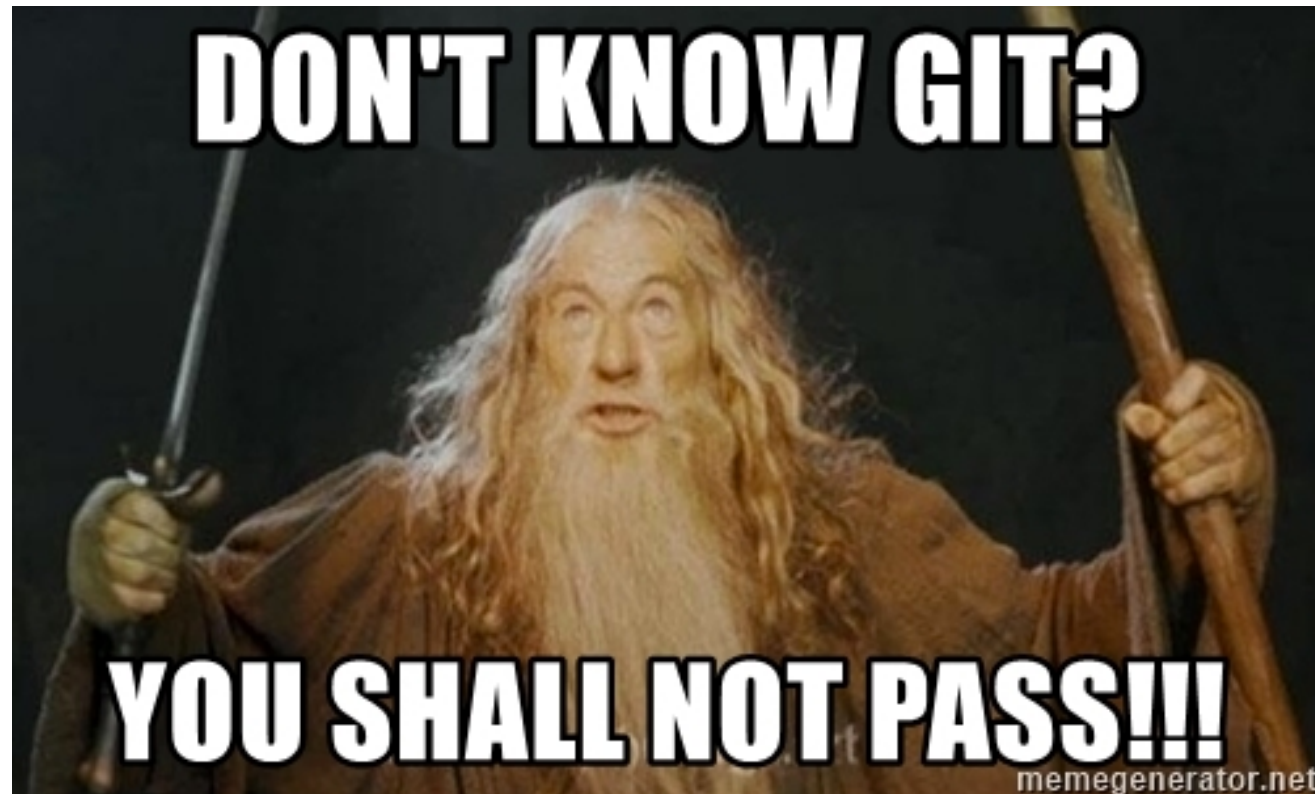


<https://easybuild.readthedocs.io/en/latest/Contributing.html>

- open pull request (PR) to develop branch of easybuild-easyconfigs repository
- keep PRs limited in scope (rule of thumb: max. 10 easyconfigs touched per PR)
- if possible, submit test report to show the easyconfig(s) works for you
- take into account failing unit tests (if any) and comments by reviewer (if any)
- be patient...
- enjoy eternal glory once your pull request has been merged!

git can be a major hurdle for contributors

- Potential contributors may not be familiar (yet) with git...
- Do they *have* to learn git first before they can contribute?





So you want to contribute to easybuild ...

To contribute one or more easyconfig files,
you first need to prepare:

I shall ~~say~~ do zis only once!



1) create a  account via 

2)  Fork <https://github.com/easybuilders/easybuild-easyconfigs>

```
3) git clone git@github.com:YOU/easybuild-easyconfigs.git
```

(change this bit!)


Branch, stage, commit, push

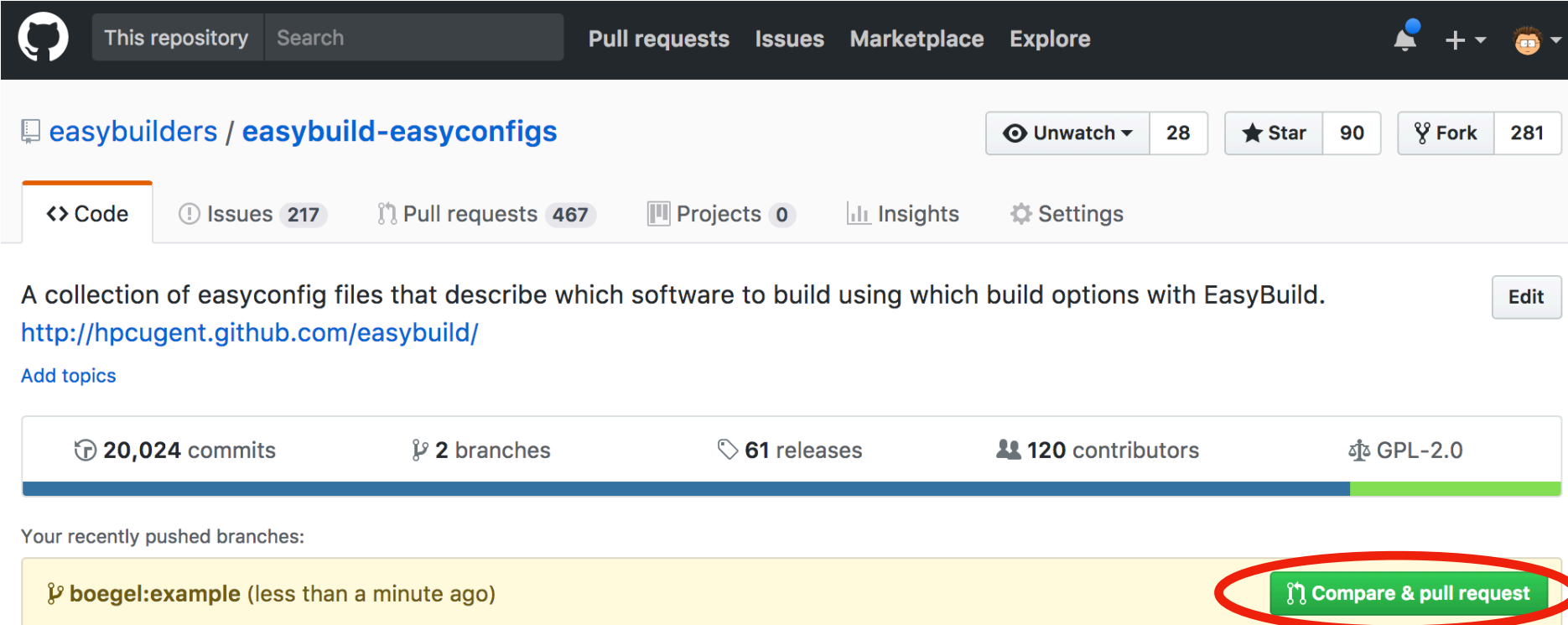
Once you have cloned the easyconfigs repository, you can really get to work...

```
# create and check out a new branch  
$ git checkout -b funnybranchname  
  
# stage the new/changed easyconfig file(s)  
$ git add easybuild/easyconfigs/s/scikit-learn/*.eb  
  
# commit the changes with a sensible commit message  
$ git commit -m "update scikit-learn to 0.19.1"  
  
# push your branch to your fork on GitHub  
$ git push origin funnybranchname
```

(this may be different in your setup, see `git remote -v`)

Clickety, clickety, click.

Next, log on to  and open a pull request...



The screenshot shows the GitHub interface for the repository 'easybuilders / easybuild-easyconfigs'. At the top, there are navigation tabs for 'This repository', 'Search', 'Pull requests', 'Issues', 'Marketplace', and 'Explore'. Below this, the repository name is displayed along with statistics: 28 Unwatch, 90 Star, and 281 Fork. A secondary navigation bar includes 'Code', 'Issues 217', 'Pull requests 467', 'Projects 0', 'Insights', and 'Settings'. The main content area features a description: 'A collection of easyconfig files that describe which software to build using which build options with EasyBuild.' followed by the URL 'http://hpcugent.github.com/easybuild/'. Below the description, repository statistics are shown: 20,024 commits, 2 branches, 61 releases, 120 contributors, and GPL-2.0 license. A section titled 'Your recently pushed branches:' contains one entry: 'boegel:example (less than a minute ago)'. A red circle highlights a green button labeled 'Compare & pull request' next to this branch entry, with a blue arrow pointing to it from below.

You can use this useful button , if you're quick enough!



Almost there...

Open a pull request

Create a new pull request by comparing changes across two branches. If you need to, you can also [compare across forks](#).

base fork: easybuilders/easybuild-eas... base: **develop** head fork: boegel/easybuild-easyconfigs compare: example

✓ Able to merge. These branches can be automatically merged.

{data}[intel/2017b] scikit-learn 0.19.1 (Python 3.6.3)

Write Preview AA B i “ <> @

This is my first contribution to EasyBuild, please be gentle...

Attach files by dragging & dropping, selecting them, or pasting from the clipboard.

Allow edits from maintainers. [Learn more](#)

Create pull request


Not too quick...

- target **develop**
- tweak PR title
- (brief description)
- double-check changed files

If you're sure, click the shiny green button...

1 commit 1 file changed 0 commit comments 1 contributor

Are we done yet?

- once your pull request is open, your changes will be:
 - quickly tested by  Travis CI (automagically)
 - reviewed by a maintainer
 - thoroughly tested by at least one person
- additional changes may be requested...
- ... which means you may have to go back to `git`
- maybe even multiple times... (spread over multiple hours/days)



Fine-tuning your contribution

Do you still remember the funny branch name you used for that PR?

```
# check out your branch again  
$ git checkout funnybranchname  
  
# edit some files, as requested by the friendly reviewer  
$ vim ...  
  
# commit (all) your changes (careful there...)  
$ git commit -am "fixed suggestions by reviewer"  
  
# push your updated branch to GitHub to update the PR  
$ git push origin funnybranchname
```

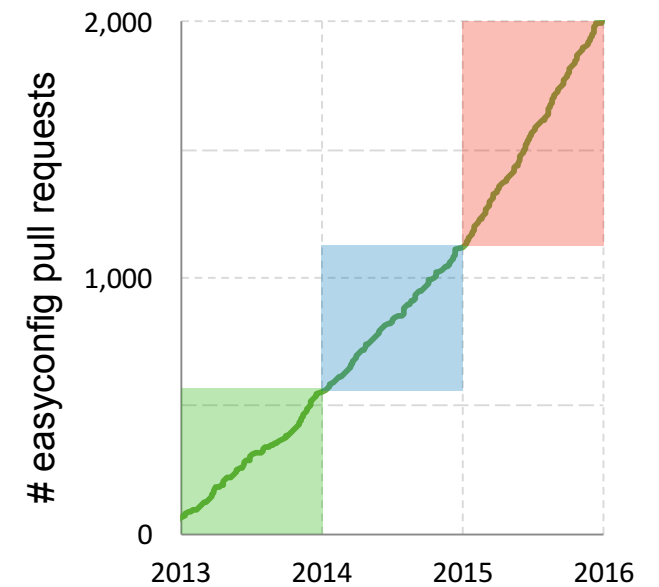
Too much overhead, manual steps...

"Isn't there an easier/more efficient way for doing this?!"

- need to come up with a sensible funny branch name first...
- 4 git commands to prepare the contribution
- at least 4 (well aimed) mouse clicks to open the pull request
- if requested, N x 3 more git commands for fine-tuning the PR
- + a bit of cleanup afterwards
(delete branch both in local repository clone and on GitHub)
- All of this assuming you:
 - take into account the project policies (code style, etc.)
 - don't mess up with `git` at any time...

Contributions to easybuild

- more incoming contributions in 2015
 - ~500 easyconfig PRs in 2013 & 2014
 - almost double that in 2015...
- several people were struggling with the contribution procedure
 - mainly because they were not sufficiently familiar with `git`
 - most candidate contributors were not (experienced) software developers
 - resulted in a lot of frustration & wasted time
 - some people even gave up on contributing :(
- quite annoying for a project that aims to *automate* things...



GitHub integration in

https://easybuild.readthedocs.io/en/latest/Integration_with_GitHub.html

- goals:

- **automate contribution workflow**
- avoid direct interaction with `git` and



- initial implementation added support for:

- opening new PRs & updating existing PRs
- downloading & using easyconfigs from a PR
- uploading test reports to a PR

`eb --new-pr`

`eb --update-pr`

`eb --from-pr`

`eb --upload-test-report`

- limited to easyconfig files, for now...

- but implemented such that it is easy to extend to easyblocks, and even the EasyBuild framework itself

Under the covers



- **GitPython** (<https://pypi.python.org/pypi/GitPython>)
 - Python library to interact with  **git**
- **GitHub REST API** (<https://developer.github.com/v3>)
 - to automate interaction with GitHub (less clickety, clickety)
- **keyring** Python package (<https://pypi.python.org/pypi/keyring>)
 - Python library that provides access to system keyring
 - required to securely store GitHub token

Checking configuration for GitHub integration



```
eb --check-github
```

```
$ eb --check-github
```

```
Checking status of GitHub integration...
```

```
Making sure we're online...OK
```

```
* GitHub user... boegel => OK
* GitHub token... e87..3b1 (len: 40) => OK (validated)
* git command... OK ("git version 1.8.3.1")
* GitPython module... OK (GitPython version 2.1.1)
* push access to boegel/easybuild-easyconfigs repo @ GitHub... OK
* creating gists... OK
* location to Git working dirs... OK (/home/example)
```

```
All checks PASSED!
```

```
Status of GitHub integration:
```

```
* --from-pr: OK
* --new-pr: OK
* --review-pr: OK
* --update-pr: OK
* --upload-test-report: OK
```

various **checks** are performed to verify whether required stuff is in place

Checking configuration for GitHub integration



```
eb --check-github
```

```
$ eb --check-github
```

```
Checking status of GitHub integration...
```

```
Making sure we're online...OK
```

```
* GitHub user... boegel => OK
```

```
* GitHub token... e87..3b1 (len: 40) => OK (validated)
```

```
* git command... OK ("git version 1.8.3.1")
```

```
* GitPython module... OK (GitPython version 2.1.1)
```

```
* push access to boegel/easybuild-easyconfigs repo @ GitHub... OK
```

```
* creating gists... OK
```

```
* location to Git working dirs... OK (/home/example)
```

```
All checks PASSED!
```

```
Status of GitHub integration:
```

```
* --from-pr: OK
```

```
* --new-pr: OK
```

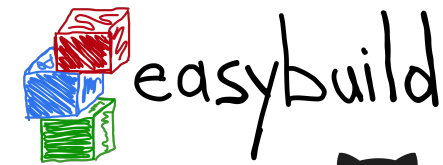
```
* --review-pr: OK
```

```
* --update-pr: OK
```

```
* --upload-test-report: OK
```

overview of **what is supported**
is produced based on
result of checks

Opening new pull requests



eb --new-pr

```
$ eb --new-pr sklearn.eb
== temporary log file in case of crash /tmp/eb-Iv07fs/easybuild-inS8Ny.log
== fetching branch 'develop' from
  https://github.com/easybuilders/easybuild-easyconfigs.git...
== copying easyconfigs to
  /tmp/eb-Iv07fs/git-working-dirhYsAA_/easybuild-easyconfigs...

Opening pull request
* target: easybuilders/easybuild-easyconfigs:develop
* from: boegel/easybuild-easyconfigs:20180125211924_new_pr_scikit-learn0191
* title: "{data}[intel/2017b] scikit-learn v0.19.1"
* description:
  """
(created using `eb --new-pr`)
  """
* overview of changes:
  ../s/scikit-learn/scikit-learn-0.19.1-intel-2017b-Python-3.6.3.eb | 31 ++++++++
  1 file changed, 31 insertions(+)

Opened pull request: https://github.com/easybuilders/easybuild-easyconfigs/pull/12345
== Temporary log file(s) /tmp/eb-Iv07fs/easybuild-inS8Ny.log* have been removed.
== Temporary directory /tmp/eb-Iv07fs has been removed.
```

one single 'eb' command
no 'git' commands, no clickety on GitHub

Opening new pull requests



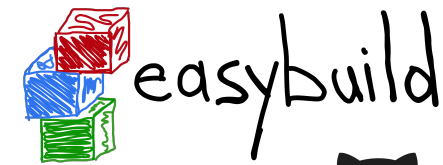
eb --new-pr

```
$ eb --new-pr sklearn.eb
== temporary log file in case of crash /tmp/eb-Iv07fs/easybuild-inS8Ny.log
== fetching branch 'develop' from
https://github.com/easybuilders/easybuild-easyconfigs.git...
== copying easyconfigs to
/tmp/eb-Iv07fs/git-working-dirhYsAA_/easybuild-easyconfigs...

Opening pull request
* target: easybuilders/easybuild-easyconfigs:develop
* from: boegel/easybuild-easyconfigs:20180125211924_new_pr_scikit-learn0191
* title: "{data}[intel/2017b] scikit-learn v0.19.1"
* description:
"""
(created using `eb --new-pr`)
repository is cloned to temporary directory,
develop branch is checked out as a base
"""
* overview of changes:
../s/scikit-learn/scikit-learn-0.19.1-intel-2017b-Python-3.6.3.eb | 31 ++++++++
1 file changed, 31 insertions(+)

Opened pull request: https://github.com/easybuilders/easybuild-easyconfigs/pull/12345
== Temporary log file(s) /tmp/eb-Iv07fs/easybuild-inS8Ny.log* have been removed.
== Temporary directory /tmp/eb-Iv07fs has been removed.
```

Opening new pull requests



eb --new-pr

```
$ eb --new-pr sklearn.eb
== temporary log file in case of crash /tmp/eb-Iv07fs/easybuild-inS8Ny.log
== fetching branch 'develop' from
  https://github.com/easybuilders/easybuild-easyconfigs.git...
== copying easyconfigs to
  /tmp/eb-Iv07fs/git-working-dirhYsAA_/easybuild-easyconfigs...
Opening pull request
* target: easybuilders/easybuild-easyconfigs:develop
* from: boegel/easybuild-easyconfigs:20180125211924_new_pr_scikit-learn0191
* title: "{data}[intel/2017b] scikit-learn v0.19.1"
* description:
  """
(created using `eb --new-pr`)
  """
* overview of changes:
  ../s/scikit-learn/scikit-learn-0.19.1-intel-2017b-Python-3.6.3.eb | 31 ++++++++
  1 file changed, 31 insertions(+)

Opened pull request: https://github.com/easybuilders/easybuild-easyconfigs/pull/12345
== Temporary log file(s) /tmp/eb-Iv07fs/easybuild-inS8Ny.log* have been removed.
== Temporary directory /tmp/eb-Iv07fs has been removed.
```

*auto-derived
branch name*

GitHub repository to push to

*a new branch is created & pushed
(you can specify the branch name yourself)*

Opening new pull requests



eb --new-pr

```
$ eb --new-pr sklearn.eb
== temporary log file in case of crash /tmp/eb-Iv07fs/easybuild-inS8Ny.log
== fetching branch 'develop' from
  https://github.com/easybuilders/easybuild-easyconfigs.git...
== copying easyconfigs to
  /tmp/eb-Iv07fs/git-working-dirhYsAA_/easybuild-easyconfigs...

Opening pull request
* target: easybuilders/easybuild-easyconfigs:develop
* from: boegel/easybuild-easyconfigs:20180125211924_new_pr_scikit-learn0191
* title: "{data}[intel/2017b] scikit-learn v0.19.1"
* description:
"""
(created using `eb --new-pr`)

"""
* overview of changes:
../s/scikit-learn/scikit-learn-0.19.1-intel-2017b-Python-3.6.3.eb | 31 ++++++++
1 file changed, 31 insertions(+)

Opened pull request: https://github.com/easybuilders/easybuild-easyconfigs/pull/12345
== Temporary log file(s) /tmp/eb-Iv07fs/easybuild-inS8Ny.log* have been removed.
== Temporary directory /tmp/eb-Iv07fs has been removed.
```

the easyconfig file is *renamed*
and *moved to the right location*

Opening new pull requests



eb --new-pr

```
$ eb --new-pr sklearn.eb
== temporary log file in case of crash /tmp/eb-Iv07fs/easybuild-inS8Ny.log
== fetching branch 'develop' from
  https://github.com/easybuilders/easybuild-easyconfigs.git...
== copying easyconfigs to
  /tmp/eb-Iv07fs/git-working-dirhYsAA_/easybuild-easyconfigs...

Opening pull request
* target: easybuilders/easybuild-easyconfigs:develop
* from: boegel/easybuild-easyconfigs:20180125211924_new_pr_scikit-learn0191
* title: "{data}[intel/2017b] scikit-learn v0.19.1"
* description:
  """
  (created using `eb --new-pr`)
  """
* overview of changes:
  ../s/scikit-learn/scikit-learn-0.19.1-intel-2017b-Python-3.6.3.eb | 31 ++++++++
  1 file changed, 31 insertions(+)

Opened pull request: https://github.com/easybuilders/easybuild-easyconfigs/pull/12345
== Temporary log file(s) /tmp/eb-Iv07fs/easybuild-inS8Ny.log* have been removed.
== Temporary directory /tmp/eb-Iv07fs has been removed.
```

the pull request is prepared:
target develop branch, *title & description*

Opening new pull requests



eb --new-pr

```
$ eb --new-pr sklearn.eb
== temporary log file in case of crash /tmp/eb-Iv07fs/easybuild-inS8Ny.log
== fetching branch 'develop' from
  https://github.com/easybuilders/easybuild-easyconfigs.git...
== copying easyconfigs to
  /tmp/eb-Iv07fs/git-working-dirhYsAA_/easybuild-easyconfigs...

Opening pull request
* target: easybuilders/easybuild-easyconfigs:develop
* from: boegel/easybuild-easyconfigs:20180125211924_new_pr_scikit-learn0191
* title: "{data}[intel/2017b] scikit-learn v0.19.1"
* description:
  """
  (created using `eb --new-pr`)
  """
  a high-level overview of the changes
  is shown (similar to output of 'git stat')
  """
* overview of changes:
  ../s/scikit-learn/scikit-learn-0.19.1-intel-2017b-Python-3.6.3.eb | 31 ++++++++
  1 file changed, 31 insertions(+)

Opened pull request: https://github.com/easybuilders/easybuild-easyconfigs/pull/12345
== Temporary log file(s) /tmp/eb-Iv07fs/easybuild-inS8Ny.log* have been removed.
== Temporary directory /tmp/eb-Iv07fs has been removed.
```

Opening new pull requests



eb --new-pr

```
$ eb --new-pr sklearn.eb
== temporary log file in case of crash /tmp/eb-Iv07fs/easybuild-inS8Ny.log
== fetching branch 'develop' from
  https://github.com/easybuilders/easybuild-easyconfigs.git...
== copying easyconfigs to
  /tmp/eb-Iv07fs/git-working-dirhYsAA_/easybuild-easyconfigs...

Opening pull request
* target: easybuilders/easybuild-easyconfigs:develop
* from: boegel/easybuild-easyconfigs:20180125211924_new_pr_scikit-learn0191
* title: "{data}[intel/2017b] scikit-learn v0.19.1"
* description:
  """
(created using `eb --new-pr`)
  """
* overview of changes:
  ../s/scikit-learn/scikit-learn-0.19.1-intel-2017b-Python-3.6.3.eb | 31 ++++++++
  1 file changed, 31 insertions(+)

Opened pull request: https://github.com/easybuilders/easybuild-easyconfigs/pull/12345
== Temporary log file(s) /tmp/eb-Iv07fs/easybuild-inS8Ny.log* have been removed.
== Temporary directory /tmp/eb-Iv07fs has been removed.
```

the *pull request is opened automatically*,
using the GitHub API & token

Opening a pull request is now... easy!



```
$ mv sklearn.eb scikit-learn-0.19.1-intel-2017b-Python-3.6.3.eb
$ mv scikit*.eb easybuild/easyconfigs/s/scikit-learn
$ git checkout develop && git pull upstream develop
$ git checkout -b scikit_learn_0191_intel_2017b
$ git add easybuild/easyconfigs/s/scikit-learn
$ git commit -m "{data}[intel/2017b] scikit-learn v0.19.1"
$ git push origin scikit_learn_0191_intel_2017b
```

+ log into GitHub to actually open the pull request (clickety, clickety...)

one single eb command
no git commands
no GitHub interaction
no (local) branch to clean up



metadata is automatically
derived from easyconfig

saves a lot of time!

```
eb --new-pr sklearn.eb
```

Updating existing pull requests



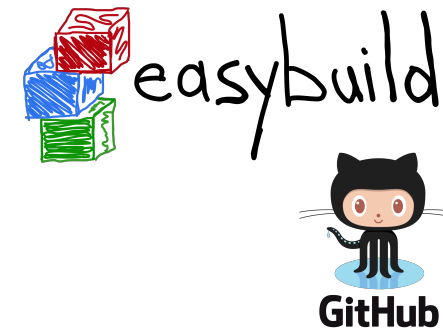
eb --update-pr

to update a PR: provide PR#, updated files and commit message

```
$ eb --update-pr 12345 sklearn.eb --pr-commit-msg "minor style fixes"
== temporary log file in case of crash /tmp/eb-EK1WF/easybuild-w1Ycat.log
== Determined branch name corresponding to easybuilders/easybuild-easyconfigs
PR #12345: 20180125211924_new_pr_scikit-learn0191
== fetching branch '20180125211924_new_pr_scikit-learn0191' from https://
github.com/boegel/easybuild-easyconfigs.git...
== copying easyconfigs to /tmp/eb-EK1WF/git-working-dirbIzGHn/easybuild-
easyconfigs...
Overview of changes:
.../s/scikit-learn/scikit-learn-0.19.1-intel-2017b-Python-3.6.3.eb | 2 +-
1 file changed, 1 insertion(+), 1 deletion(-)

Updated easybuilders/easybuild-easyconfigs PR #12345 by pushing to branch
boegel/20180125211924_new_pr_scikit-learn0191
== Temporary log file(s) /tmp/eb-EK1WF/easybuild-w1Ycat.log* have been removed.
== Temporary directory /tmp/eb-EK1WF has been removed.
```

Updating existing pull requests



eb --update-pr

branch that corresponds with PR is determined *automatically*

```
$ eb --update-pr 12345 sklearn.eb --pr-commit-msg "minor style fixes"
== temporary log file in case of crash /tmp/eb-EK1WF/easybuild-w1Ycat.log
== Determined branch name corresponding to easybuilders/easybuild-easyconfigs
PR #12345: 20180125211924_new_pr_scikit-learn0191
== fetching branch '20180125211924_new_pr_scikit-learn0191' from https://
github.com/boegel/easybuild-easyconfigs.git...
== copying easyconfigs to /tmp/eb-EK1WF/git-working-dirbIzGHn/easybuild-
easyconfigs...
Overview of changes:
.../s/scikit-learn/scikit-learn-0.19.1-intel-2017b-Python-3.6.3.eb | 2 +-
1 file changed, 1 insertion(+), 1 deletion(-)

Updated easybuilders/easybuild-easyconfigs PR #12345 by pushing to branch
boegel/20180125211924_new_pr_scikit-learn0191
== Temporary log file(s) /tmp/eb-EK1WF/easybuild-w1Ycat.log* have been removed.
== Temporary directory /tmp/eb-EK1WF has been removed.
```

Updating existing pull requests



```
eb --update-pr
```

PR branch is downloaded to temporary directory,
updated files are copied

```
$ eb --update-pr 12345 sklearn.eb --pr-commit-msg "minor style fixes"
== temporary log file in case of crash /tmp/eb-EK1WF/easybuild-w1Ycat.log
== Determined branch name corresponding to easybuilders/easybuild-easyconfigs
PR #12345: 20180125211924 new pr scikit-learn0191
== fetching branch '20180125211924_new_pr_scikit-learn0191' from https://
github.com/boegel/easybuild-easyconfigs.git...
== copying easyconfigs to /tmp/eb-EK1WF/git-working-dirbIzGHn/easybuild-
easyconfigs...
Overview of changes:
.../s/scikit-learn/scikit-learn-0.19.1-intel-2017b-Python-3.6.3.eb | 2 +-
1 file changed, 1 insertion(+), 1 deletion(-)

Updated easybuilders/easybuild-easyconfigs PR #12345 by pushing to branch
boegel/20180125211924_new_pr_scikit-learn0191
== Temporary log file(s) /tmp/eb-EK1WF/easybuild-w1Ycat.log* have been removed.
== Temporary directory /tmp/eb-EK1WF has been removed.
```

Updating existing pull requests



```
eb --update-pr
```

updated files are renamed and moved to right location

```
$ eb --update-pr 12345 sklearn.eb --pr-commit-msg "minor style fixes"
== temporary log file in case of crash /tmp/eb-EK1WF/easybuild-w1Ycat.log
== Determined branch name corresponding to easybuilders/easybuild-easyconfigs
PR #12345: 20180125211924_new_pr_scikit-learn0191
== fetching branch '20180125211924_new_pr_scikit-learn0191' from https://
github.com/boegel/easybuild-easyconfigs.git...
== copying easyconfigs to /tmp/eb-EK1WF/git-working-dirbIzGHn/easybuild-
easyconfigs...
Overview of changes:
../s/scikit-learn/scikit-learn-0.19.1-intel-2017b-Python-3.6.3.eb 2 +-
1 file changed, 1 insertion(+), 1 deletion(-)

Updated easybuilders/easybuild-easyconfigs PR #12345 by pushing to branch
boegel/20180125211924_new_pr_scikit-learn0191
== Temporary log file(s) /tmp/eb-EK1WF/easybuild-w1Ycat.log* have been removed.
== Temporary directory /tmp/eb-EK1WF has been removed.
```

Updating existing pull requests



```
eb --update-pr
```

changes are committed, high-level overview is shown (cfr. 'git stat')

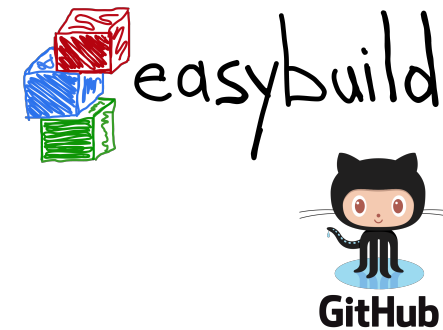
```
$ eb --update-pr 12345 sklearn.eb --pr-commit-msg "minor style fixes"  
== temporary log file in case of crash /tmp/eb-EK1WF/easybuild-w1Ycat.log  
== Determined branch name corresponding to easybuilders/easybuild-easyconfigs  
PR #12345: 20180125211924_new_pr_scikit-learn0191  
== fetching branch '20180125211924_new_pr_scikit-learn0191' from https://  
github.com/boegel/easybuild-easyconfigs.git...  
== copying easyconfigs to /tmp/eb-EK1WF/git-working-dirbIzGHn/easybuild-  
easyconfigs...
```

```
Overview of changes:
```

```
.../s/scikit-learn/scikit-learn-0.19.1-intel-2017b-Python-3.6.3.eb | 2 +-  
1 file changed, 1 insertion(+), 1 deletion(-)
```

```
Updated easybuilders/easybuild-easyconfigs PR #12345 by pushing to branch  
boegel/20180125211924_new_pr_scikit-learn0191  
== Temporary log file(s) /tmp/eb-EK1WF/easybuild-w1Ycat.log* have been removed.  
== Temporary directory /tmp/eb-EK1WF has been removed.
```

Updating existing pull requests



```
eb --update-pr
```

modified branch is pushed to GitHub to update the PR

```
$ eb --update-pr 12345 sklearn.eb --pr-commit-msg "minor style fixes"
== temporary log file in case of crash /tmp/eb-EK1WF/easybuild-w1Ycat.log
== Determined branch name corresponding to easybuilders/easybuild-easyconfigs
PR #12345: 20180125211924_new_pr_scikit-learn0191
== fetching branch '20180125211924_new_pr_scikit-learn0191' from https://
github.com/boegel/easybuild-easyconfigs.git...
== copying easyconfigs to /tmp/eb-EK1WF/git-working-dirbIzGHn/easybuild-
easyconfigs...
Overview of changes:
.../s/scikit-learn/scikit-learn-0.19.1-intel-2017b-Python-3.6.3.eb | 2 +-
1 file changed, 1 insertion(+), 1 deletion(-)

Updated easybuilders/easybuild-easyconfigs PR #12345 by pushing to branch
boegel/20180125211924_new_pr_scikit-learn0191
== Temporary log file(s) /tmp/eb-EK1WF/easybuild-w1Ycat.log* have been removed.
== Temporary directory /tmp/eb-EK1WF has been removed.
```

Updating a PR in 1, ~~2~~, ~~3~~



First, figure out the (funny) branch name corresponding to the PR...

```
$ git checkout scikit_learn_0191_intel_2017b
$ cd easybuild/easyconfigs/s/scikit-learn
$ vim scikit-learn-0.19.1-intel-2017b-Python-3.6.3.eb
$ git add scikit*.eb
$ git commit -m "fix typo"
$ git push origin scikit_learn_0191_intel_2017b
```

one single eb command
no git commands
no GitHub interaction
no (local) branch to clean up



no local branch to clean up
once PR is merged
saves a lot of time!

```
eb --update-pr 12345 sklearn.eb --pr-commit-msg "fix typo"
```

Using easyconfigs from a PR



eb --from-pr

- no need to manually download easyconfigs to feed them to eb
- PR is (virtually) merged with current develop branch under /tmp
- very useful when testing contributions!

```
$ eb --from-pr 12345
== temporary log file in case of crash /tmp/eb-kQRw7W/easybuild-HU4hce.log
== processing EasyBuild easyconfig /tmp/eb-kQRw7W/files_pr12345/s/scikit-learn/scikit-learn-0.19.1-intel-2017b-Python-3.6.3.eb
== building and installing scikit-learn/0.19.1-intel-2017b-Python-3.6.3...
== fetching files...
== creating build dir, resetting environment...
== unpacking...
== patching...
== preparing...
== configuring...
== building...
== testing...
== installing...
```

Uploading test reports to a PR



```
eb --upload-test-report
```

- combined with `--from-pr` to test contribution and report results in PR
- test report with info on host & environment is uploaded as a gist
- a comment is added in the PR to trigger a notification by GitHub

```
$ eb --from-pr 12345 --upload-test-report
```

```
...
```

```
== building and installing scikit-learn/0.19.1-intel-2017b-Python-3.6.3...
```

```
...
```

```
== COMPLETED: Installation ended successfully
```

```
...
```

```
Adding comment to easybuild-easyconfigs issue #12345: 'Test report by @boegel  
**SUCCESS**
```

```
Build succeeded for 1 out of 1 (1 easyconfigs in this PR)
```

```
<hostname> - Linux CentOS 7.5, Intel Xeon CPU E5-2680 v3 @ 2.50GHz, Python 2.7.5
```

```
See https://gist.github.com/3c...58 for a full test report.'
```

```
== Test report uploaded to https://gist.github.com/3c...58 and mentioned in a  
comment in easyconfigs PR#12345
```

```
== Build succeeded for 1 out of 1
```

Uploading test reports to a PR



```
eb --upload-test-report
```



boegel commented on 21 Nov 2017

Owner



Test report by @boegel

SUCCESS

Build succeeded for 1 out of 1 (1 easyconfigs in this PR)

node2403.golett.os - Linux centos linux 7.4.1708, Intel(R) Xeon(R) CPU E5-2680 v3 @ 2.50GHz,
Python 2.7.5

See <https://gist.github.com/2ce867c657e05a8717978f3a73b9e019> for a full test report.



verdurin commented 3 days ago

Member



Test report by @verdurin

FAILED

Build succeeded for 0 out of 1 (1 easyconfigs in this PR)

rescomp2 - Linux centos 6.8, Intel(R) Xeon(R) CPU E5-2650 v2 @ 2.60GHz, Python 2.7.11

See <https://gist.github.com/0dd5b4a3338a1350fe3b92b247bf84bb> for a full test report.

Uploading test reports to a PR



```
eb --upload-test-report
```

EasyBuild test report for easyconfigs PR #5375

`<>` [easybuild_test_report_easyconfigs_pr5375_20175921-UTC-10-59-58.md](#)

Test report for <https://github.com/easybuilders/easybuild-easyconfigs/pull/5375>

Test result

Build succeeded for 1 out of 1 (1 easyconfigs in this PR)

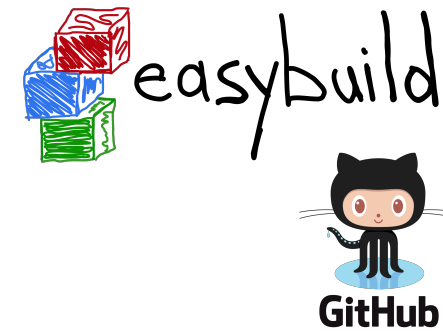
Overview of tested easyconfigs (in order)

- **SUCCESS** *scikit-learn-0.19.1-intel-2017b-Python-3.6.3.eb*

Time info

- start: Tue, 21 Nov 2017 10:57:11 +0000 (UTC)
- end: Tue, 21 Nov 2017 10:59:58 +0000 (UTC)

Uploading test reports to a PR



```
eb --upload-test-report
```

EasyBuild test report for easyconfigs PR #5719

 [easybuild_test_report_easyconfigs_pr5719_20180124-UTC-18-01-27.md](#)

Test report for <https://github.com/easybuilders/easybuild-easyconfigs/pull/5719>

Test result

Build succeeded for 0 out of 1 (1 easyconfigs in this PR)

Overview of tested easyconfigs (in order)

- **FAIL (build issue)** *RSEM-1.3.0-intel-2017b.eb* (partial log available at <https://gist.github.com/7d9e48b400232b5fa0924e2bf28d240a>)

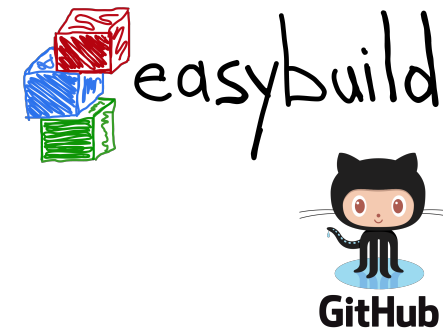
Time info

- start: Wed, 24 Jan 2018 18:01:18 +0000 (UTC)

a separate gist provides partial build log

Reviewing pull requests

```
eb --review-pr
```



- reviewer should ideally also compare new easyconfig files with existing ones for the same software
 - just a version bump or different toolchain?
 - also other changes?
 - to check whether fixes that are already in place in develop branch are not overlooked
- this goes beyond what GitHub can do
- quite tedious to do manually...
- what are the most relevant easyconfigs to compare with?
 - same software (major) version, same toolchain (version), ...

Previewing & reviewing pull requests



`eb --preview-pr`

`eb --review-pr`

- (multi)diff between contributed easyconfig and existing one(s)
- can be used both to *preview* a contribution and to *review* a PR

```
$ eb --review-pr 5736
```

removed

added

```
Comparing BamTools-2.5.1-intel-2017b.eb with  
BamTools-2.5.0-intel-2017b.eb
```

```
====
```

```
2 - version = '2.5.0' (1/1)
```

```
2 + version = '2.5.1' (1/1)
```

comparison is done with (most) relevant
easyconfigs in current **develop** branch

```
-----
```

```
11 - checksums = ['dd4185bdba6e3adf2c24b7f93a57233d'] (1/1)
```

```
11 + checksums = ['98e90632058f85bd5eed6088b3ff912e'] (1/1)
```

Merging pull requests



```
eb --merge-pr
```

verifies whether PR is **eligible** to be merged, and merges it if so

```
$ eb --merge-pr 5722
```

```
easybuilders/easybuild-easyconfigs PR #5722 was submitted by vanzod,  
you are using GitHub account 'boegel'
```

```
Checking eligibility of easybuilders/easybuild-easyconfigs PR #5722  
for merging...
```

```
* targets develop branch: OK  
* test suite passes: OK  
* last test report is successful: OK  
* approved review: OK (by boegel)  
* milestone is set: OK (3.6.0)
```

merging pull requests can be
done *from the command line*
(after approved visual review)

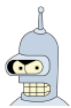
```
Review OK, merging pull request!
```

```
Adding comment to easybuild-easyconfigs issue #5722:  
'Going in, thanks @vanzod!'
```

boegelbot



- bot that creates comments in PRs if tests fail in Travis CI
 - mainly to trigger GitHub to send notifications
 - also to trigger contributor to fix problems w/o intervention of a human/maintainer
- also automatically re-triggers tests that failed because of flukes in Travis CI (e.g. connectivity issues)
- see <https://github.com/boegel/boegelbot>



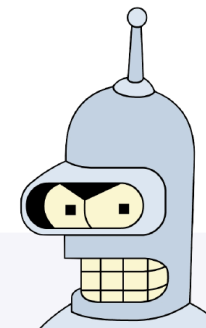
boegelbot commented on 8 Sep 2017



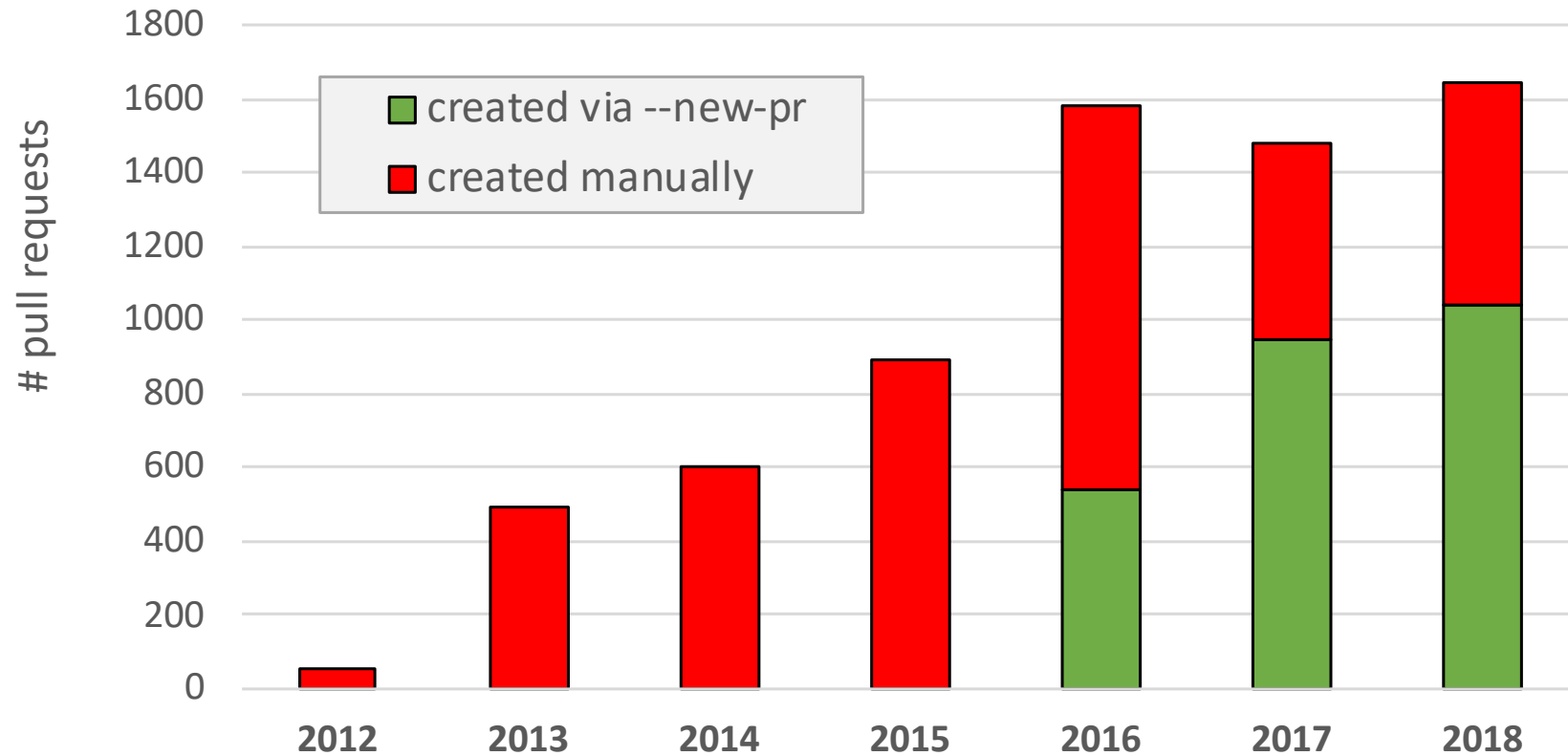
Travis test report: 8/8 runs failed - see <https://travis-ci.org/easybuilders/easybuild-easyconfigs/builds/273198653>

Only showing partial log for 1st failed test suite run 5974.1;
full log at <https://travis-ci.org/easybuilders/easybuild-easyconfigs/jobs/273198655>

...
ERROR: Test for parsing of easyconfig Stata-15 eh

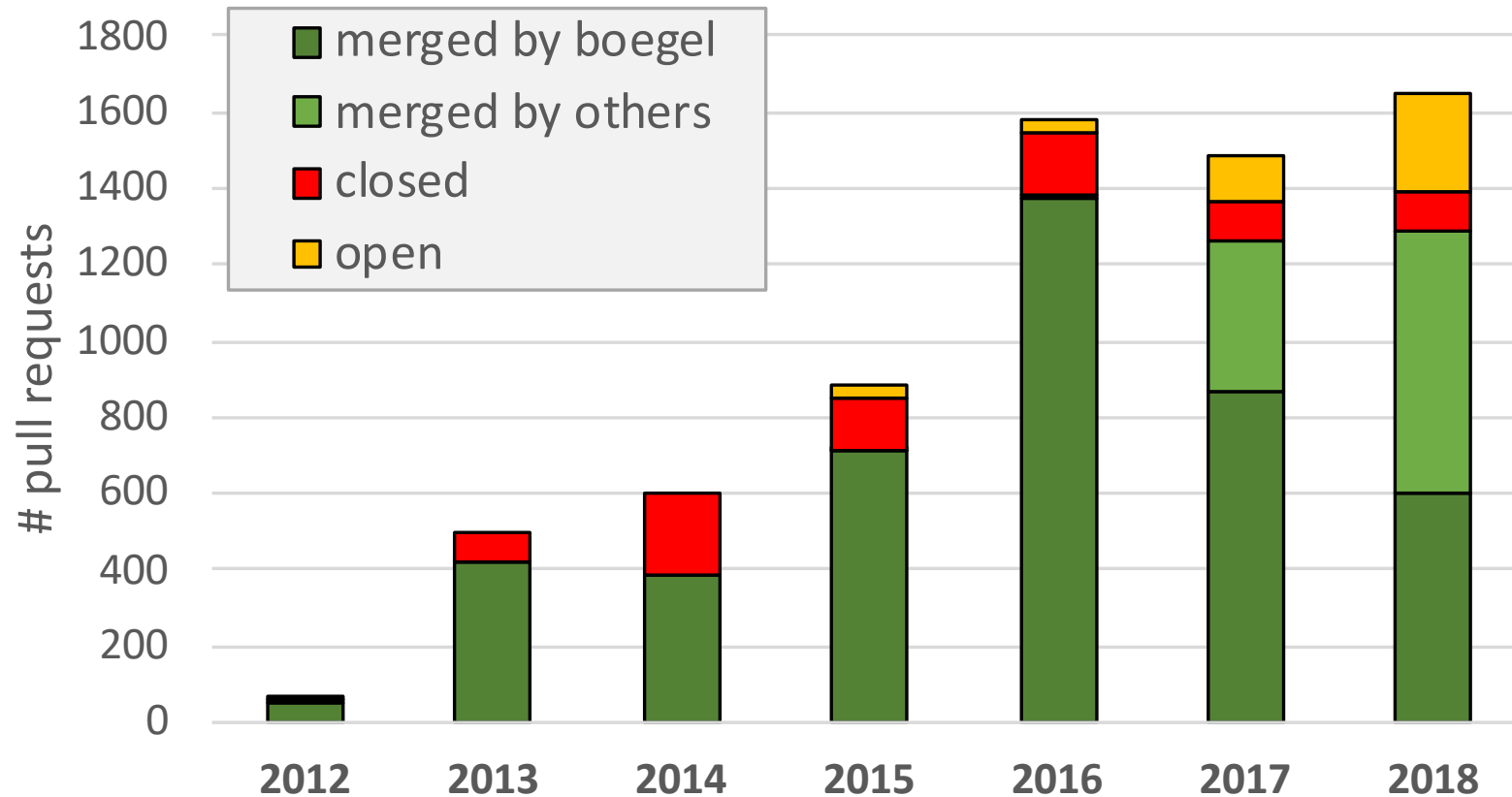


Impact on contributions (easyconfigs)



- > 500 PRs opened using `eb --new-pr` in 2016 (34% of total)
- almost 1000 PRs in 2017 using `--new-pr` (63%), just over 1000 PRs in 2018 (63%)
- ~80% more PRs in 2016 & 2017 compared to 2015; **over 1,600 PRs in 2018**

Impact on contributions (easyconfigs)



- GitHub integration has helped (a lot) to keep pace with incoming PRs
- 85-% of PRs gets merged (there's usually a good reason for the ones that are not)
- would have been difficult without automation due to amount of PRs



Tutorial: writing/contributing easyconfigs

4th EasyBuild User Meeting

January 30th 2019 - Louvain-la-Neuve (Belgium)

https://users.ugent.be/~kehoste/EasyBuild_20190130_tutorial-easyconfigs.pdf

kenneth.hoste@ugent.be

easybuild@lists.ugent.be

<https://easybuilders.github.io/easybuild>

<https://easybuild.readthedocs.io>



**GHENT
UNIVERSITY**

<https://www.ugent.be/hpc>



Vlaanderen
is computing

<https://www.vscentrum.be>