



# Tutorial: writing/contributing easyconfigs

*5<sup>th</sup> EasyBuild User Meeting*

January 30th 2020 - Barcelona (Spain)

[samuel.moors@vub.be](mailto:samuel.moors@vub.be)

@smoors

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

<https://easybuild.readthedocs.io>

[easybuild@lists.ugent.be](mailto:easybuild@lists.ugent.be)

<https://easybuild-slack.herokuapp.com/>



VLAAMS  
SUPERCOMPUTER  
CENTRUM



**Vlaanderen**  
is supercomputing

EasyBuild (EB) has, and is, improved significantly thanks to the community.

**You too can contribute back, by:**

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

Each software installation needs an **easyconfig** file (.eb):

- defines parameters that tell EasyBuild **what** to install, and **how**
- existing easyconfig files can serve as examples
- for version or toolchain updates, EB can build the updated software via **eb --try-\***  
(does not work for all easyconfigs)
- examples:

```
eb --try-toolchain=foss,2019b *.eb
```

```
eb --try-toolchain=foss,2019b --robot *.eb
```

```
eb --try-software-version=1.2.3 *.eb
```

- see [https://easybuild.readthedocs.io/en/latest/Writing\\_easyconfig\\_files.html](https://easybuild.readthedocs.io/en/latest/Writing_easyconfig_files.html)

- Each easyconfig uses an installation procedure defined in an **easyblock** file:
- for 'standard' installation procedures, use a **generic easyblock**
  - examples:
    - ConfigureMake** (configure/make/make install)
    - CmakeMake** (cmake/make/make install)
  - control installation where needed via easyconfig parameters
- for custom installation procedures, use a **software-specific easyblock**
  - see <https://easybuild.readthedocs.io/en/latest/Implementing-easyblocks.html>

Easyconfig files are simple **Python code**:

- set of **easyconfig parameters**: `parameter = value`  
(in theory the order doesn't matter, but we maintain a strict 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, postinstallcmds`  
`sanity_check_paths, sanity_check_commands, moduleclass`

[http://easybuild.readthedocs.io/en/latest/version-specific/generic\\_easyblocks.html](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)

Thin line between **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

- **eb --robot \*.eb**
  - install also all dependencies if easyconfigs are available
- **eb --dry-run \*.eb**
  - show all easyconfigs that will be built, without actually building them
- **eb --extended-dry-run \*.eb**
  - show detailed overview of all Easybuild steps and environment variables



- **eb --include-easyblocks <directory> \*.eb**
  - use local easyblock(s) instead of the ones provided by EB
- **eb --avail-easyconfig-templates**
  - show all available templates that can be used in an easyconfig
- **eb --avail-easyconfig-params**  
**eb --avail-easyconfig-params --easyblock <easyblock>**
  - show all easyconfig parameters that can be used
  - optionally show easyblock-specific easyconfig parameters

- **eb --inject-checksums \*.eb**
  - inject (SHA256) checksums for all sources/patches (incl. extensions)
  - requirement to contribute back easyconfigs
- **eb --check-contrib \*.eb**
  - checks whether easyconfigs is ready to contribute back
  - checks for (some) **code style** issues (equivalent to --check-style)
  - also verifies whether SHA256 **checksums** are present for all sources/patches
  - does not (yet) check all that is checked in the PR tests:
    - single dependency version/variant
    - order of easyconfig parameters, use of 'https://', ...

- **eb --new-branch-github \*.eb**
  - create a new branch in your github account, don't create PR (yet)
  - automatically performs @github-actions tests
- **eb --show-ec --from-pr #PR**
  - show content of easyconfig(s) in a PR (files changed)
- **eb --sync-pr-with-develop PR#**  
**eb --sync-branch-with-develop <branch>**
  - sync PR or branch with develop branch
  - needed in case relevant changes have been made before the PR was merged

<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
- address failing unit tests (if any) and comments by reviewer (if any)
- be patient...
- enjoy eternal glory/fame once your pull request has been merged!

# 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

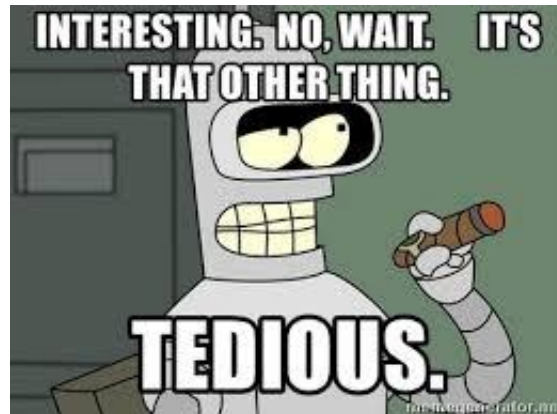
Sign up for GitHub

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

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

(change this bit!)

...the conventional (tedious)  git way



# Branch, stage, commit, push

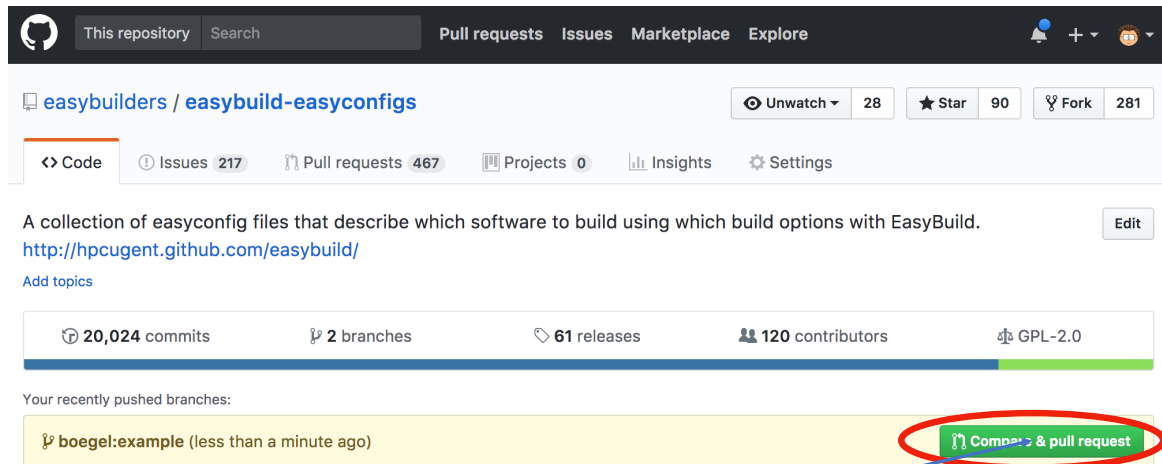
Once you have cloned the easyconfigs repository, you can really get to work...

```
# 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...



easybuilders / easybuild-easyconfigs

Unwatch 28 Star 90 Fork 281

Code Issues 217 Pull requests 467 Projects 0 Insights Settings

A collection of easyconfig files that describe which software to build using which build options with EasyBuild. <http://hpcugent.github.com/easybuild/> Edit

Add topics

20,024 commits 2 branches 61 releases 120 contributors GPL-2.0

Your recently pushed branches:

boegel:example (less than a minute ago) Compare & pull request

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

1 commit 1 file changed 0 commit comments 1 contributor



Not too quick...

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

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

# Are we done yet?

Once your pull request is open, your changes will be:

- auto-tested by  Travis CI and  @github-actions
- 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

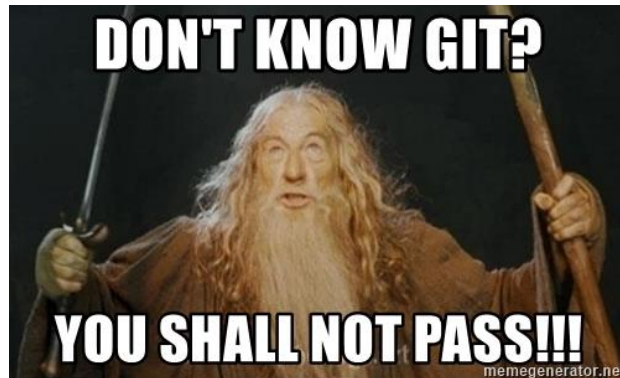
# edit some files, as requested by the friendly reviewer
$ vim ...

# 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
```

## **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?

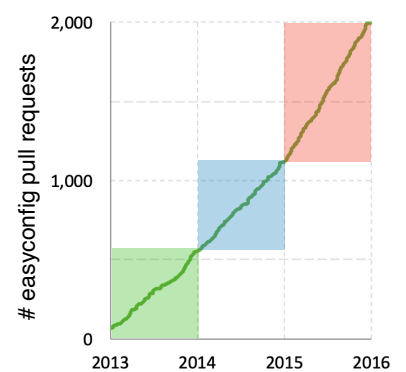



## Too much overhead, manual steps...


*"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...

- 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 :(
- can we do better?



- goals:
  - **automate contribution workflow**
  - avoid direct interaction with `git` and 
- initial implementation added support for:
  - opening new PRs & updating existing PRs `eb --new-pr` `eb --update-pr`
  - downloading & using easyconfigs from a PR `eb --from-pr`
  - uploading test reports to a PR `eb --upload-test-report`
- limited to **easyconfigs**, for now...
  - but can be easily xtended to **easyblocks**, and even the EasyBuild **framework** itself

- **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



**eb --check-github**

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

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

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

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

```
* 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
```

**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`)
"""
* 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.
```

repository is **cloned** to temporary directory,  
**develop** branch is **checked out** as a base

# 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*

**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-EKclWF/easybuild-wlYcat.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-EKclWF/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-EKclWF/easybuild-wlYcat.log* have been removed.
== Temporary directory /tmp/eb-EKclWF 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-EKclWF/easybuild-wlYcat.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-EKclWF/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-EKclWF/easybuild-wlYcat.log* have been removed.
== Temporary directory /tmp/eb-EKclWF has been removed.
```

# Updating existing pull requests



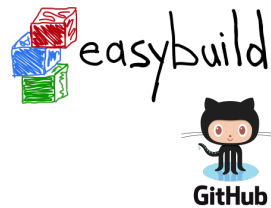
**eb --update-pr**

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-EKclWF/easybuild-wlYcat.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-EKclWF/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-EKclWF/easybuild-wlYcat.log* have been removed.
== Temporary directory /tmp/eb-EKclWF 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-EKclWF/easybuild-wlYcat.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-EKclWF/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-EKclWF/easybuild-wlYcat.log* have been removed.
== Temporary directory /tmp/eb-EKclWF 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-EKclWF/easybuild-wlYcat.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-EKclWF/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-EKclWF/easybuild-wlYcat.log* have been removed.
== Temporary directory /tmp/eb-EKclWF 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-EKclWF/easybuild-wlYcat.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-EKclWF/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-EKclWF/easybuild-wlYcat.log* have been removed.
== Temporary directory /tmp/eb-EKclWF has been removed.
```



# Updating a PR in 1, 2, 3

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

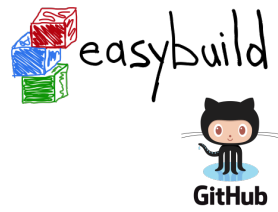
```
$ git checkout scikit_learn_0191_intel_2017b
$ cd easybuild/easyconfigs/s/scikit-learn
$ vim scikit-learn-0.19.1-intel-2017b-Python-3.6.3.eb
$ git add scikit*.eb
$ git commit -m "fix typo"
$ git push origin scikit_learn_0191_intel_2017b
```

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.

```
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)

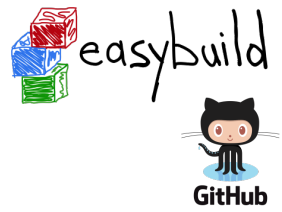
## Overview of tested easyconfigs (in order)

- **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

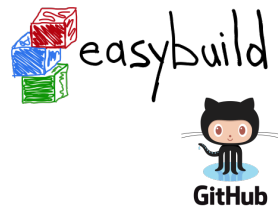
- start: Wed, 24 Jan 2018 18:01:18 +0000 (UTC)

 **a separate gist provides partial build log**

```
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* your 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

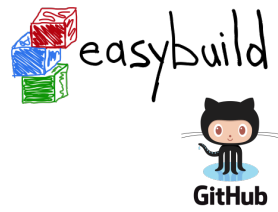
```
-----
```

```
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'
```

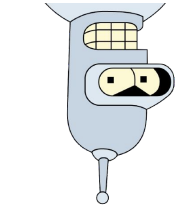
```
Checking eligibility of easybuilders/easybuild-easyconfigs PR #5722  
for merging...
```

```
* 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)
```

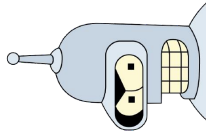
*merging* pull requests can be  
done *from the command line*  
(after approved visual review)

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

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



- 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>



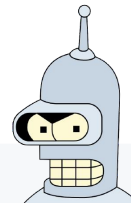
boegelbot commented on 8 Sep 2017



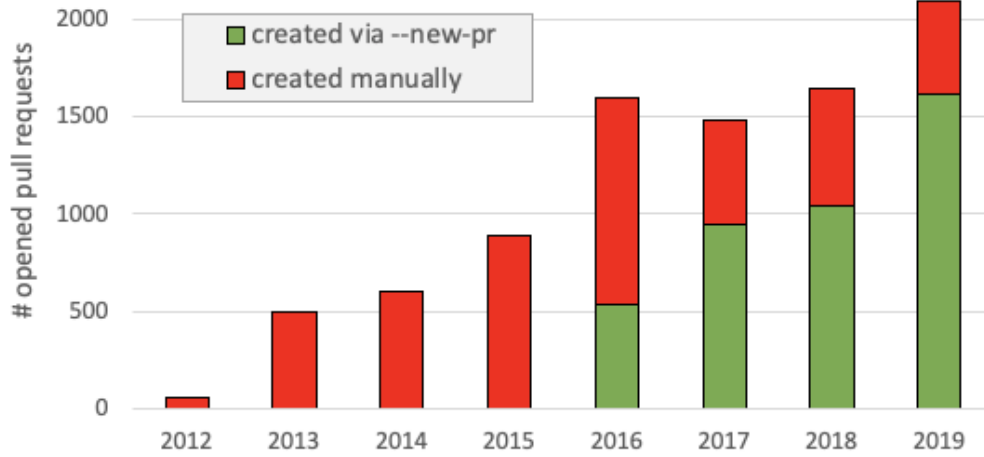
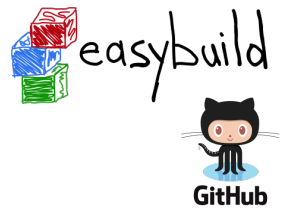
Travis test report: 8/8 runs failed - see <https://travis-ci.org/easybuilders/easybuild-easyconfigs/builds/273198653>

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-15.0h

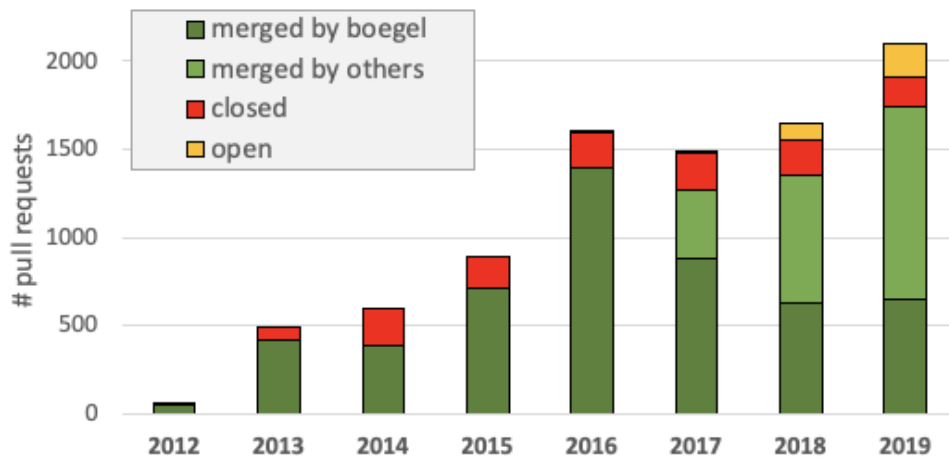


# Impact on contributions (easyconfigs)



- > 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 2000 PRs in 2019**

# 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