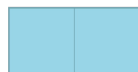
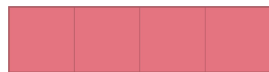
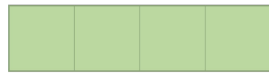


easybuild



EASYBUILD.io



building software with ease

Best Practices for EasyBuild Contributors

EasyBuild User Meeting 2023


Tue 25 April 2023

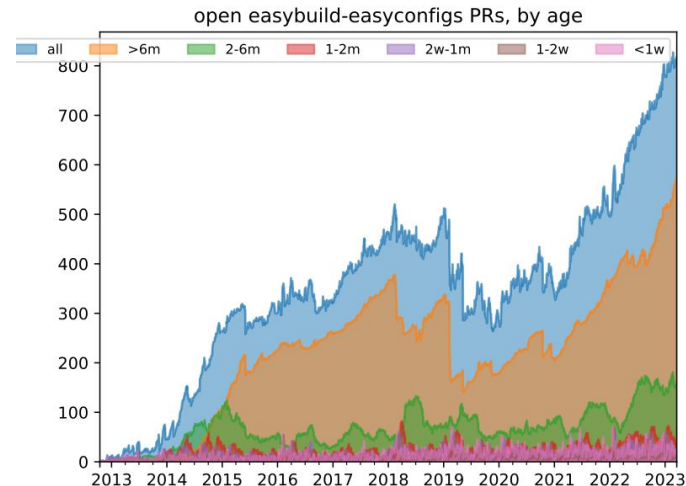
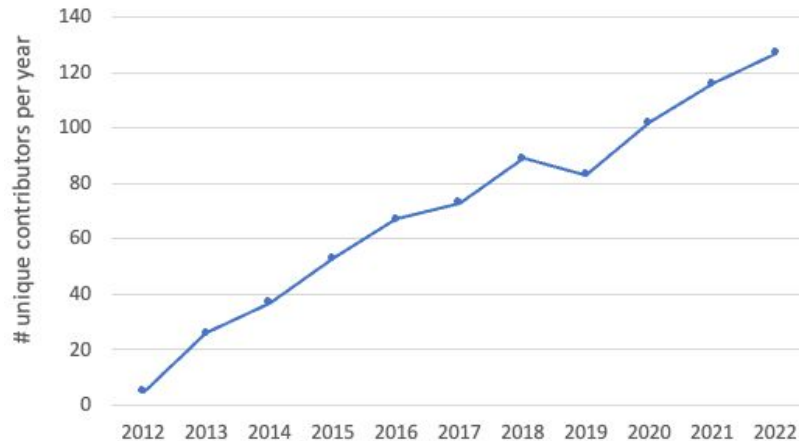
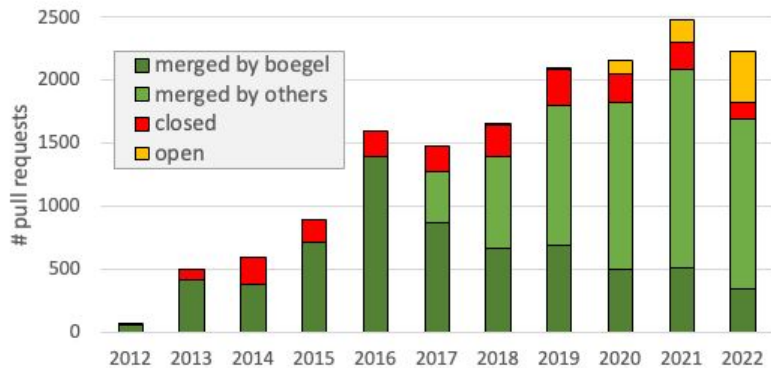
Agenda

- Why should you contribute back?
- Reporting issues
- Contributing easyconfig files
- Contributing to easyblocks
- Contributing to EasyBuild framework
- Contributing to the EasyBuild documentation
- Use hooks to implement site-specific things, enables contributing back



Motivation

- >2000 new PRs every year
- Currently ~800 open PRs
- Lots of (new) contributors
- Suggestions welcome! 



Who am I?

- Sam @smoors
- EasyBuild maintainer (since 2019)
- <https://hpc.vub.be>



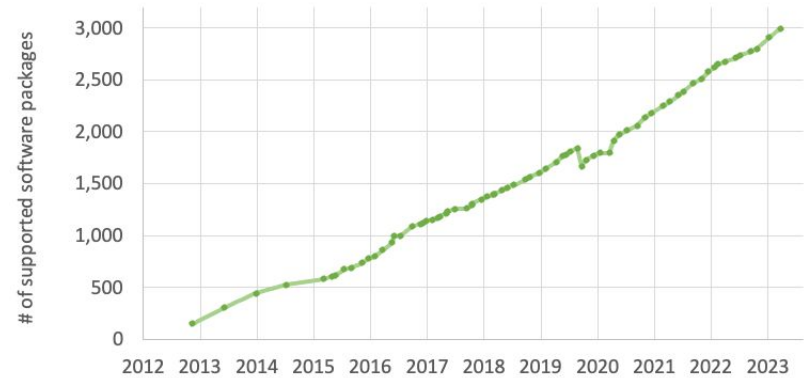
VLAAMS
SUPERCOMPUTER
CENTRUM



Vlaanderen
is supercomputing



Why contribute back?



- Support the *Open Science* movement
- Join a welcoming, inclusive, and helpful community
 - Meet HPC experts from all over the world
- Get feedback to enhance your software installations
- Get updates and bug fixes to your contributions “for free”

Reporting issues on Github



- Good issue title
- Relevant info (OS, EasyBuild version + configuration, eb command, etc.)
- Steps to reproduce
- Code blocks formatting

```
```
```

```
<code-or-logs>
```

```
```
```

- Issue template
- https://docs.easybuild.io/contributing/#contributing_bugs

Contributing easyconfig files



- What you can/should do yourself to help the Easybuild maintainers
 - Use a recent toolchain generation
 - Policy: single dependency variant per generation
 - Add `sanity_check_commands` if possible/applicable
 - Link to other required PRs in top comment
 - Upload test report
- Use GitHub integration features!
 - `eb --check-contrib`, `eb --preview-pr`
 - `eb --new-pr (--dry-run)`, `eb --update-pr`
 - If not yet ready to be merged: convert PR to **draft**

Contributing easyconfig files



- How do maintainers review/test?
 - `eb --review-pr`
 - `eb --from-pr 12345 --rebuild --upload-test-report --robot`
 - Use of bots for testing - access can be granted for contributors on request
- **Demo**: opening an easyconfig PR

Contributing to easyblocks



- Maintain backward compatibility

```
if LooseVersion(self.version) >= LooseVersion('1.2.3'):  
    <code-for-newer-version>
```

- Open PR

```
eb --new-pr <easyblock> --pr-target-repo easybuild-easyblocks
```

- Upload test report using existing easyconfigs

```
eb --upload-test-report --include-easyblocks-from-pr <easyblock-PR> <easyconfig>
```

- Use easyblock PR from easyconfig PR

Use `EB_ARGS="--include-easyblocks-from-pr ..."` in bot request


- Keep in mind that we don't control (or even see) all easyconfig files

"Don't Break Userspace" – Linus Torvalds

Easyblock test reports



Example from
recent
[tensorflow.py PR](#)


 **boegel** commented on Mar 17 Member ...

Test report by [@boegel](#)

Overview of tested easyconfigs (in order)

- SUCCESS *TensorFlow-2.3.1-foss-2019b-Python-3.7.4.eb*
- SUCCESS *TensorFlow-2.3.1-foss-2020a-Python-3.8.2.eb*
- SUCCESS *TensorFlow-2.3.1-fosscuda-2019b-Python-3.7.4.eb*
- SUCCESS *TensorFlow-2.3.1-fosscuda-2020a-Python-3.8.2.eb*
- SUCCESS *TensorFlow-2.4.1-foss-2020b.eb*
- SUCCESS *TensorFlow-2.4.1-fosscuda-2019b-Python-3.7.4.eb*
- SUCCESS *TensorFlow-2.4.1-fosscuda-2020b.eb*
- SUCCESS *TensorFlow-2.4.4-foss-2021a.eb*
- SUCCESS *TensorFlow-2.5.0-foss-2020b.eb*
- SUCCESS *TensorFlow-2.5.0-fosscuda-2019b-Python-3.7.4.eb*
- SUCCESS *TensorFlow-2.5.0-fosscuda-2020b.eb*
- SUCCESS *TensorFlow-2.5.3-foss-2021a-CUDA-11.3.1.eb*
- SUCCESS *TensorFlow-2.5.3-foss-2021a.eb*
- SUCCESS *TensorFlow-2.6.0-foss-2021a-CUDA-11.3.1.eb*
- SUCCESS *TensorFlow-2.6.0-foss-2021a.eb*
- SUCCESS *TensorFlow-2.7.1-foss-2021b-CUDA-11.4.1.eb*
- SUCCESS *TensorFlow-2.7.1-foss-2021b.eb*
- SUCCESS *TensorFlow-2.8.4-foss-2021b.eb*

Build succeeded for 18 out of 18 (18 easyconfigs in total)
node3139.skitty.os - Linux RHEL 8.6, x86_64, Intel(R) Xeon(R) Gold 6140 CPU @ 2.30GHz (skylake_avx512), Python 3.6.8
See <https://gist.github.com/d4931d9ca18511f1620b99d98542bfa6> for a full test report.



Contributing to EasyBuild framework

- Maintain backwards compatibility compared to EasyBuild releases
- Make sure changes are covered by the test suite!
- Ideally also write documentation for new features
- Don't hesitate to ask for help (#general in Slack, mailing list, ...)
- See also Alex' EUM'23 talk (on Wed afternoon)



Use hooks to implement site-specific customizations

- Makes it easier to contribute back
- Simple example: change PyTorch dependency

```
def parse_hook(ec):  
    deps = ec['dependencies']  
    for i, dep in enumerate(deps):  
        if dep[0] == 'PyTorch' and dep[1] == '1.12.0':  
            ec['dependencies'][i] = ('PyTorch', '1.12.1', deps[i][2])  
            ec.log.info("[parse hook] Changed PyTorch dep from 1.12.0 to 1.12.1")
```

- More complex example by Alex (@lexming):
 - configuring OpenMPI - <https://easybuild.io/eum22/#eb-mpi>
- More info on hooks: <https://docs.easybuild.io/hooks>



Contributing to the EasyBuild documentation

- Should be a lot easier thanks to migration to Markdown + [MkDocs](#)
- Find gaps, add missing info (existing features, etc.)
- Review & update docs page (cfr. yearly review cycle
<https://github.com/orgs/easybuilders/projects/17>)
- **Demo**: editing docs + local preview of rendered docs
<https://github.com/easybuilders/easybuild-docs>
<https://docs.easybuild.io/>

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