

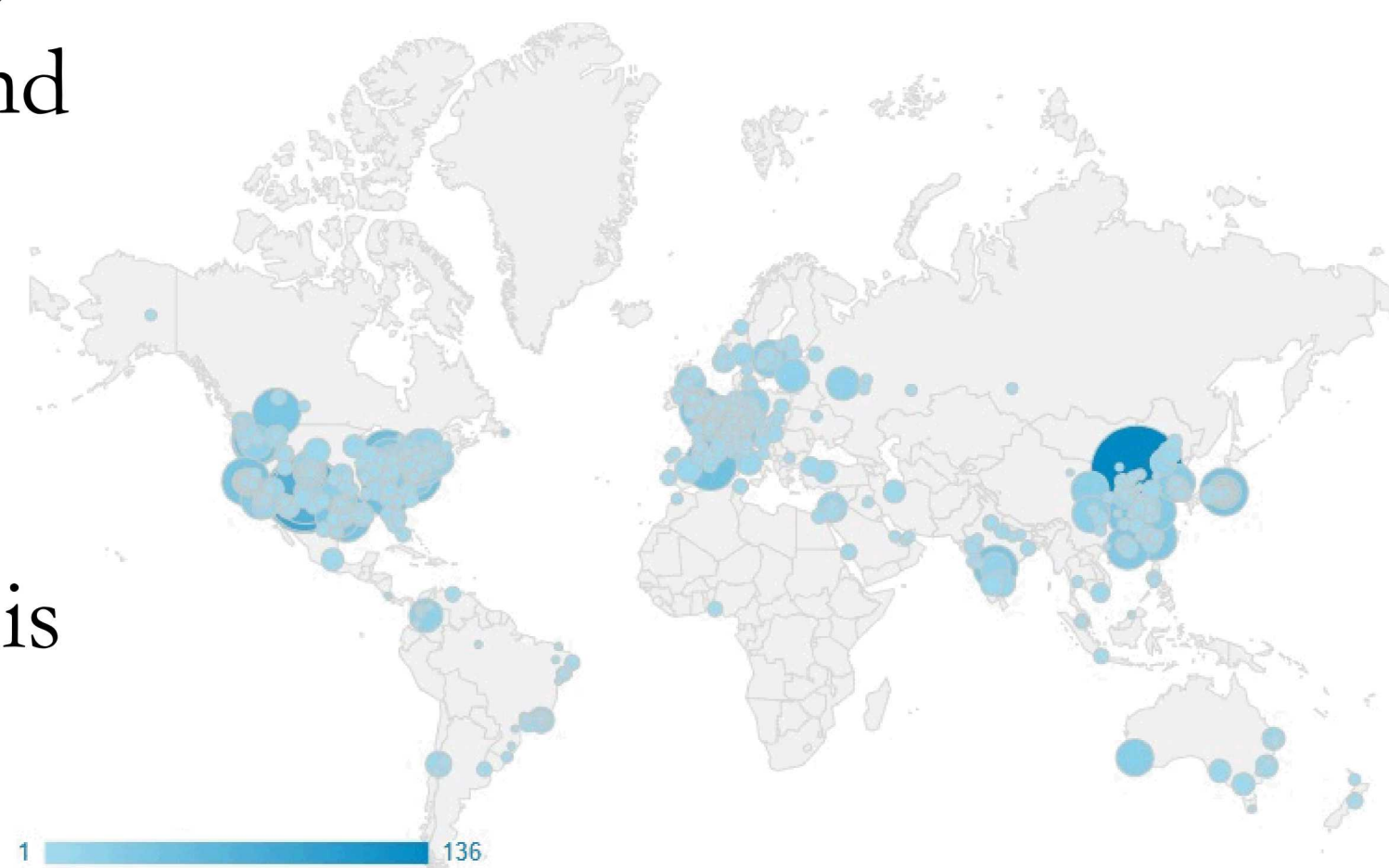


A Look at PFLOTRAN's Cloud-Based Continuous Integration

Glenn Hammond^α and Gautam Bisht^β

^αSandia National Laboratories (gehammo@sandia.gov), ^βPacific Northwest National Laboratory (gautam.bisht@pnl.gov)

PFLOTRAN is a petascale reactive multiphase flow and transport simulator for modeling physical and chemical processes in the Earth's subsurface. The open source (LGPL) code is founded upon PETSc and written in object-oriented Fortran 2003/2008.



Hits on pflotran.org in 2018

PFLOTRAN Code

- Repo: bitbucket.org/pflotran/pflotran
- For every push to the master branch on Bitbucket, a custom PHP webhook pushes all updates to master over to GitHub (via pflotran.org). Then, Travis-CI builds PFLOTRAN, runs all unit and regression tests, emails the developers when there are errors, and posts code coverage results to Codecov.io.

PFLOTRAN Documentation

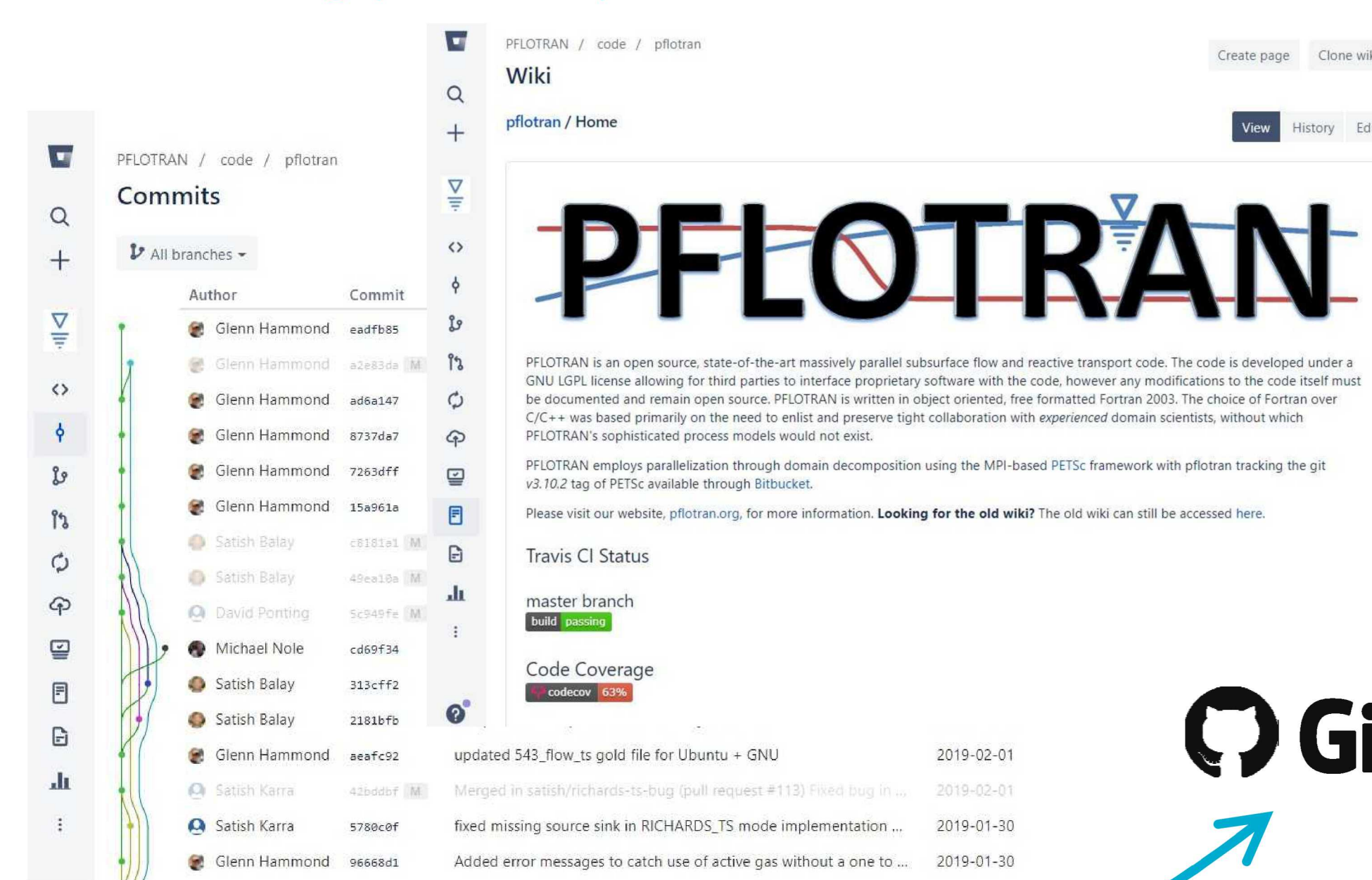
- Repo: bitbucket.org/pflotran/pflotran-documentation
- For every push to the master branch on Bitbucket, a CodeShip webhook launches a Docker VM that employs Sphinx to compile reStructuredText to HTML and PDF, and deploys the documentation to doc-dev.pflotran.org.

PFLOTRAN QA Test Suite

- Repo: bitbucket.org/pflotran/pflotran-qa
- For every push to the master branch on Bitbucket, a CodeShip webhook launches a Docker VM that builds PFLOTRAN, runs all QA tests, employs Sphinx to compile reStructuredText to HTML and PDF, and deploys the documented results to qa-dev.pflotran.org.

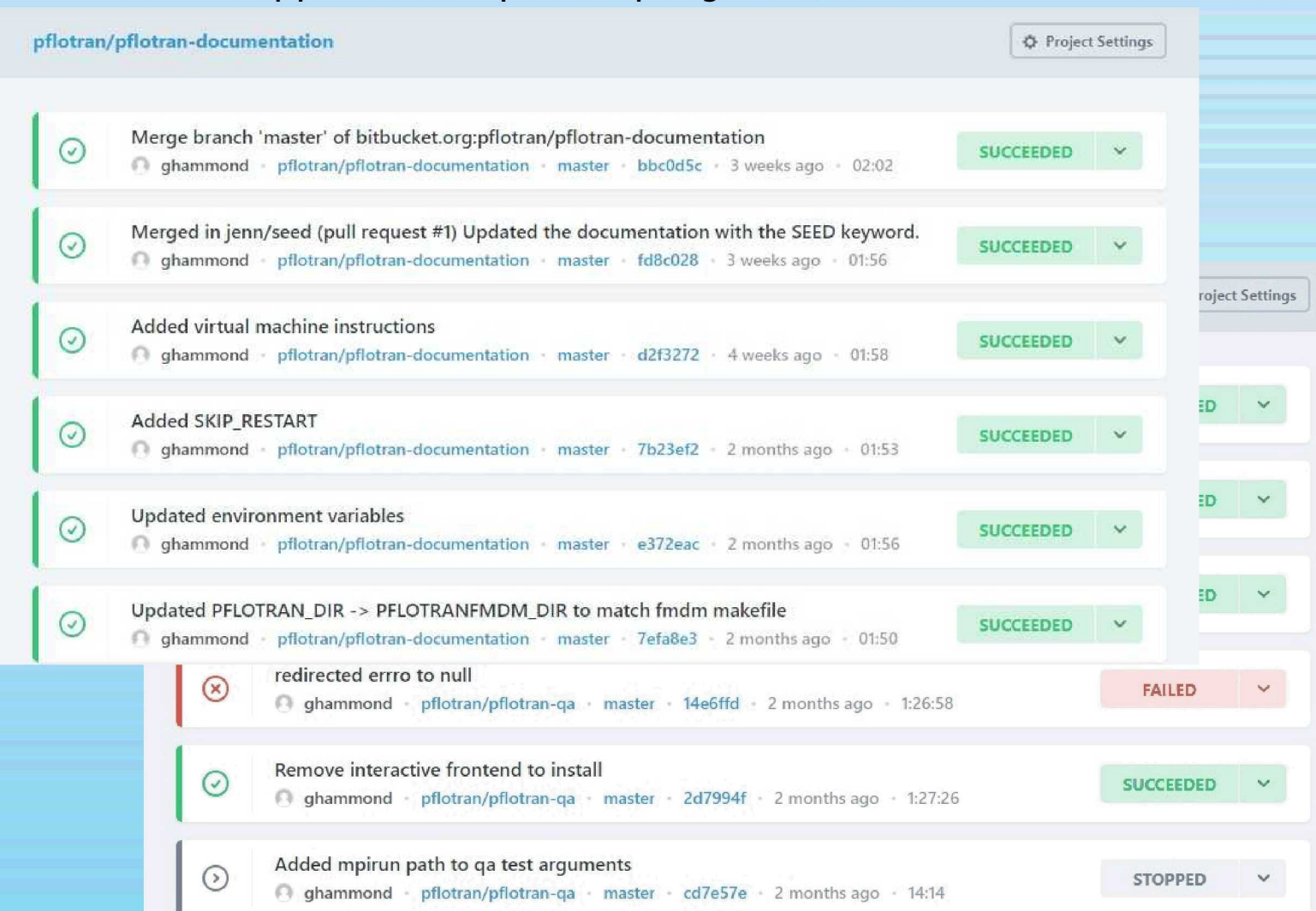
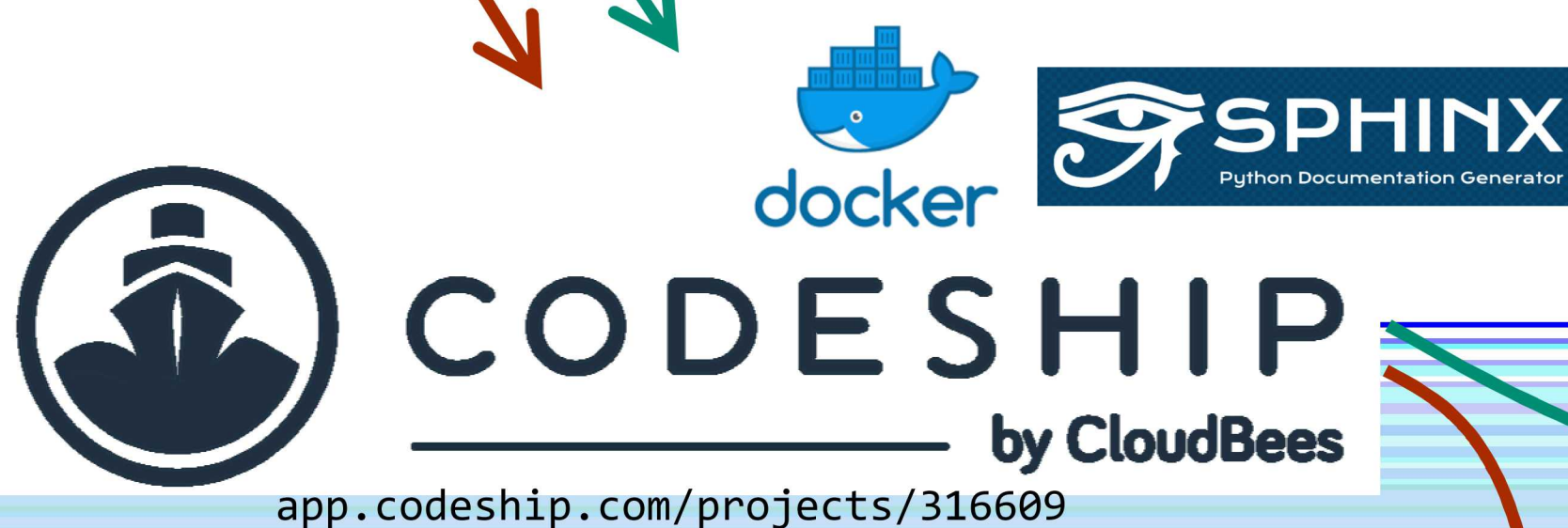


bitbucket.org/pflotran/pflotran-qa
bitbucket.org/pflotran/pflotran-documentation
bitbucket.org/pflotran/pflotran



pflotran.org

doc-dev.pflotran.org

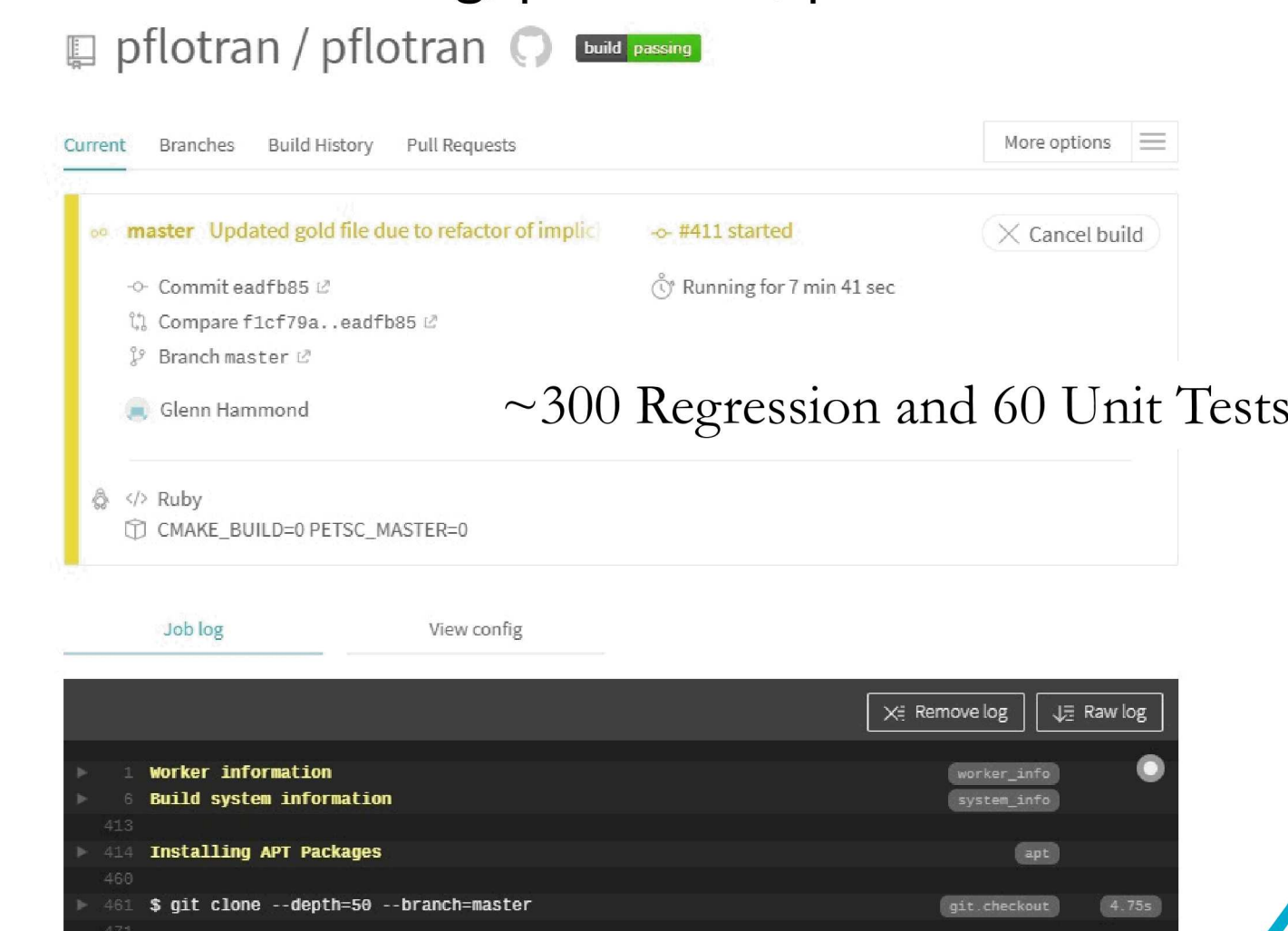


Limit of 100 builds per month



Travis CI

travis-ci.org/pflotran/pflotran



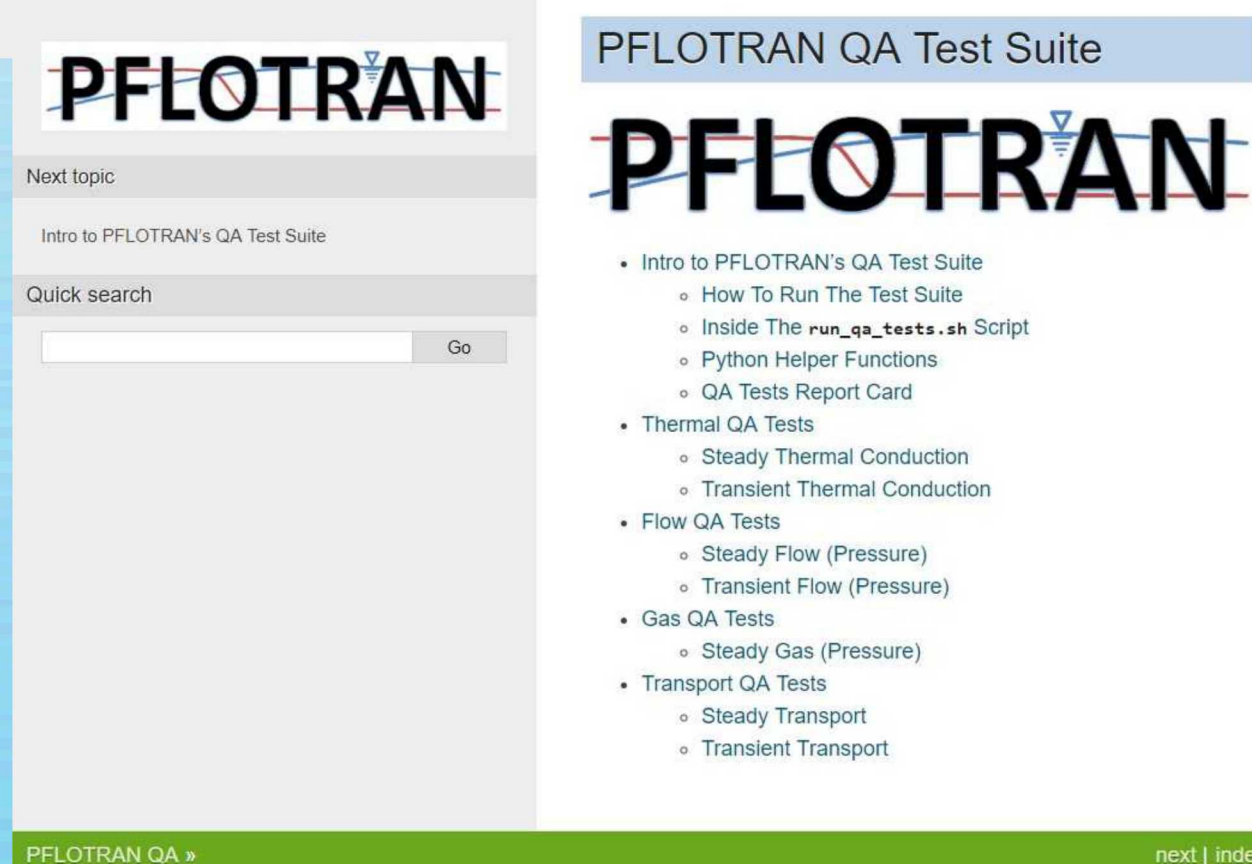
Unlimited builds



doc-dev.pflotran.org



qa-dev.pflotran.org



Codecov

codecov.io/gh/pflotran/pflotran/tree/master/src/pflotran

Files	#	0	100%	Coverage
appveyor.yml	47	0	0	0.00%
auxiliary.F90	48	48	0	100.00%
auxiliary_base.F90	4	0	4	0.00%
auxiliary_flow.F90	56	55	1	98.21%
auxiliary_flow_energy.F90	23	22	1	95.65%
auxiliary_full_inst.F90	11	10	1	90.91%
auxiliary_toweg.F90	197	167	30	84.77%
block_solve.F90	65	25	40	38.46%
block_solve.F90	165	0	165	0.00%
characteristic_curves.F90	1...	629	723	46.52%
characteristic_curves_base.F90	150	42	108	28.00%
characteristic_curves_common.F90	938	597	341	63.65%
characteristic_curves_oweg.F90	1...	896	422	67.96%