

Free beer today: how iPlant + Agave + Docker are changing our assumptions about reproducible science

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Project Website: <http://agaveapi.co>

Source Code: <https://bitbucket.org/taccaci/agave>

License: BSD-2Clause

([https://bitbucket.org/taccaci/agave/src/6af91b4d4046d7148d448087ac182efc502bc931/LICEN
SE?at=2.1.0](https://bitbucket.org/taccaci/agave/src/6af91b4d4046d7148d448087ac182efc502bc931/LICENSE?at=2.1.0))

Main Text of Abstract

In genomics and other data intensive sciences, collaboration and reproducibility have been severely constrained by three pervasive problems: data availability, software portability, and the onerous computational skillset required to overcome those two things. Today, effective bioinformaticians must be warrior poets that can both grapple with novel experiments in their scientific domain while still expressing their ideas in thousands of lines of scripts and code. While training and educating researchers will always be critical, it is a disservice to scientific discovery to dilute the time of domain experimental researchers with learning an ever-changing computational skillset. The real question is how can we keep scientists focused on their domain research by drastically reducing the overhead in performing responsible, collaborative, data intensive science?

Through the iPlant Collaborative project, we have been building cyberinfrastructure that solves scaling, collaboration, and reproducibility issues while quietly keeping full provenance and versioning information. By hiding these processes behind accessible web interfaces, we are tricking domain researchers into doing the right thing with their data and results, and command line is not required. We invite hackers, thinkers, and makers to peek behind the curtain; to see how Docker containers, the RESTful APIs of Agave, and web user interfaces can work together; and then, since everything is free and open source, to try tweaking things yourselves.