

What is Github

The IDEAS Scientific Software Productivity Project
ideas-productivity.org/resources/howtos/



Github (github.org) is a service (website) for accessing and managing git repositories. Github also provides a variety of tools for the distributed (multi-site) software development process.

Useful Prerequisites: *What is version control?* and *How to do version control with Git*.

Github provides a number of features.

- It is free for open development projects (i.e. projects that make their repositories readable) and private projects with a small number of users or from education institutes. Costs for larger private repositories are modest.
- It is trivial to add new members to the repositories with varying levels of access permissions (but access control options are fairly limited compared to other tools).
- There is an issues board that can be used for managing bug reports, proposed projects etc.
- There is a wiki where documentation, coding development requirements can be maintained.
- It is possible to display graphically both the repositories' history and the history of contributions to the repositories.
- One can manage repositories on Github using any web browser and does not require installing any software on your computer.
- There is a system for managing contributions to the repository from outside developers based on *pull requests*.
- There are hooks to many free services. One example is Travis CI for free continuous integration testing.

What are pull requests? They are methods for developers, both within the project team and completely outside the team, to write new code and then request that it be reviewed and tested before being merged into repository. Github provides a simple web based graphical interface to submit pull requests, hooks to allow automatically testing (e.g. using Travis CI) of the proposed code when it is submitted, and a graphical interface for examining and commenting on the proposed code. Based on feedback the submitter can rework the code and then update the pull requests.

What to read next: *How to use Github*

This document was prepared by Barry Smith and XXX with key contributions from YYY.

This material is based upon work supported by the U.S. Department of Energy Office of Science, Advanced Scientific Computing Research and Biological and Environmental Research programs.