CASAL2 Contributors Manual

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1. Introduction

This is a comprehensive manual for users who wish to develop and contribute to CASAL2. CASAL2 is open source and the development team encourage users to consider enhancing this program through contributing to the source code. The source code is hosted on github and can be found at `https://github.com/NIWAFisheriesModelling/CASAL2`. For more information you can contact the development team at `casal2@niwa.co.nz`. This manual is a step by step guide for users who wish to setup the build system and contribute to the source code. It begins by showing how to get a copy of the repository using git commands through to being able to compile CASAL2 and finally adding changes to the master (main) repository. Once changes have been added to the master repository they will be incorporated into the latest compiled version of CASAL2 which will be available for the public to download and use.

To maintain integrity of the code base and ensure confidence in users that the available version is reliable and accurate, the development team has created this manual for contributors. For the reasons above the development team will only accept changes to the repository that abide to the guidelines set out in this manual. This process and manual is intended to be pain free to encourage your contributions.

At the beginning of each section there will be a list of points that the section will go into at great detail. If you have experience with some aspects you can skip but if you run into trouble you can always come back to check this guide. This manual covers basics such as setting up a github profile, to using github and all the way to compiling and modifying C++ code.

2. Creating a forked local repository

This section will cover the following points

1. Create a github profile
2. Download git software
3. Fork the master repository

2.1. Git Profile

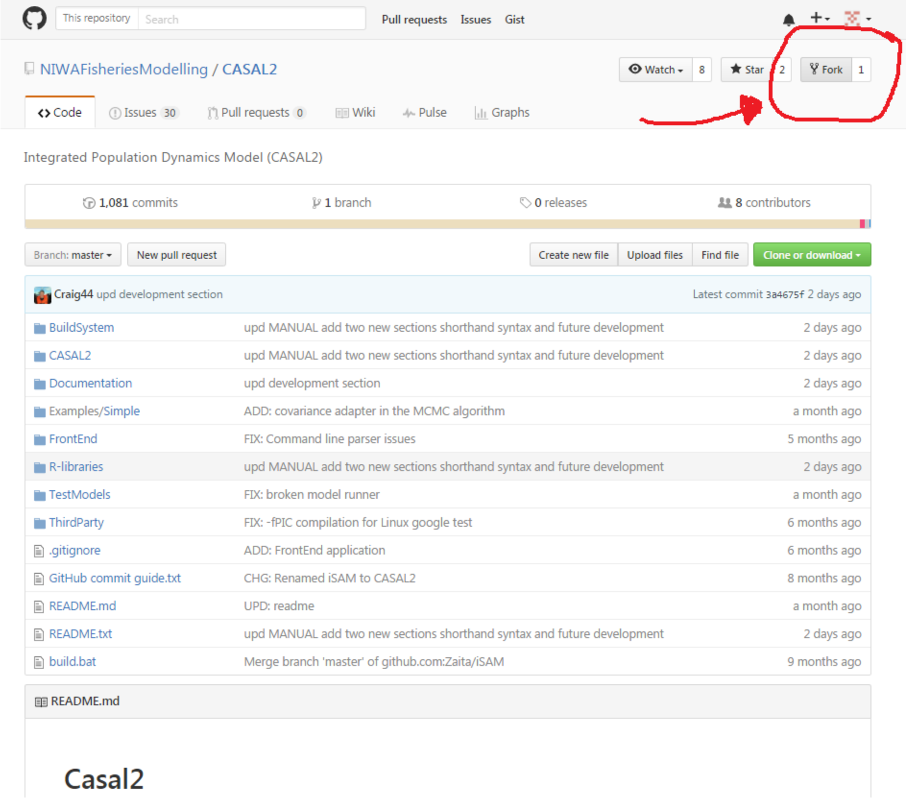
The first step you will have to do is create a profile on github (if you do not already have one). Github is free and easy to setup. Go to `https://github.com` to set up a profile if you do not already have one. Once you have set up a github account you need download git software that you use to ”communicate” to repositories.

2.2. Git Software

As mentioned earlier the source code is hosted on github so before you can get a copy of the repository you will need to install a program that can ”communicate” with github. You will need to acquire Command line GIT from `https://git-scm.com/downloads` this is because it is used to build a Version.h header file so CASAL2 but this will be discussed earlier. I use tortoisegit `https://tortoisegit.org/download` on windows to pull, push and commit changes to repositories. However there are many programs to use and all have the same functionality.

2.3. Forking a repository

The main repository which contains code that is in the publicly available CASAL2 executable is called the ’master’ repository. Only the development team have permission to add, delete and change code directly with the ’master’ repository. For other contributors there is a very easy way to add, delete and change code. This is through forking the master repository. This is done by going to the CASAL2 github repository found at `https://github.com/NIWAFisheriesModelling/CASAL2` and selecting the fork button in the top right of the page circled in Figure 2.1



Integrated Population Dynamics Model (CASAL2)

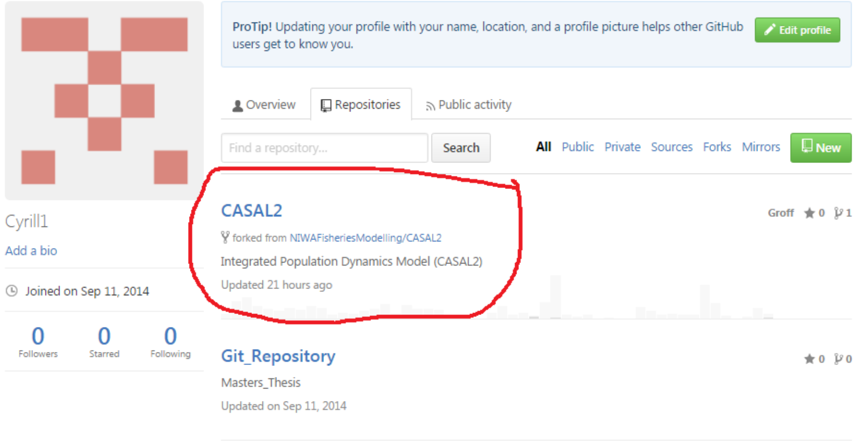
Craig44 upd development section — Latest commit 3a4675f 2 days ago

BuildSystem	upd MANUAL add two new sections shorthand syntax and future development	2 days ago
CASAL2	upd MANUAL add two new sections shorthand syntax and future development	2 days ago
Documentation	upd development section	2 days ago
Examples/Simple	ADD: covariance adapter in the MCMC algorithm	a month ago
FrontEnd	FIX: Command line parser issues	5 months ago
R-libraries	upd MANUAL add two new sections shorthand syntax and future development	2 days ago
TestModels	FIX: broken model runner	a month ago
ThirdParty	FIX: -fPIC compilation for Linux google test	6 months ago
.gitignore	ADD: FrontEnd application	6 months ago
GitHub commit guide.txt	CHG: Renamed iSAM to CASAL2	8 months ago
README.md	UPD: readme	a month ago
README.txt	upd MANUAL add two new sections shorthand syntax and future development	2 days ago
build.bat	Merge branch 'master' of github.com:Zaita/iSAM	9 months ago

Casal2

Figure 2.1: Creating a forked repository

This will create a copy of the CASAL2 repository under your profile at the point of the fork. To check that you have successfully forked the repository, go to your git profile and you should see a CASAL2 repository under your repositories, shown in Figure 2.2,



ProTip! Updating your profile with your name, location, and a profile picture helps other GitHub users get to know you.

CASAL2 — Groff ★ 0 ⑂ 1
forked from NIWAFisheriesModelling/CASAL2
Integrated Population Dynamics Model (CASAL2)
Updated 21 hours ago

Git_Repository — ★ 0 ⑂ 0
Masters_Thesis
Updated on Sep 11, 2014

Figure 2.2: Fork success

An important point is that the forked repository will not automatically keep up to date with the 'master' repository. So if the development team make changes, you will want to keep your forked repository up to date. This is easily done and is explained in the next section on how to maintain and contribute to a forked repository.

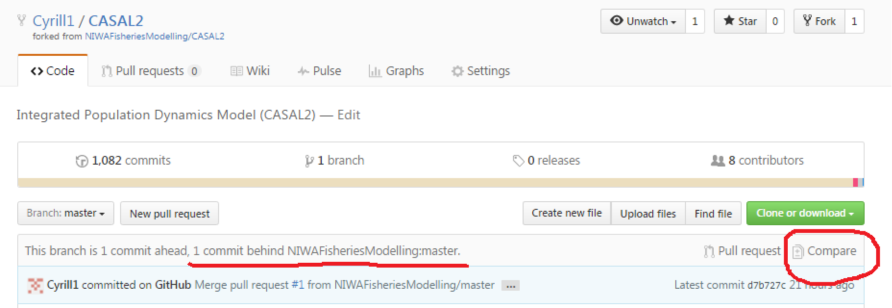
3. Maintaining and contributing to a forked repository

This section will cover the following points

1. Check the status of the forked repository compared to the 'master' repository
2. Update forked repository
3. Make changes to your forked repository

3.1. Checking the status of the forked repository

To see how your forked repository is compared to the 'master' repository. There is line that is underlined in red shown in Figure 3.1.



Integrated Population Dynamics Model (CASAL2) — Edit

This branch is 1 commit ahead, 1 commit behind NIWAFisheriesModelling:master.

Cyrill1 committed on GitHub Merge pull request #1 from NIWAFisheriesModelling/master ... Latest commit d7b727c 21 hours ago

Figure 3.1: Fork status

This line tells us if we are up to date or as shown in Figure 3.1 one commit behind. To update this repository click the 'compare' button which is circled in red. This will bring up a page that will tell you all the changes that have occurred to the 'master' repository. There are two situations that can occur when updating a forked repository. The first and easiest is that there is no conflicts and you can merge teh 'master' changes with ease, the second is there are conflicts.

4. Setting up CASAL2 build system

This section will cover, how to setup the build environment on you're local machine to compile CASAL2 on both windows and linux machines.

5. CASAL2 build rules

This section will cover, the standards contributors are expected to follow and the builds that must pass on the local machine in order to add a pull request for changes to be accepted into the 'master' repository.

5.1. CASAL2 coding practice

google style, C++ 11, annotate your code

5.2. Unit tests

test your code externally

5.3. Reporting

Add reports to your code change

5.4. Update manual

5.5. Builds to pass before merging changes

build the unitest version `DoBuild test` run the unittest check they all pass `casal2 DoBuild debug` run the second phase of unitests which are complete model runs `DoBuild modelrunner` this is conditional on having a debug version previously built. Build the archive which contains `DoBuild archive`

6. Merging changes form a forked repository to a master repository

This section will cover, how to merge changes from a forked repository to the ’master’ repository. This is under the assumptions that the contributor has followed all the rules laid out in Section 5.