



BRIGHAM YOUNG UNIVERSITY  
AUVSI CAPSTONE TEAM (TEAM 45)

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## Protocol for Software Implementation

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## Introduction

The purpose of this document is to detail the protocol for implementing new software on the aircraft. A new branch on git has been created which can only be changed via pull request. Only team leads can merge pull requests. Below are several different ways to make changes on the plane.

Some of the methods described below require you to install the hub software. This software allows command line shortcuts for communicating with Git Hub. It is not required. There is always another way to do each action, but it may require more work. Instructions to install the hub software along with the source code can be found at: <https://github.com/github/hub>

All command line instructions assume that the current working directory is the repository you are working with. All instructions also assume that the your changes are committed, pushed, and you've pulled the other most recent changes.

## To Update Software on Aircraft

This is to make permanent changes to the aircraft's code.

1. **Write and test your changes on a branch other then the plane branch.**  
When you begin making your changes, ensure that your branch is based off of the most recent commit of the plane branch. You can do this by making a new brach for your changes, or merging the plane branch into the branch you want to work on. On your computer, either:
  - (a) git checkout plane
  - (b) git branch <branch name>
  - (c) git checkout <branch name>or
  - (a) git checkout <branch name>
  - (b) git merge plane
2. **Create a pull request.** Either:
  - (a) open [www.github.com](http://www.github.com)
  - (b) navigate to the repository you want to change.

- (c) select "New Pull Request"
  - (d) select your branch on the right
  - (e) select the plane branch on the left (the arrow should be pointing at the plane branch)
    - NOTE: Ensure that these are from the BYU-AUVSI copies of these repositories. Do not merged into the repositories our work is forked from.
  - (f) select "Create Pull Request"
- or (this requires hub)
- (a) git checkout <branch name>
  - (b) send\_to\_plane "<Description of changes>"
3. **Inform your team lead you have created a pull request they need to review.**
  4. **After pull request is approved on git hub**
    - (a) ssh into plane
    - (b) cd to the relevant directory
    - (c) git pull
    - (d) cd to top of workspace
    - (e) catkin\_make

## Test Your Code on Aircraft

This is for temporarily testing your code on the aircraft

1. ssh into plane
2. cd to the relevant directory
3. git pull
4. git checkout <branch name>
5. cd to top of workspace
6. catkin\_make

7. run tests
8. commit and push any changes you make during test
9. **git checkout plane**
10. cd to top of workspace
11. catkin\_make

## Emergency Changes

This is for changes that must happen right now (i.e. emergencies during flight test) and should be very small changes.

1. ssh into plane
2. cd to the relevant directory
3. open files in command line editor
4. make changes
5. cd to top of workspace
6. catkin\_make
7. test
8. **commit and push any changes you make**

## Add a New Repository

To add a new package to the aircraft speak with Kameron. Also note that this protocol will not protect individual sub team's code (i.e. code on UGV, ground stations, etc...) if you speak with Kameron he can set this up for your code as well if you'd like.