**USEFUL LINKS ABOUT F-PRIME**

<https://github.com/fprime-community/fprime-course-materials/tree/master/Flight_Software_Workshop-June_2019>

<https://nasa.github.io/fprime/getting-started.html>

<https://github.com/nasa/fprime/tree/master/docs>

**OS / IDE INSTALLATION**

1. **If needed,** install VirtualBox (<https://download.virtualbox.org/virtualbox/6.1.2/VirtualBox-6.1.2-135663-Win.exe> )

* You will need to install an extra driver to support USB high speed otherwise the JTAG debugging will be slow. <https://download.virtualbox.org/virtualbox/6.1.2/Oracle_VM_VirtualBox_Extension_Pack-6.1.2.vbox-extpack>
* Configure the virtual machine. Use static memory allocation, I have not much luck with dynamic.

1. Install Ubuntu 18.04 on your virtual machine.
2. Download and install Code Composer Studio 9.1 in **default** directory. (<https://software-dl.ti.com/ccs/esd/CCSv9/CCS_9_1_0/exports/CCS9.1.0.00010_linux-x64.tar.gz>)
   * cd Downloads/
   * tar -xvf CCS9.1.0.00010\_linux-x64.tar.gz
   * cd CCS9.1.0.00010\_linux-x64/
   * sudo apt-get install libusb-0.1-4
   * ./ccs\_setup\_linux64\_9.1.0.00010.bin
   * Progress through the installation then select MSP430 and Hercules processors.
3. Install wine : sudo apt-get install wine1.6
4. Download and unzip Halcogen (<http://www.ti.com/tool/HALCOGEN>)
   * Install Halcogen using wine. wine HALCoGen-04.07.01-installer.exe
   * Install Halcogen in the Code Composer Studio folder.

**CUBE ROVER PACKAGE CLONING – FPRIME INSTALLATION (FRESH INSTALL)**

If this is a fresh install or a new branch, follow the instructions in **fprime-setup\_new\_fprime\_branch\_\_or\_fresh\_install.md**

**CUBE ROVER PACKAGE CLONING – FPRIME INSTALLATION**

1. Clone CubeRoverPackage from <https://github.com/PlanetaryRobotics/CubeRoverPackage>
2. Open terminal
3. sudo apt-get install python-lxml
4. sudo apt-get install python-cheetah
5. cd <clone\_destination>/Apps/FlightSoftware/fprime/
6. To Re-build FPrime

(Ensure that any unsaved changes are stashed or backed up)

* 1. git clean -xdf
  2. ./configure.sh
     + Make sure your build environment has the paths correctly setup, for example:
       - mk/configs/compiler/defines\_ccs.mk: Make sure the path to the compiler
         * Make sure `TI\_ARM\_COMPILER\_ROOT\_LOC` points to the current location of the CCS compiler
       - mk/configs/compiler/defines\_common.mk: Make sure the path to the project is correct
         * Make sure `CUBEROVER\_PACKAGE\_TOP\_LEVEL` and `FPRIME\_ROOT\_LOC` point to the correct location of this CubeRoverPackage and the fprime root inside of it (respectively).

3.cd Os

4. make gen\_make

5.cd ../CubeRover

6. make gen\_make

* + - (generates all the python files for building)
      * if it says you have issues with missing python packages, run:
        + `sudo apt-get install python-lxml`
        + `sudo apt-get install python-cheet

7. cd ..

8. ./build\_libs.sh

9. ./install\_libs.sh

10. cd CubeRover

11. ./clean.sh (to make sure you’re in a clean env.)

11. ./build.sh

1. Open Code Composer Studio (~/ti/ccs910/ccs/eclipse/) ./ccstudio
2. Use default workspace
3. Click on Project → Import CCS Projects…
4. Select “CubeRoverPackage/Apps/FlightSoftware/PrimaryFlightController/FlightMCU”
5. Click on Finish.
6. In the project file remove the folder ti-arm-xxx folders.
7. Click build to compile.