**Setup HIRO HRP Environment**

Follow the next 4 steps to setup Chorenoid after installation:

1. Change all paths that include /harada/src to /juan/openhrp
2. Remove "rtc" and "bridge" from two Makefile's found at: /Controller and /Controller/server
3. Change the path for the TOP variable found at: forceSensorPlugin/Makefile.setup
4. Install libqdbm++-dev

**How to Run the HIRO Simulation:**

1. Run the following script to enable the control of the simulation:

* Open the **GrxUI** by running: ./bin/unix/GrxUI.sh
* Run the **OpenHRPController.sh** from: "./Controller/IOserver/robot/HRP3STEP2/bin/ OpenHRPController.sh”

1. Click on Script icon on the top left corner of the program
2. Click on the play icon
   1. A new window will open to control the robot

**Load the HIRO Simulation:**

1. Change to the following directory: /Controller/IOserver/robot/HRP3STEP2/project
2. Load: HRP3STEP2-aist.xml

**Load the HIRO Controller Code:**

1. Go to /sample/forceSensorPlugin/server0418/
2. Open forceSensorPlugin\_impl.cpp

**Make File**

* To make the file, go to the forceSensorPlugin/server0418 directory and type:   
  “make ROBOT=HRP3STEP2. “
  + This command is defined in Makefile.robot
* Parameters used in Makefile are defined in the parent directory under Makefile.setup
* Libraries:
  + It seems that when you have a shared library and you want to link it, you need to use –l command.
  + It seems that you use –shared –Wl, soname,libmystuff to build a library but not to link it.

**ECLIPSE**

* Make sure to include for both INCLUDES AND LIBRARIES the address:  
  “openhrp/OpenHRP3.0-HIRO/Controller/IOServer/robot/HRP3STEP2/bin”
* Go to Debug Configurations and:
  + Under C/C++ Attach to Application,
    - Under the main tab, assign the hrpsys program to the C++ application which can be found in the “/Controller/IOServer/robot/HRP3Step2/bin/hrpsys” folder.
    - Under the debugger tab, select the Shared Libraries tab and also include the path that was listed in the previous bullet.

**Inserting External Classes to Control in the C++ program**

*Method*: forceSensorPlugin\_impl::control  
*Switch case*: after Direct Teaching  
*Line*: 789

New Case Statement with name of your choice

**Debugging**

Perform at attach process operation to **hrpsys**, the latter is found at:   
“openhrp/OpenHRP3.0-HIRO/Controller/IOServer/robot/HRP3STEP2/bin”

In the top folder of OpenHRP3.0-HIRO, there is a Make.rules file, where we establish the flags for all Makefile children.

**Debugging Problems:**

* If the code cannot be accessed or found after debugging:

1. Go to /Controller/IOserver/robot/HRP3STEP2/bin
2. Run: ldd hrpsys
3. If some libraries are not found, run:
   1. “export LD\_LIBRARY\_PATH=.” Without the quotes and make sure there is no space between the equals sign and the path.

**Shared Library Errors**

* Make sure you have selected Linux GCC Tool Chain Editor under C/C++ Build. This will enable you to find the “Libraries” and “Library Paths” tabs under the Project’s “Path and Symbol’s” options.
* Menu->Project->Properties
  + Add the path and the shared library file
* C/C++ Build->Settings
  + Click on the Tool Settings tab->GCC C++ Linker
    - Libraries:
      * Do not place anything in the –l option on the top window.
      * Add the path on the bottom window
    - Shared Library Settings:
      * Click on shared
      * Add the name of a shared library in the soname field.