

Compiling MoorDyn+

MoorDyn+ is an open-source dynamic mooring line model based on MoorDyn (<http://www.matt-hall.ca/moordyn.html>). MoorDyn+ source code is available at the following link <https://github.com/imestevez/MoorDynPlus>.

1 Compiling using CMake

MoorDyn+ can be compiled for Windows and Linux using CMake (<https://cmake.org/>). CMake is a cross-platform and an independent building system for compilation. This software generates native building files (like Makefile or Visual Studio projects) for any platform. The location of dependencies and the needed flags are automatically determined.

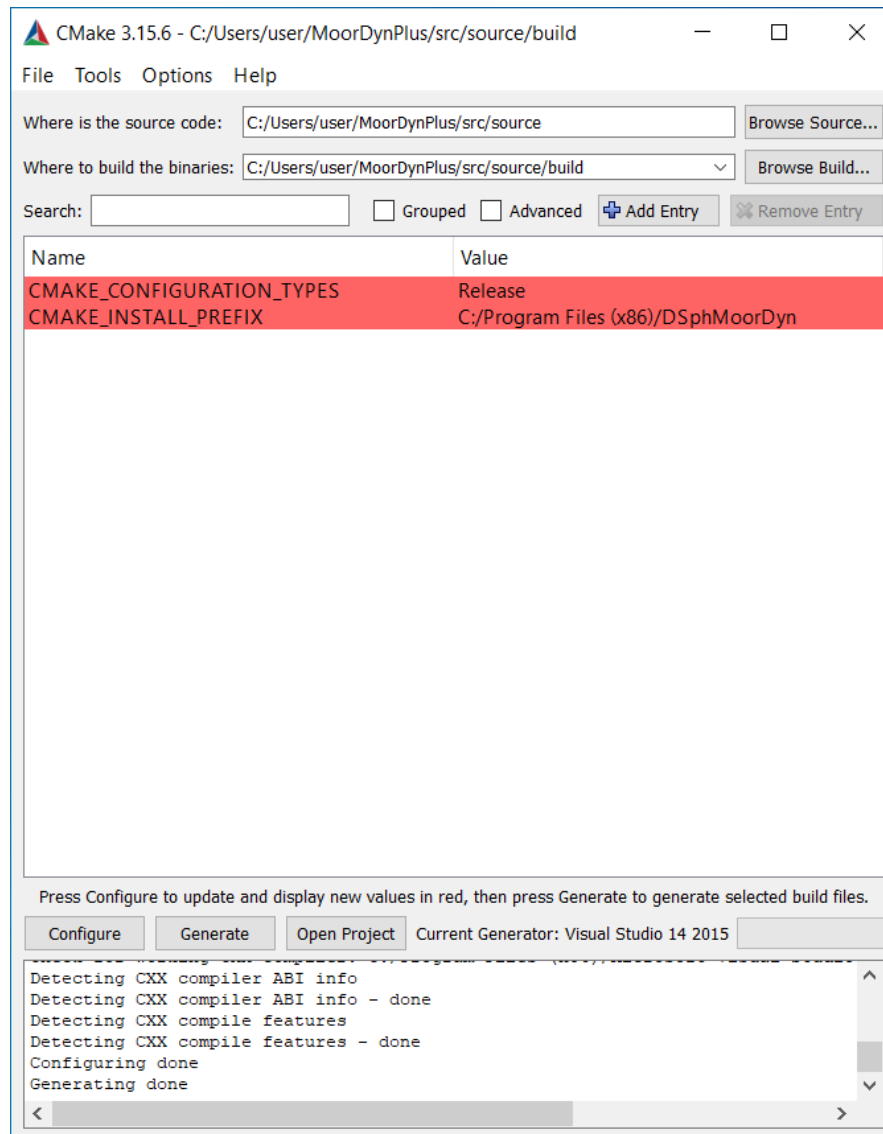
1.1 Compile instructions for Windows:

The building system needs the following dependencies:

- CMake version 3.0.0 or higher (<https://cmake.org/download/>)
- Visual Studio 2015 version.
- Visual Studio Platform toolset v140.
- File “CMakeLists.txt” in **MoorDynPlus/src/source**

Open CMake (cmake-gui). Paste the **MoorDynPlus/src/source** folder path into the textbox labelled as **Where is the source code**, and paste the build folder path into the **Where to build the binaries** textbox. Once the paths are introduced, the **Configure** button should be pressed. A new dialog will appear asking for the compiler to be used in the project. Please, remember that only Visual Studio 2015 for 64 bit are supported. The output text should be **Configuring done**.

CMAKE_CONFIGURATION_TYPES indicates the mode to compile MoorDyn+. This option can be switched between **Release** and **Debug** modes. Each mode will create a different Visual Studio Project. Select one of them and press the **Generate** button. This will generate a Visual Studio project file into the **build** directory and the output text should be **Generating done**. Press on **Open Project**.



Compile the **DSphMoorDyn** solution. If the compilation was successful it will generate the file **LibDSphMoorDyn_x64_v140_[Release | Debug].lib**. The name depends of the selected mode on **CMAKE_CONFIGURATION_TYPES**. This library is compiled to use with DualSPHysics_v5.0 or higher. Download the DualSPHysics package at the following link <https://dual.sphysics.org/index.php/downloads/>. Paste the file into **DualSPHysics_v5.0/src/lib/vs2015** and compile DualSPHysics <https://github.com/DualSPHysics/DualSPHysics/wiki/6.-Compiling-DualSPHysics>.

1.2 Compile instructions for Linux:

The building system needs the following dependencies:

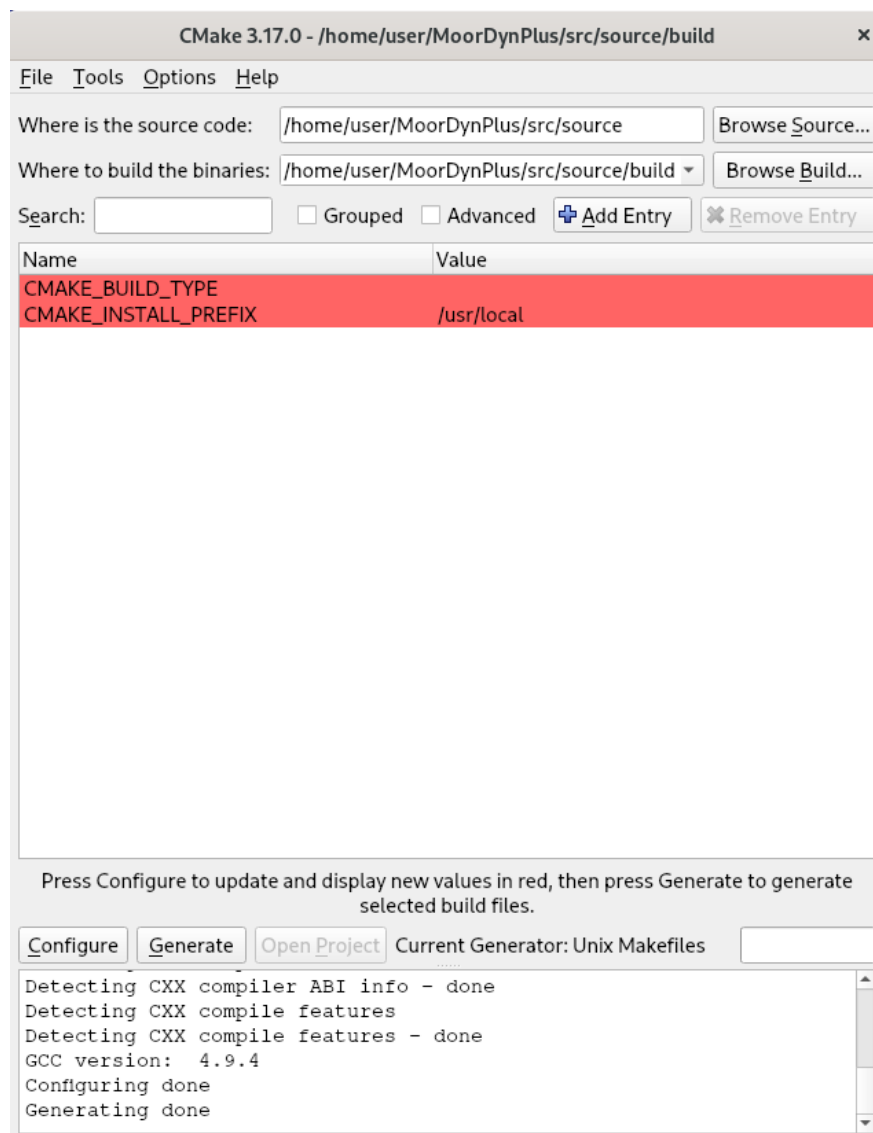
- CMake version 3.0.0 or higher (<https://cmake.org/download/>).
- GNU G++ compiler 4.9 version or higher¹.

¹ DualSPHysics libraries are compiled with GNU G++ compiler < 5.0 version. If you want to compile **MoorDyn+** and **DualSPHysics** with GNU G++ compiler >= 5.0 version, then all other libraries in the DualSPHysics “Makefiles” should be disabled.

- Make tool for managing dependencies.
- File “CMakeLists.txt” in **MoorDynPlus/src/source**.

Open CMake (cmake-gui). Paste the **MoorDynPlus/src/source** folder path into the textbox labelled as **Where is the source code**, and paste the build folder path into the **Where to build the binaries** textbox. Once the paths are introduced, the **Configure** button should be pressed. A new dialog will appear asking for the compiler to be used in the project. Please, remember that only GNU G++ compiler 4.9 version or higher for 64 bit are supported.

Press on **Configure** again. The output text should be **Configuring done**. If the configuration was successful, now press the **Generate** button. This will generate a “Makefile” to compile the source files into the **build** directory and the output text should be **Generating done**.



Open a Linux terminal and go into **MoorDynPlus/src/source/build** folder and execute the command **make** on the terminal to compile the source code.



```
user@archlinux:~/MoorDynPlus/src/source/build
[user@archlinux ~]$ cd MoorDynPlus/src/source/build/
[user@archlinux build]$ make
```

If the compilation was successful it will generate the file **libdsphmoordyn.a** into **MoorDynPlus/src/source/build**. This library is compiled to use with DualSPHysics_v5.0 or higher. Download the DualSPHysics package at the following link <https://dual.sphysics.org/index.php/downloads/>. Paste the file into **DualSPHysics_v5.0/src/lib/linux_gcc** and compile DualSPHysics <https://github.com/DualSPHysics/DualSPHysics/wiki/6.-Compiling-DualSPHysics>.