

# DWP<sup>2</sup>

## SHIP CONTROLLER MANUAL

### [STEP-BY-STEP SETUP](#)

[Creating a Boat](#)

[WaterObject](#)

[Ship Controller](#)

[Rudder](#)

[Engines](#)

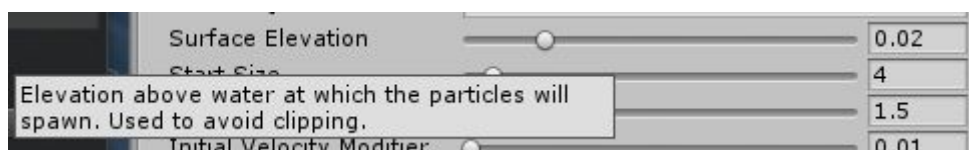
[Thrusters](#)

[Sound](#)

### [INPUT](#)

[Using Different Input Manager](#)

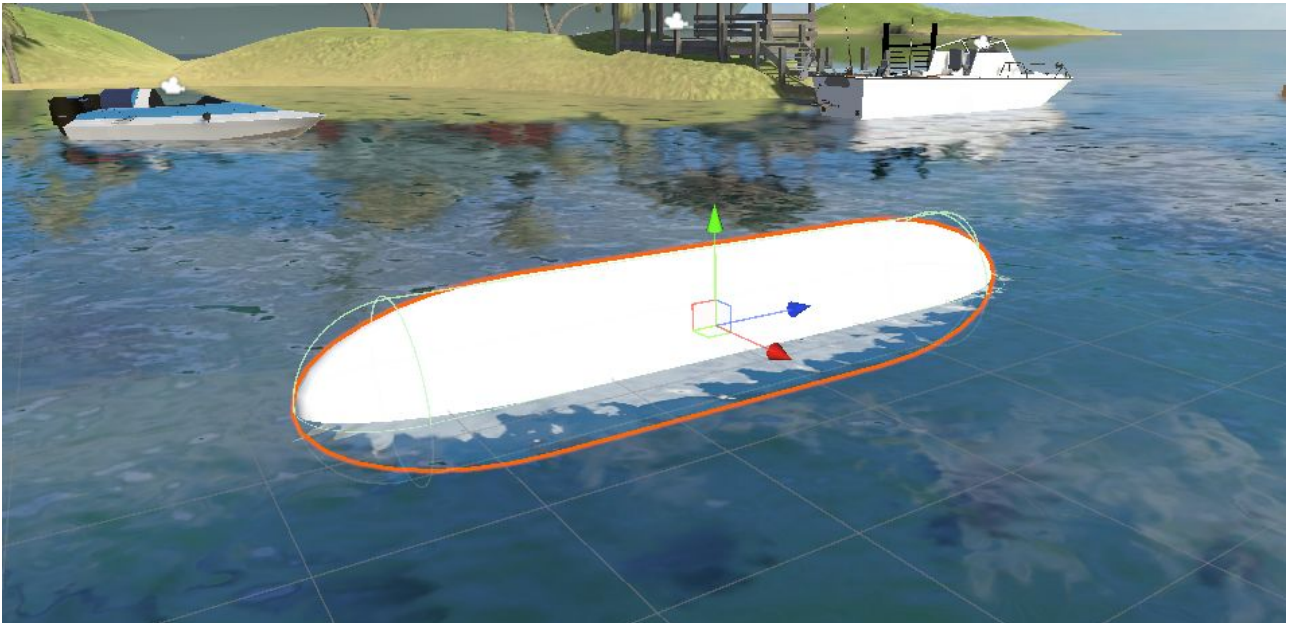
**Tip: Hover your mouse over editor fields to see an explanation.**



# STEP-BY-STEP SETUP

## Creating a Boat

For the setup a primitive capsule will be used (GameObject menu > 3D Object > Capsule).



1. Add the ship object into the scene and tag it 'Ship' (add a new tag if it does not exist)

### WaterObject

2. Add *Water Object Wizard* component to the ship object. Tick the particle system option and click on *Auto-Setup* button. Click play - the object should float now.



### Ship Controller

3. Add the *Advanced Ship Controller* component.

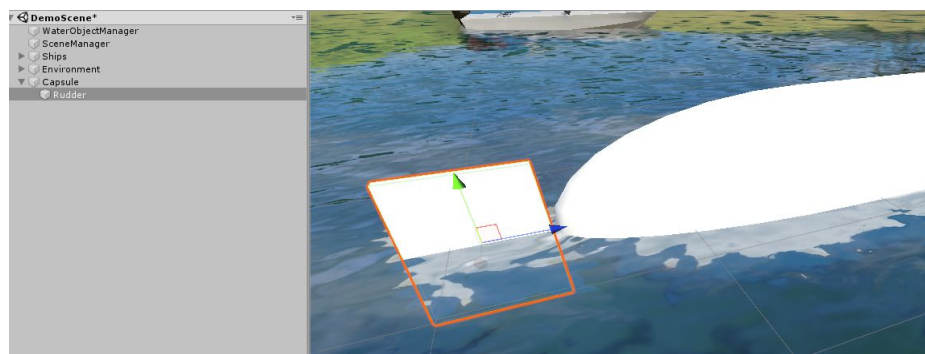


4. Add the *Center Of Mass* component and adjust center of mass to be near the bottom of the ship (green sphere). If you do not do this your ship will most likely tilt over to the side since center of mass is unrealistically high for a ship by default.

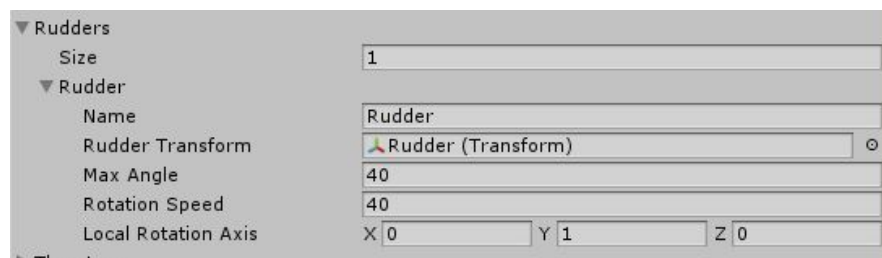
5. If this is the first time you are setting *Advanced Ship Controller* up you will need to add following Axes under Edit > Project Settings > Input. You can skip this step, just note that you will not be able to use the related features until the input bindings are set up.
- *EngineStartStop* (only positive button)
  - *AnchorDropWeight* (only positive button)
  - *SubmarineDepth* (both positive and negative button)
  - *LeftThrottle* (both positive and negative button)
  - *RightThrottle* (both positive and negative button)
  - *SternThruster* (both positive and negative button)
  - *BowThruster* (both positive and negative button)

## Rudder

6. Add a rudder (in this case just a scaled cube) to the ship. If your model already has a rudder you can use that OR you could use a cube with disabled *Mesh Renderer* if you wanted a larger rudder (see next step) while keeping the original look of the ship.



7. Assign the fields related to rudder inside the *Advanced Ship Controller*:

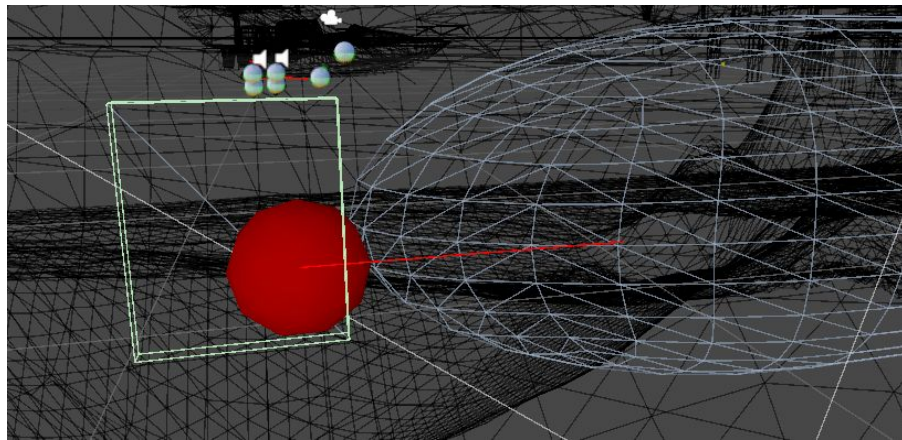
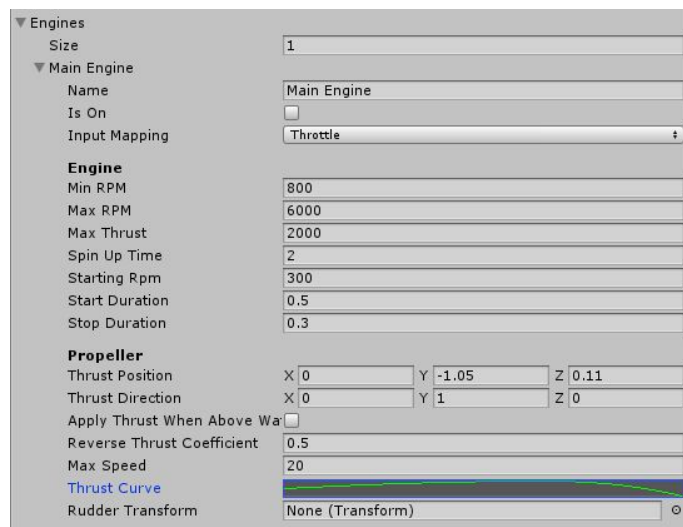


If the rudder rotates in the wrong direction set the corresponding axis to -1.

8. Add *WaterObject* to the rudder so it can interact with water too. You can do it manually or by adding *WaterObjectWizard* component (see Water Object Manual).
9. Add Camera of any type to the ship object (as a child) and tag it as 'ShipCamera'
10. Press play and cycle to your ship using "V" button on the keyboard. It should now float and be able to turn the rudder.

## Engines

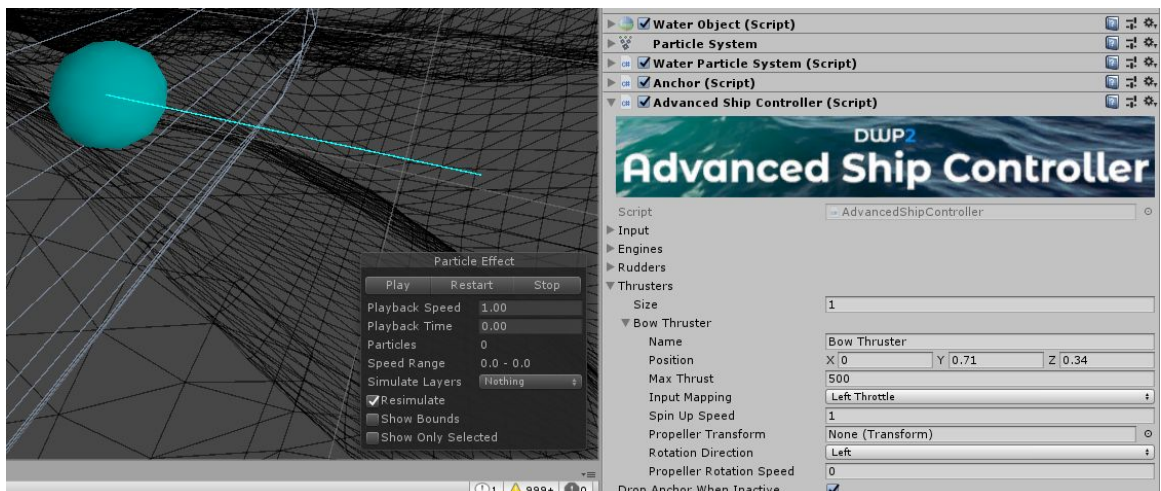
11. To make ship move an engine and propeller are needed. *Ship Controller* assumes that there is one propeller per engine. Add an engine under *Engines* tab and set the wanted values (hover over each value to see what it does or check the Components section of this manual). If thrust position is above the water thrust will not be applied (if *Apply Thrust When Above Water* is not checked).



An example of set-up engine with thrust point shown as red sphere and thrust direction as red line.

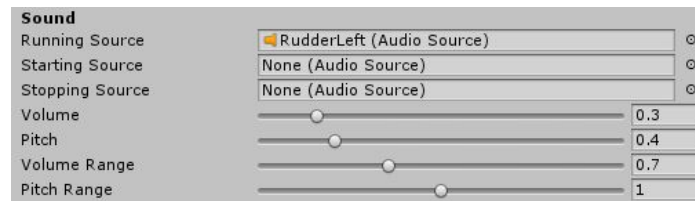
## Thrusters

12. [Optional] Larger ships usually have bow and/or stern thrusters to help them maneuver. Thruster is indicated as a blue sphere with a line indicating direction of thrust when positive input is pressed (which needs to be set up - step 5).



13. The ship should now be fully functional (minus the sound).

## Sound



14. Add an *Audio Source* to the ship object or any of its children. Assign a looped engine sound clip to it (you do not have to touch other *Audio Source* options) and drag that *Audio Source* to the field *Running Source* under *Engine* foldout.
15. [Optional] If needed, do the same for *Starting Source* and *Stopping Source* fields. Adjust the *Start Duration* and *Stop Duration* fields to be somewhat shorter than the starting and stopping clips. Only one of the two can also be assigned. It is a good idea to have fade-in and fade-out on the clips. *Running Source* will start playing after *Start Duration* seconds after the engine start/stop button is pressed and it is recommended to have a bit longer clip than start duration so that the sounds overlap each other and fade without a hard jump. If you do not assign *Starting Source* or *Stopping Source* a simple fade will be done for starting, and hard cutoff for engine stopping.

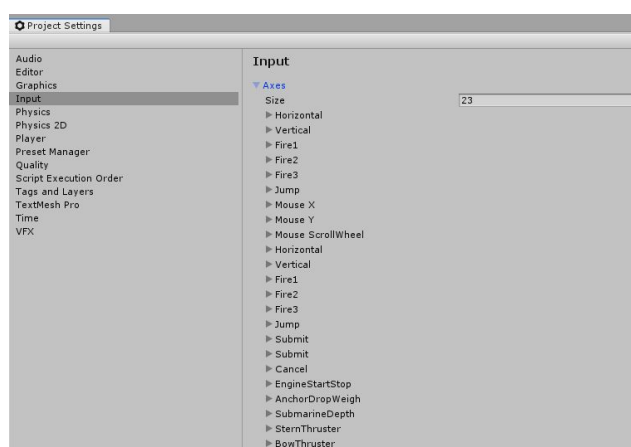
## INPUT

For all key bindings to work properly the following input bindings need to be set up inside Project Settings > Input:

- EngineStartStop
- AnchorDropWeigh
- SubmarineDepth
- SternThruster
- BowThruster

If those are not set up the related function will not be available through keyboard / controller input. E.g. if you do not need to use submarine depth you can skip that axis.

Example Input settings:



### **Using Different Input Manager**

If you need to use different input manager (e.g. Rewired) you can do so by modifying the script *InputBindings.cs* (Assets > DWP2 > Dynamic Water Physics 2 > Scripts > ShipController > Input). Check the comments in the script itself for more info.