

Manual

Coral Reef 3

August 17, 2018



Abstract

This document should give an overview for the functionalities of the Coral Reef 3 (Multiuser) project. This document does not address any kind of technical functionalities based on the raw project in Unreal Engine 4.18. It's meant to be a simple guide that explains the general interaction with the game.

1 Introduction

Because “Coral Reef Multiuser” can be played with and without VR the documentation on some parts of the game/simulation is splitted up into two different parts. The basic ingame menu is the same for normal and VR use. Only the Main Menu and some minor details are handled completely different for VR and non VR. Also the options presented by the launcher of the game/simulation are explained in detail.

2 Launcher

All game relevant options regarding the playermodel, fishes, corals etc. can only be set before the game even starts. This options can be set by using the “Coral Reef Launcher”. The launcher provides various possibilities to optimize the settings to fit nearly every need and hardware configuration.



It's important to note that this settings will only apply if the game/simulation is started with the launcher.

2.1 General

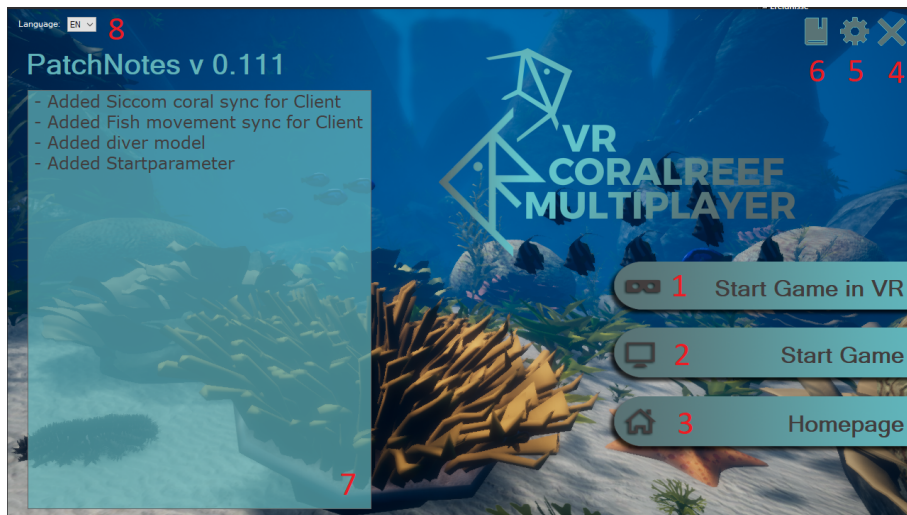


Figure 1: Launcher: Main window

The Launcher (Figure 1 on page 1) provides the most recent patchnotes (Figure 1 on page 1[7]), the options to run the game in VR (Figure 1 on page 1[1])/ PC (Figure 1 on page 1[2]) and to view the website of the project

(Figure 1 on page 1[3]). In the upper left corner of the launcher window the language of the launcher can be set (Figure 1 on page 1[8]). The selected language also influences the language of the game.

To open the settings navigate to the middle button in the upper right corner (Figure 1 on page 1[5]). More about the setting will be explained in section 2.2. The button left to the settings button (Figure 1 on page 1[6]) will open this manual in the “*.pdf” viewer of your choice. To close the launcher press the close button in the upper right corner (Figure 1 on page 1[4]).

2.2 Settings

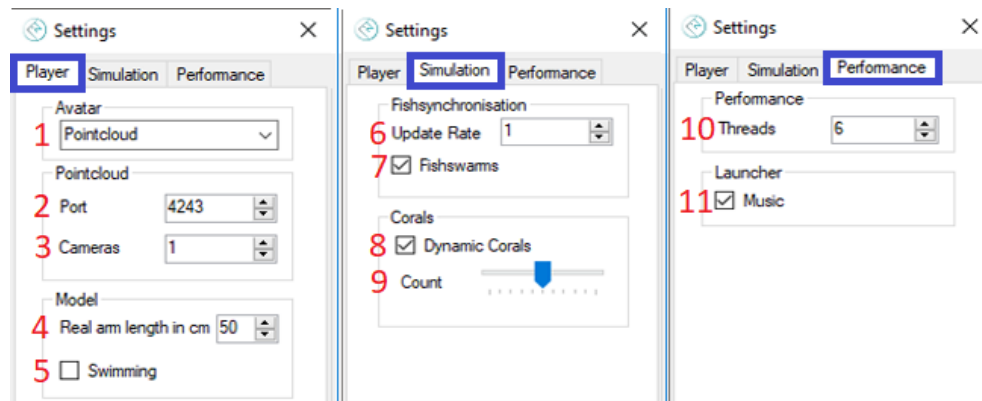


Figure 2: Launcher: Settings

Player/Avatar [1]

The game can use an animated diver model or a pointcloud generated by the image of one or multiple kinects (pointcloud) to create an representation of the player within the coral reef. Dependent on the selected option the other player will perceive the player as a pointcloud or diver model.



The pointcloud option is only available if playing in VR mode. Also the dyncam plugin needs to be set up properly.

Player/Port [2]

If using the pointcloud this is the port the other player should listen for the point cloud data.

Player/Cameras [3]

If using the pointcloud this is the amount of Cameras that is used to generate the own point cloud.

Player/Real Arm length in cm [4]

If using the diver model avatar this option influences the length of the virtual arms by calculating the virtual arm length with the real arm length of the user. Since the length of the virtual arms will influence the movement of the virtual tool/controller it's important to optimize this value to get the most out of immersion.

Player/Swimming [5]

Enables/Disables the swimming with arm movements when playing in VR and the model avatar.

Simulation/Update Rate [6]

The update rate of the fishes will influence the network load since it increases the interval the positions of all fishes are send across the network to the client.



Setting this too high will always result in huge network lags! Set this to 1.0 if pointcloud is activated.

Simulation/Fishswarms [7]

Toggles the huge fish swarms. This will not effect seastars, crabs, sharks, fishes that don't swim in swarms and snakes. If the client has the swarms disabled and the client doesn't, the client will just adopt the settings of the server.

Simulation/Dynamic Corals [8]

Toggles the generation of dynamic corals and algae (Siccom Plugin). If the joining client has this disabled while the server doesn't the client will **not** spawn any coral/algae.



The creation of corals and algae is very memory and CPU intensive regardless if playing as server or client. Because of this the client will not spawn the corals if this setting is disabled.

Simulation/Count [9]

Defines the maximum amount of generated dynamic coals (Siccom Plugin). If the Server has the highest setting while the client has the lowest the server will spawn the maximum while the client only spawnes the lowest amount.

Performance/Threads [10]

Defines the number of threads to use for the simulation.

Performance/Music [11]

Toggles the music within the launcher. This setting only effects the

music in the launcher



There is no need to save the settings since they will be saved if closing the settings window. The settings will be the same if restarting the launcher.

3 Normal/PC Mode

When running the game in non VR mode the game will start in “PC” (normal) mode (Figure 1 on page 1[2]).



It’s important to note that joining a server that runs the game in VR mode is possible since the representation (pointcloud, model) and display-mode (VR, PC) do not influence the possibility to join a server.

3.1 Controls

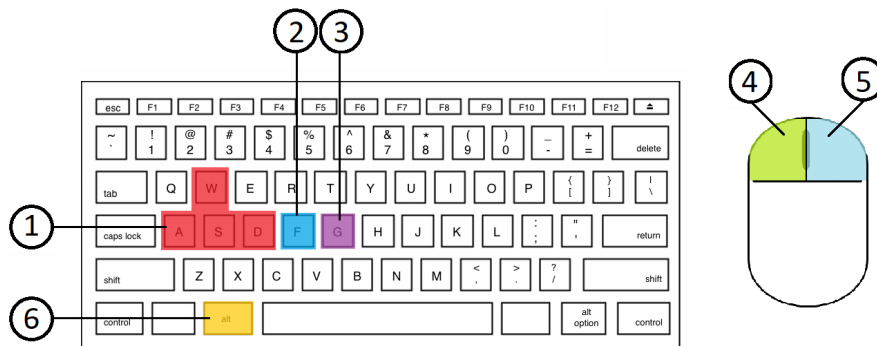


Figure 3: PC Mode: Controls

The following numbers within the descriptions will be a reference to the numbers within Figure 3 on page 5.

- 1
Move within the bounds of the coral reef.
- 2
Activate the currently selected tool. If wielding the laserpointer this is an hold to activate button. The flashlight switches between active and inactive.
- 3
Switch the currently selected tool (laserpointer/ flashlight).

Circular movement with mouse

Change the currently selected item in the currently active menu.

- 5
Activate the teleportation menu. If holding [6] while pressing this button the options menu will show up. If hovering over a item within a menu also activates this item in the currently active menu.

6

Special button to activate options or quit the game.

3.2 Main Menu

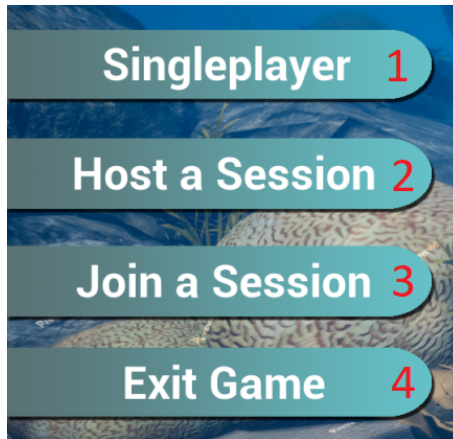


Figure 4: PC Mode: Main Menu

The following numbers within the descriptions will be a reference to the numbers within Figure 4 on page 6.

1

Start a singleplayer session. No other player will be able to find or join the session started with a press of this button.

2

Starts a host for the Coral Reef Game. Since coral reef does not have a dedicated server the host also is a player spawned in the coral reef game world.

3

Opens up the server browser to search a hosted session of coral reef multiuser (section 3.3).

4

Exits the game

3.3 Server browser



Figure 5: PC Mode: Server Browser

The server browser is used to find hosted sessions of coral reef. This only works if client and server are within the same LAN network. If one or multiple session are found one of them can be selected. To join the session just press the “Join” button in the lower right corner. To go back to the main menu click the “Back” button in the lower left corner.

4 Virtual Reality Mode



It's important to note that joining a server that runs the game in VR mode is possible since the representation (pointcloud, model) and display-mode (VR, PC) do not influence the possibility to join a server.

4.1 Controls

If playing in VR (Vive only) the controls are a bit more complex than in pc mode.



Movement: You can't move around the reef without bounds if playing in VR mode. This means you can only move within the cage generated by the Vive's tracking bounds.

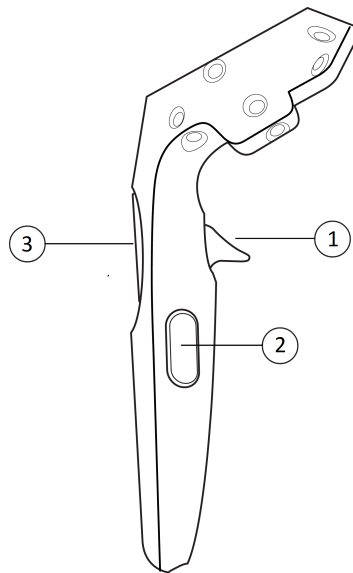


Figure 6: PC Mode: Server Browser

The following numbers within the descriptions will be a reference to the numbers within Figure 6 on page 8 assuming its controller 1 (Tool).

- 1** Activate the currently selected tool. If wielding the laserpointer this is an hold to activate button. The flashlight switches between active and inactive.
- 2** Switch the currently selected tool (laserpointer/ flashlight).

3 (press)

Activate the currently selected tool. If wielding the laserpointer this is an hold to activate button. The flashlight switches between active and inactive.

The following numbers within the descriptions will be a reference to the numbers within Figure 6 on page 8 assuming its controller 2 (Controller/Menu).

3 (circular movement)

Change the currently selected item in the currently active menu.

3 (press)

Activate the currently selected item in the currently active menu.

4.2 Main Menu

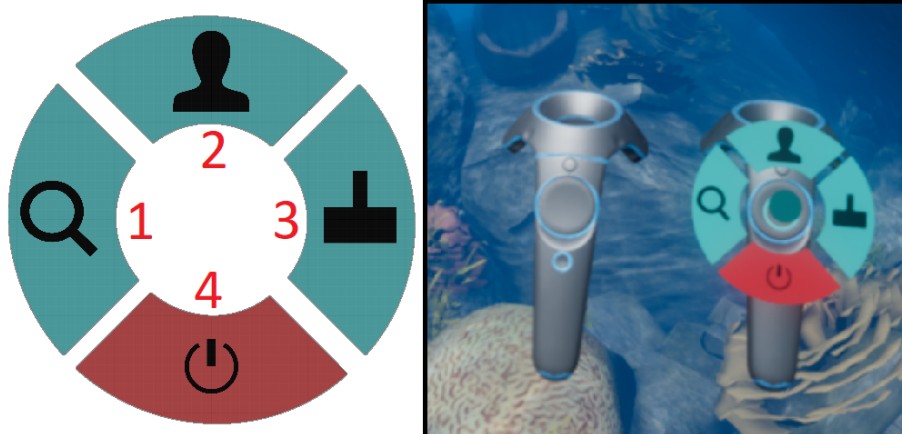


Figure 7: VR Mode: Main Menu

In VR the user can explore the virtual world of the main menu within the bounds of the Vive tracking area. The functionalities are mapped to items that will be displayed around the thumbstick (Figure 6 on page 8[3]) of the virtual controller with the power button if the thumbstick was pressed. The following numbers within the descriptions will be a reference to the numbers within Figure 7 on page 9.

1

Opens up the server browser to search a hosted session of coral reef multiuser (section 4.2.1).

2

Start a singleplayer session. No other player will be able to find or join the session started with a press of this button.

- 3 Starts a host for the Coral Reef Game. Since Coral Reef does not have a dedicated server the host also is a player spawned in the coral reef game world.
- 4 Exits the game

4.2.1 Server browser

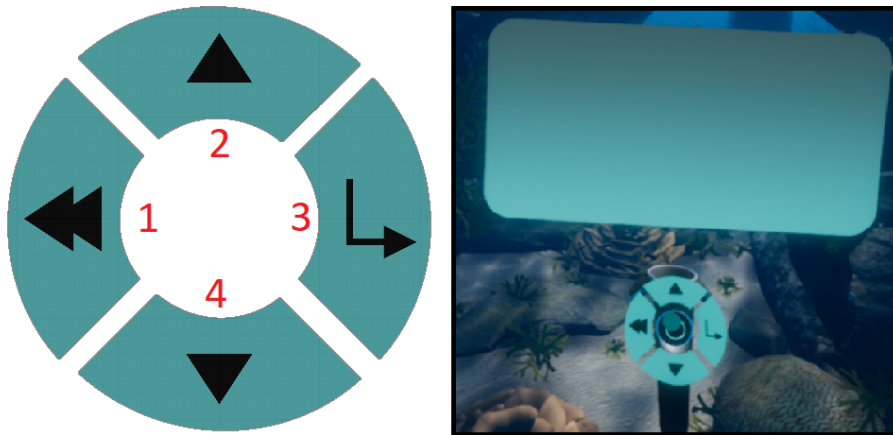


Figure 8: VR Mode: Server Browser

The server browser is used to find hosted sessions of coral reef. This only works if client and server are within the same LAN network. If one or multiple session are found one of them can be selected with the menu items 2 (up) and 4 (down) (Figure 8 on page 10) to join the selected session trigger the menu item labeled with the number 3 (Figure 8 on page 10). To go back to the main menu activate the item labeled with the number 1 (Figure 8 on page 10).

5 Ingame Menu

The ingame menus are the visually the same for vr and pc mode.

5.1 Teleport options

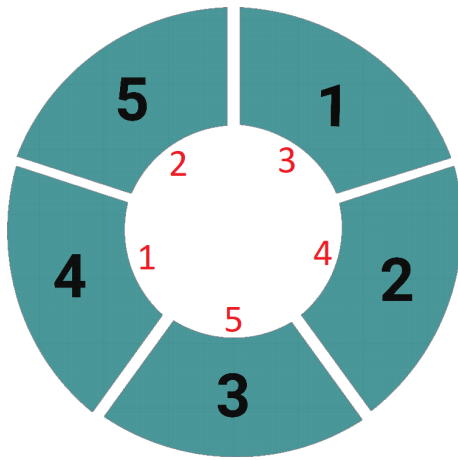


Figure 9: Teleport menu: Options

This menu allows the user to travel to different locations set inside the Coral Reef and can be opened by performing a right click (PC mode)(Figure 3 on page 5[5]) or pressing the thumbstick (VR mode) (Figure 6 on page 8[3]). It features five interesting possibilities to choose from where you can get a look from different angles at various fish swarms and coral types. The teleport point indices will teleport the player to the following locations:

1



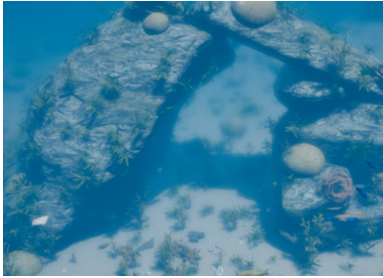
Shipwreck and various swarms of fishes.

2



Coral field and some starfishes and crabs.

3



Tunnel of rocks and various types of corals.

4



Greater overview of the reef as well as some fishes near the spawn.

5



Old ruin. Here the sharks will search for food.

5.2 Game options



Figure 10: Worldmanager: Environment

Summoning the gameoptions works differently on PC and VR mode:

- PC mode: Press the right mouse button (5) while holding the ALT key (6) (Figure 3 on page 5).
- VR mode: Press the thumbstick (3) while holding the trigger (1) on the controller that controls the menu (Figure 6 on page 8)

With the game options open the user can select between seven different options (Clients will only have three (Figure 10 on page 13[4,6,7])). The following numbers within the descriptions will be a reference to the numbers within Figure 10 on page 13.

1
Change the speed of time. The speed of time will not influence the speed of coral growth.

2
Change the water temperature. The higher the temperature the more corals will die.

3
Change the speed of the simulation.



The higher the speed of the simulation the more power is needed to run the simulation. This includes RAM, GPU and CPU load.

- 4 Toggle fog
- 5 Change the volume of the ingame effects
- 6 Exit the game (and disconnect from server)
- 7 Back to main menu (and disconnect from server)



All red colored options (Figure 10 on page 13[6,7]) need to be confirmed with the special key (same way the options menu got opened)

6 References

Vive controller sketch

Image: Figure 6 on page 8

Link: <https://clipartxtras.com/>

Keyboard sketch

Image: Figure 3 on page 5

Link: <https://clipartxtras.com/>