

Bio Visualisation with Blender and MembraneEditor Part 4

Blend4Web

Konstanz Research School Chemical Biology (KoRS-CB) Workshop
Björn Sommer, University of Konstanz & Mehmood Ghaffar, IPK Gatersleben
Version 20.02.2019

Forum:

<http://www.cellmicrocosmos.org/Cmforum/viewforum.php?f=63>

Actual Version of Blender:

<http://www.blender.org>

Here, Blender 2.79 is used.

Target

This tutorial describes how to add a stereo camera to an environment and how to extend this camera for multiple purposes.

An additional optional topic is the creation of a camera path.

Abbreviation

RMB Right Mouse Button

LMB Left Mouse Button

! For using most of the shortcuts discussed in this tutorial, you have to be sure that the mouse cursor is WITHIN the view port of the 3D View !

Install WebGL



In this tutorial, the installation process of Blend4Web software development kit is instructed. Currently Blend4web offers an Addon and SDK. It is recommended to install SDK, as it provides extensive features for your work. Please follow the instruction given below:

1. Download Blend4web sdk from the <https://www.blend4web.com/en/downloads/>
2. Extract files and place the folder in a safe location.
3. Start Blender and open User Preferences from the File Menu as shown in Figure 1.

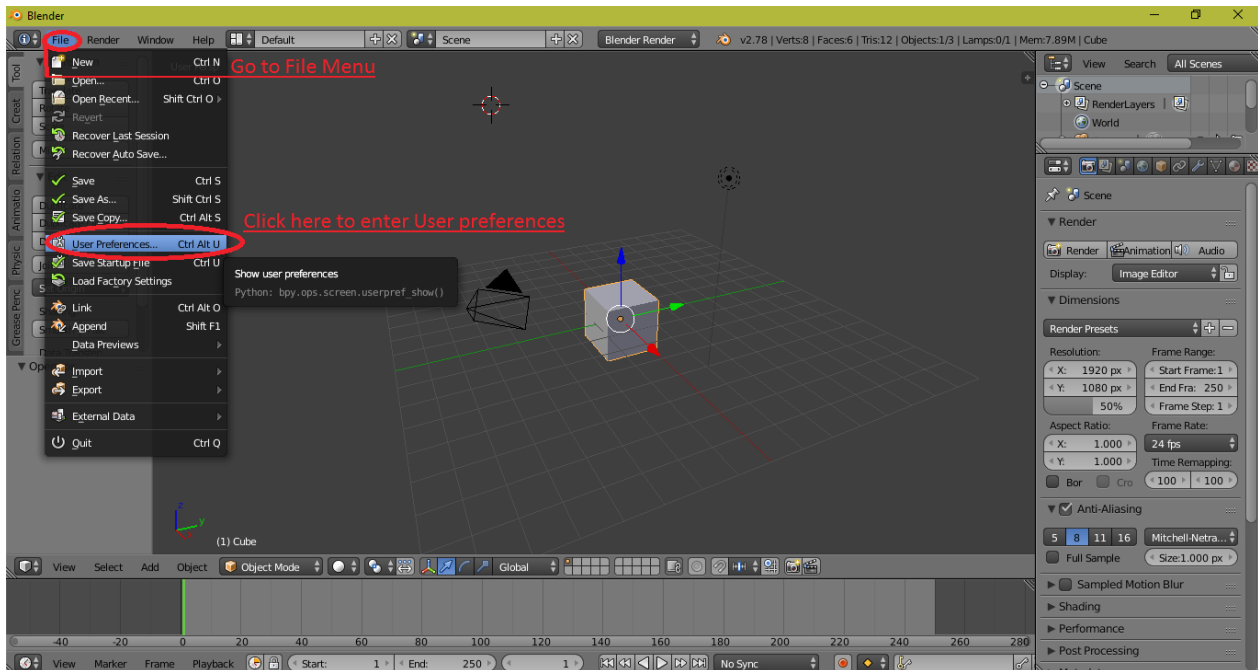


Figure 1: User Preferences from File Menu

4. In the Blender User Preferences, select File and give the address of the extracted SDK folder in the Script field as shown in figure 2. Click save User settings to save changes.
5. Restart Blender, so that the changes you made take effect.
6. Open again User preferences, and choose addon this time.
7. In the search field, type Blend4web and mark a tick before Blend4web as shown in figure 3.
8. Finally, click on the engines menu as shown in figure 4. If you see Blend4web in this menu, congratulation, you have successfully installed Blend4web sdk.
9. Getting started 😊

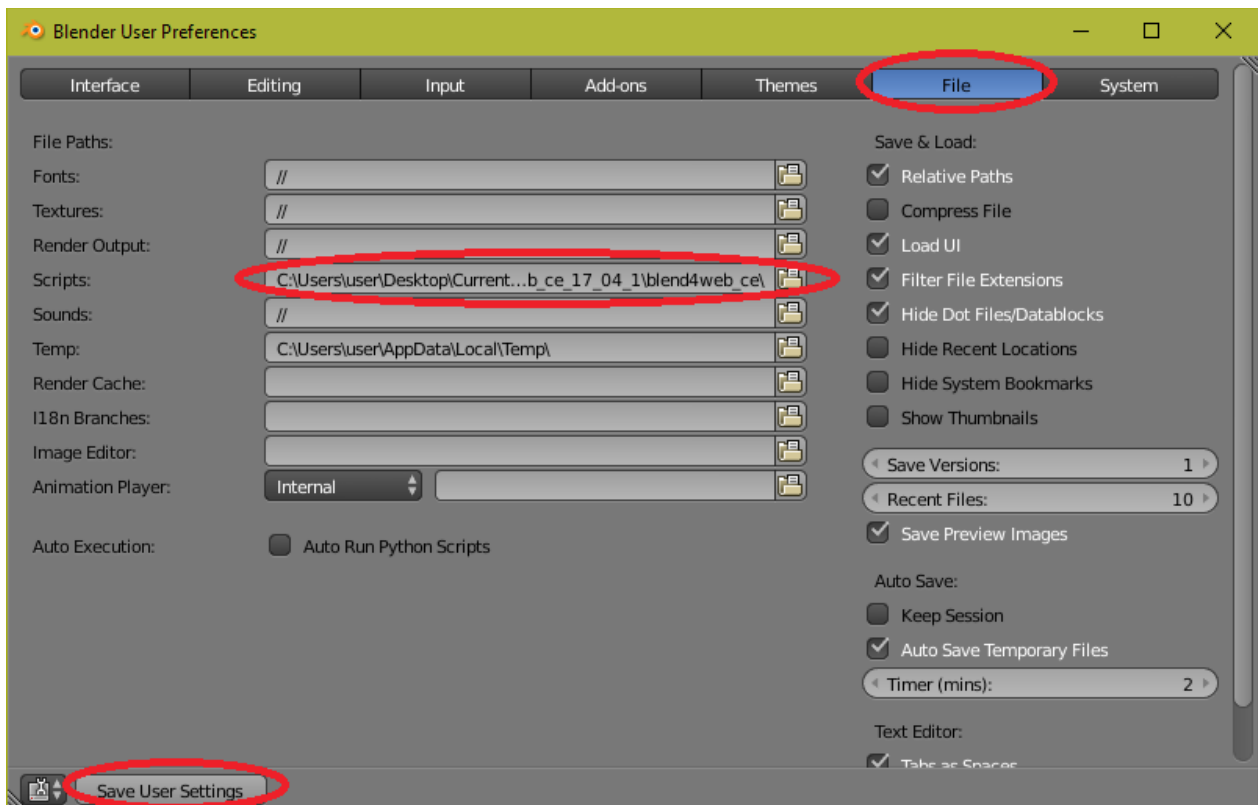


Figure 2: Browse sdk directory in Script field

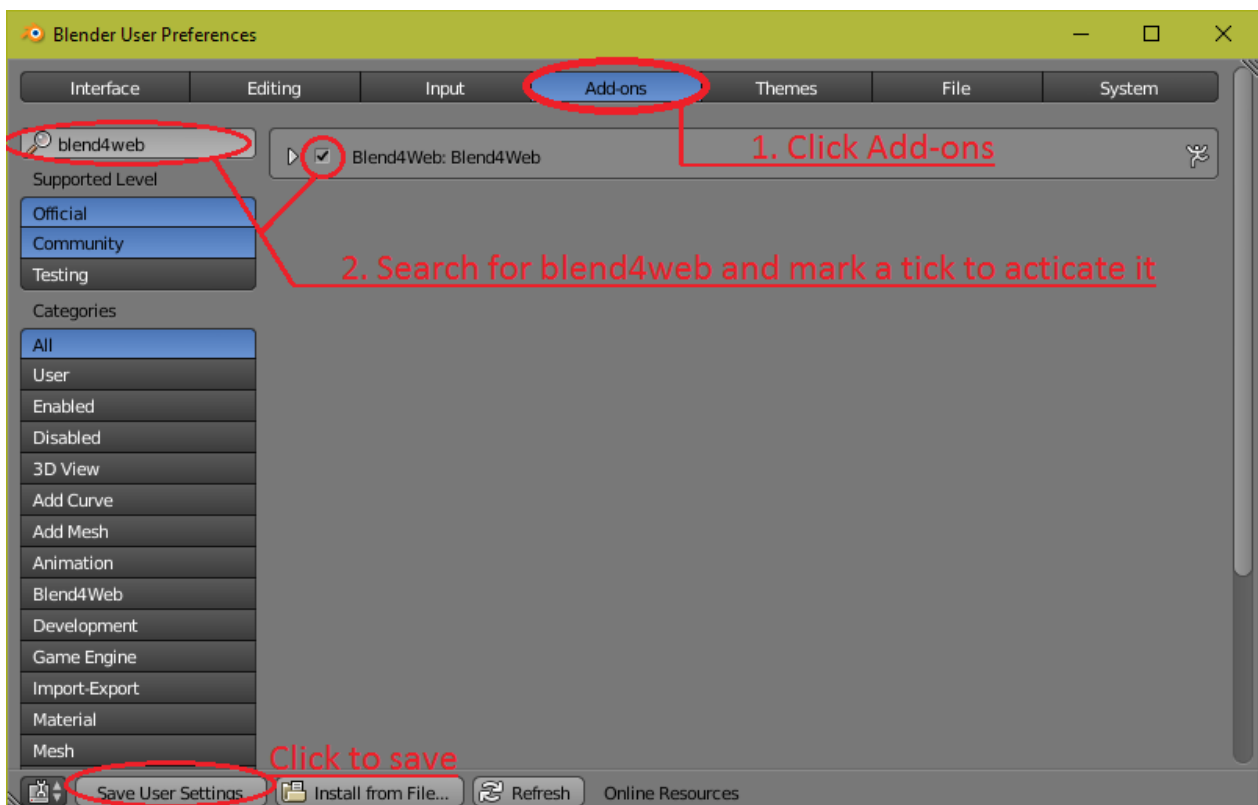


Figure 3: Activation of Blend4Web

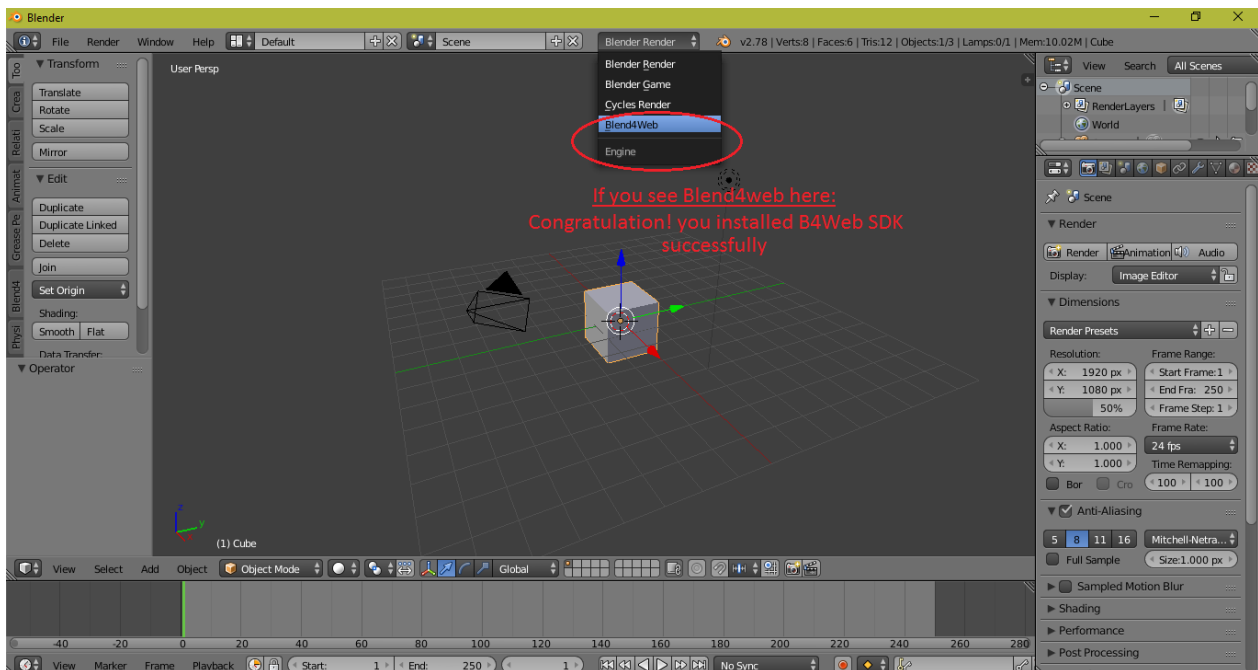
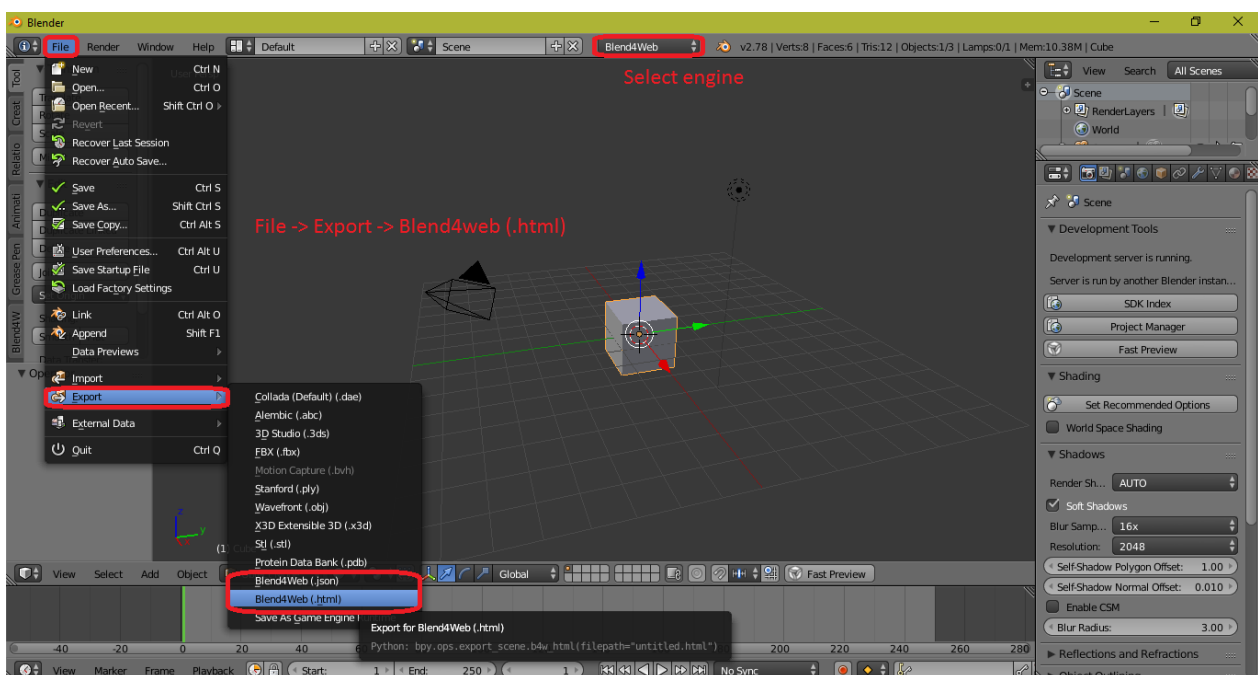


Figure 4: Confirmation of installation of Blend4web

Export JSON

In this tutorial, you will learn how to export a blender scene into Html and or Json file format.

1. Select Blend4web engine.
2. Setup the scene with desired objects.
3. Go to File -> Export -> Blend4web (.html)/Blend4web (.json).
4. Save the file on a specified location.
5. Go to the file location and run it in browser.

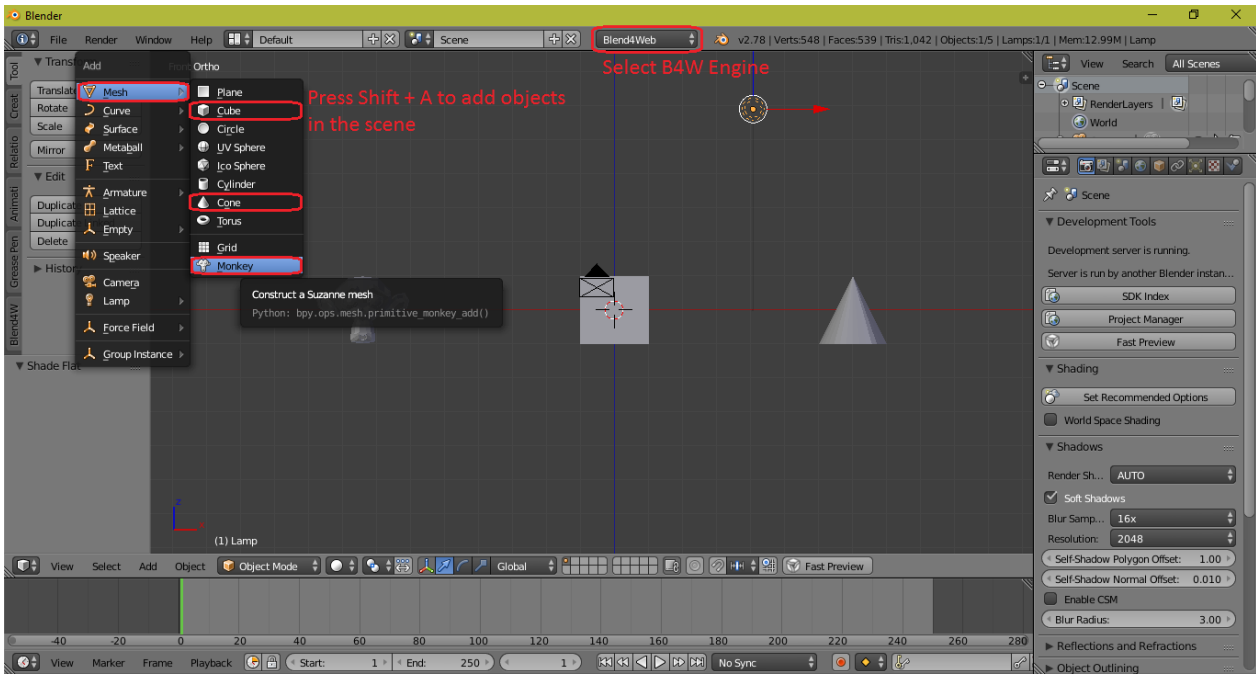


Camera Types and Movement

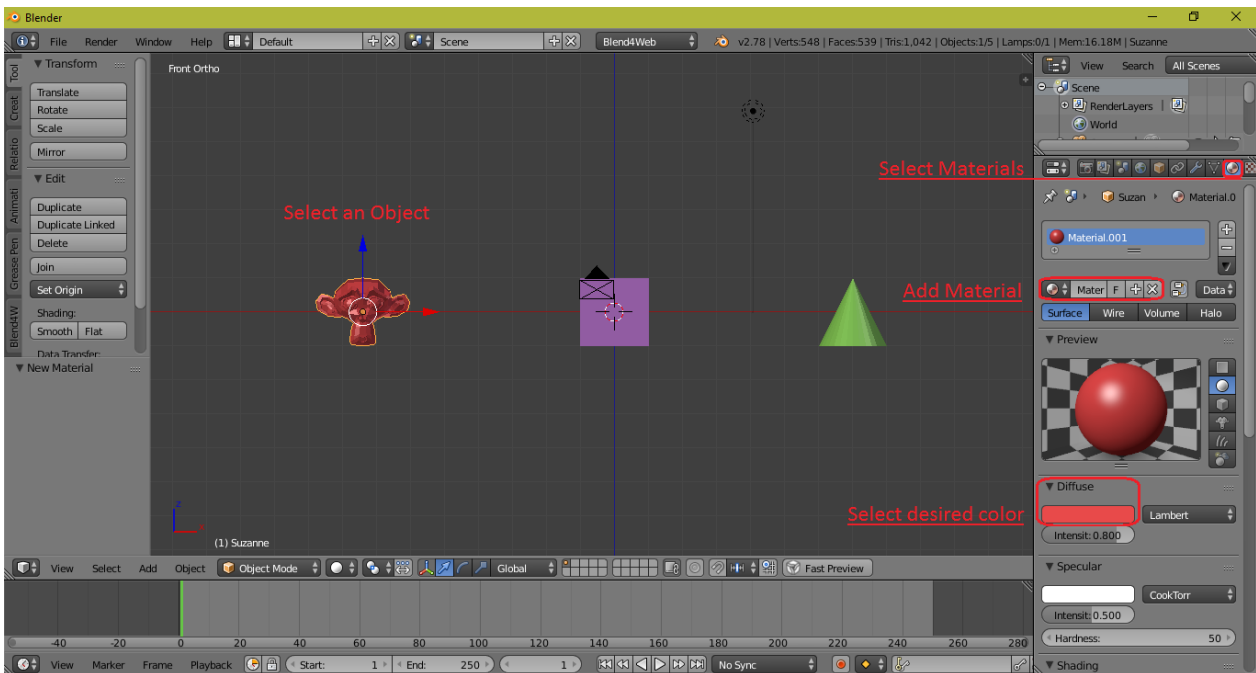
In this tutorial, you will learn how to setup different camera types and move them with an object based trigger event.

It is a best practice to label all the objects in the scene accordingly.

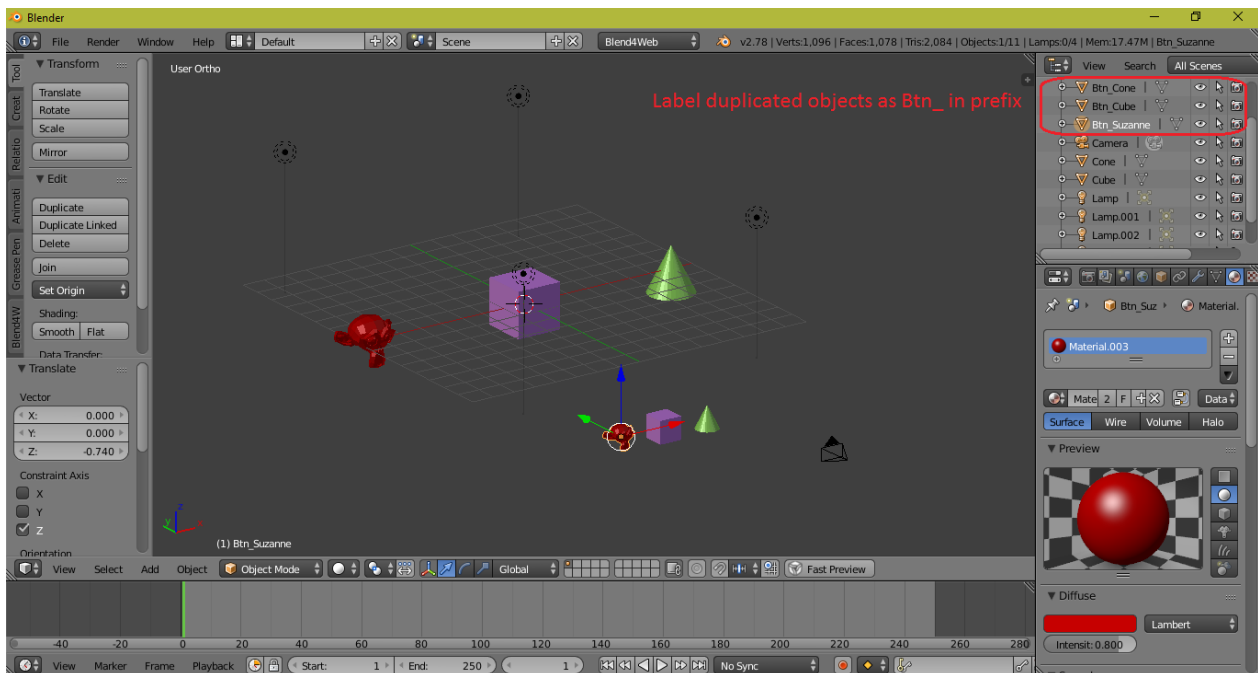
- 1- Select Blend4web engine.
- 2- Press **Shift + A** to add some objects.



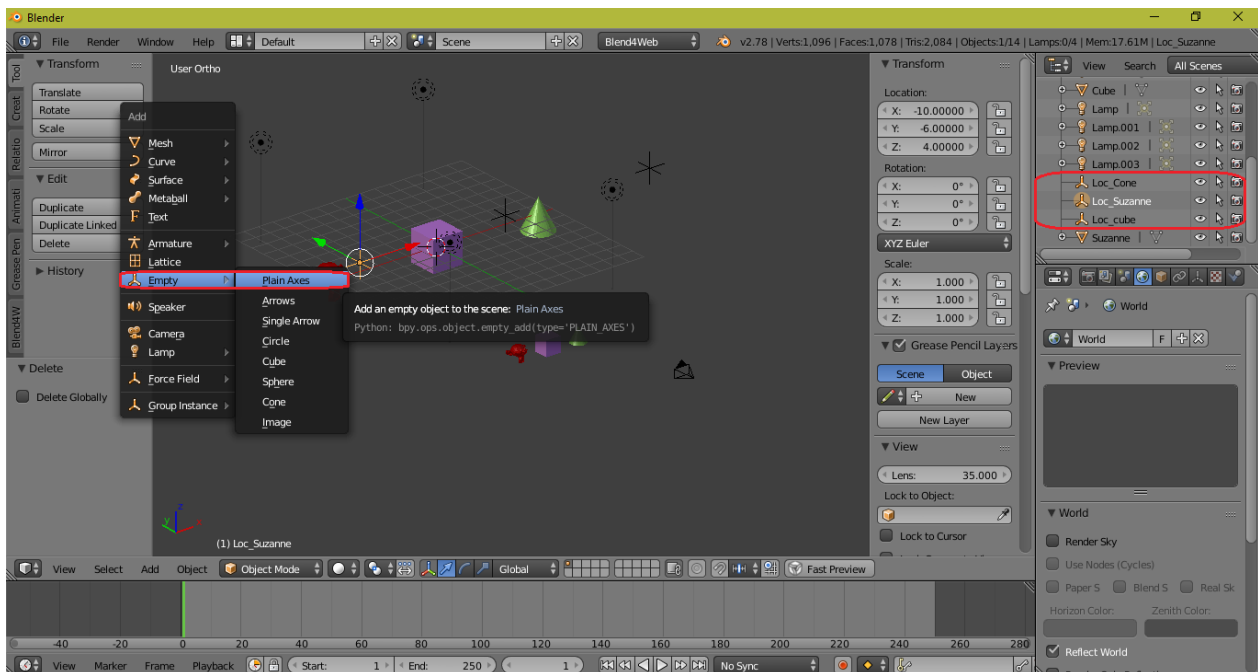
- 3- Select individual object.
- 4- Got to **materials**, and add materials to the object by selecting desired diffuse color.



- 5- Select objects and press **Shift + D** to make their duplicates and rename them as **Btn_** in their prefix.



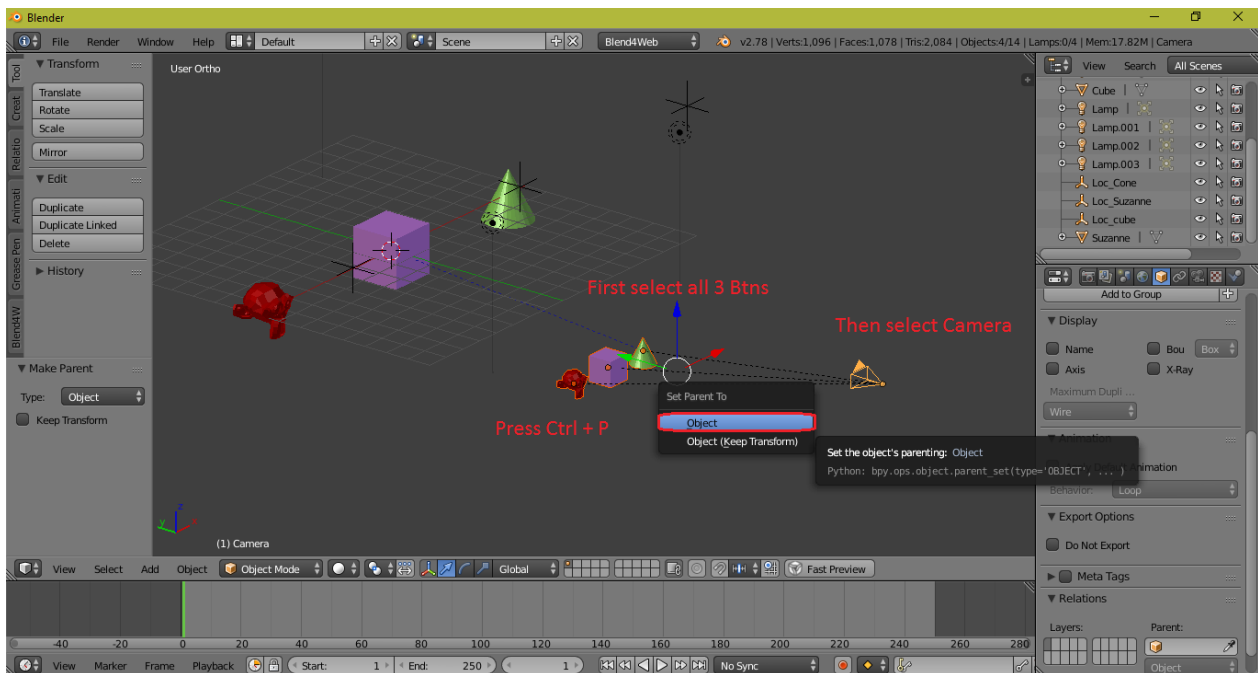
6- Insert some empty Planes and label them with prefix **Loc_**



7- Select all **Btn_Suzanne**, **Btn_Cube**, **Btn_Cone** at once. Keep pressing **Ctrl** Key and select Camera in the last.

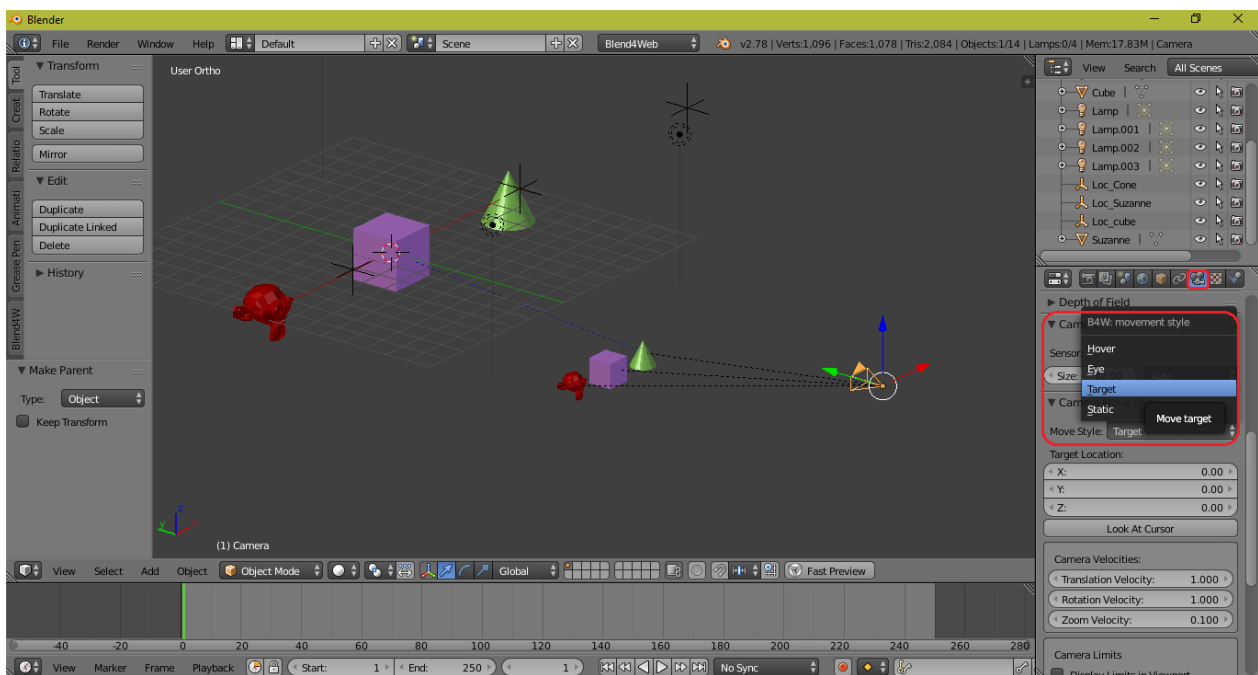
8- Press **Ctrl + P** and select Set parent to object.

This will keep the 3D buttons visible on the screen and act like normal buttons to trigger any event.



Before moving towards Nodes section to bring the scene Objects into functioning, let us set the camera move style. There are 4 types of camera movement styles.

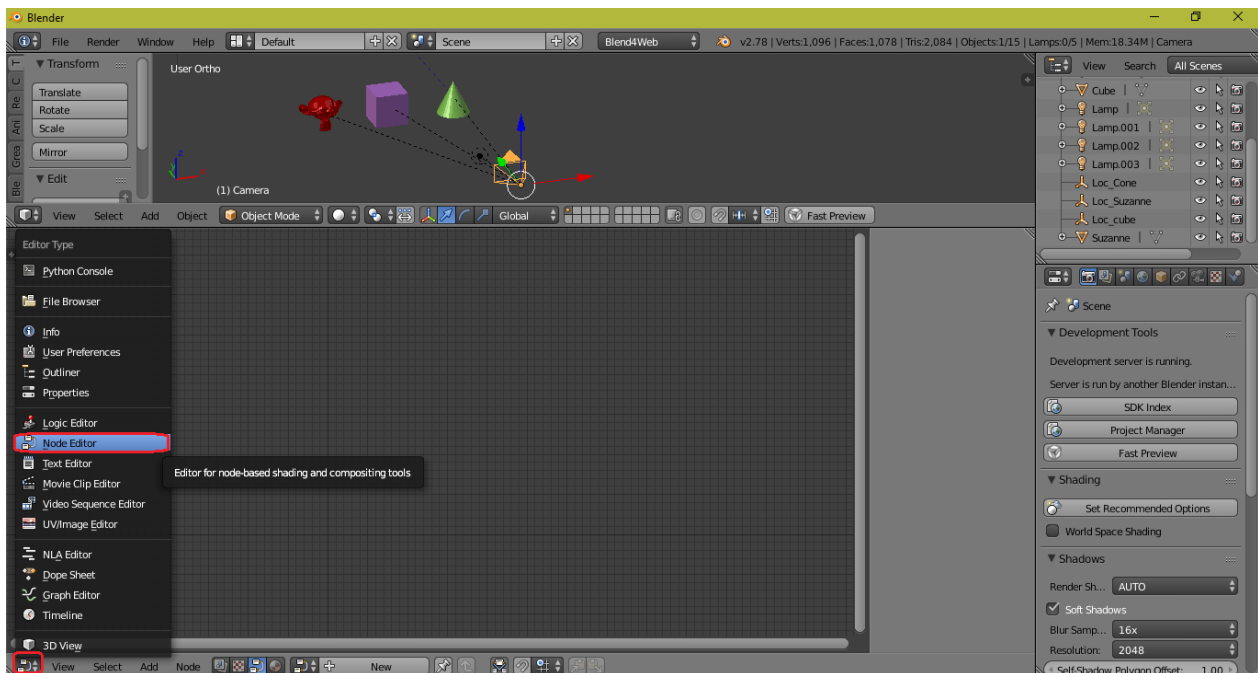
- 1- Static: The camera will be fixed (not moveable).
- 2- Target: It give the user a freedom of movement in all axis.
- 3- Eye: This type is used for Virtual Reality experience.
- 4- Hover: Useful for maps and landscapes.



At this point, all necessary settings are done. Press the Preview button to see how your scene will look like.

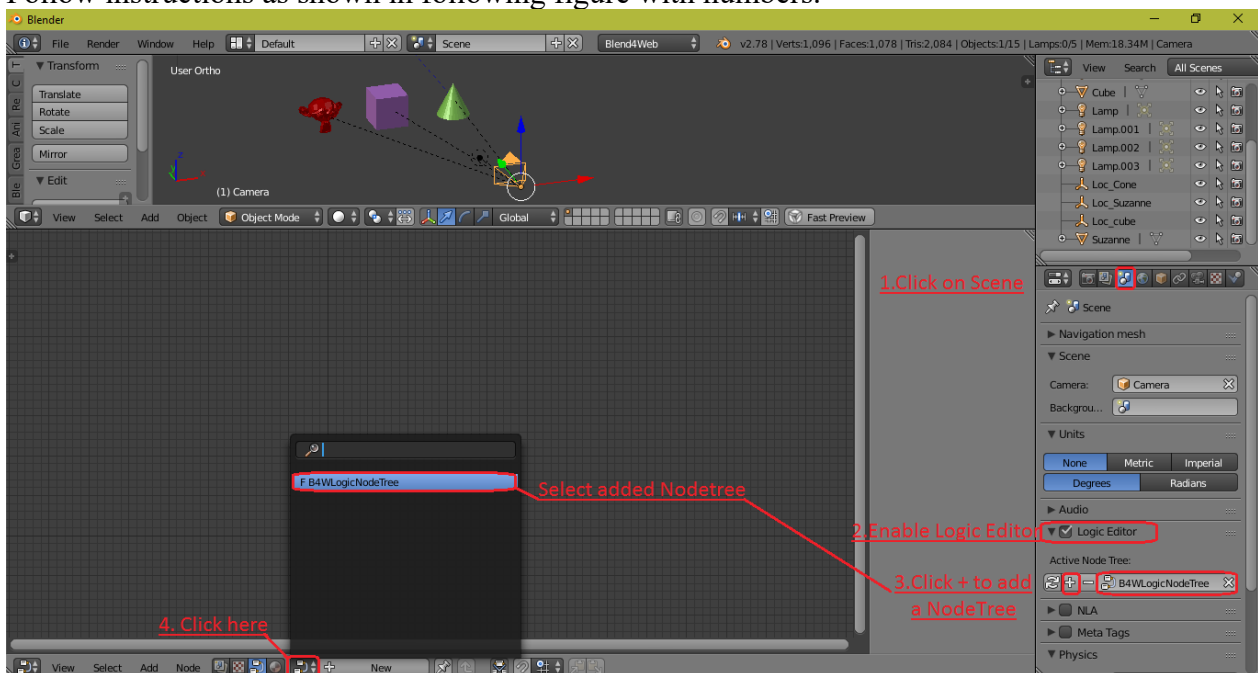
Node Editor

Open Node Editor as shown in following figure.



Here we need to activate logic nodes.

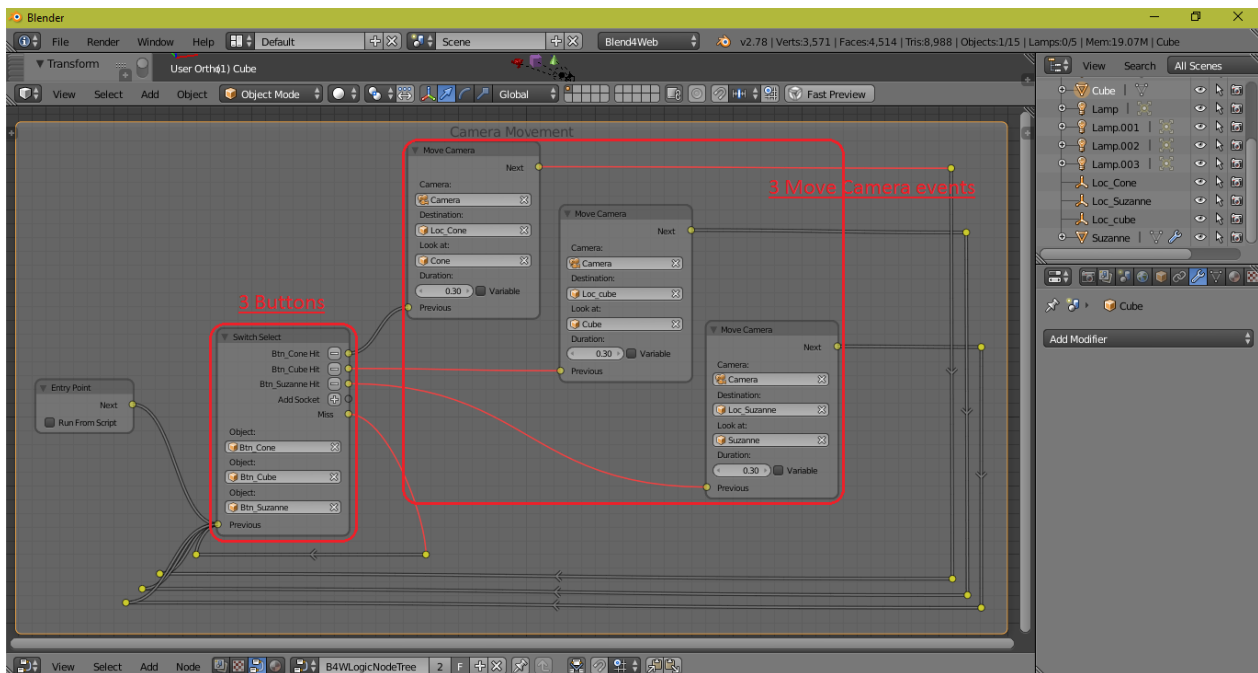
Follow instructions as shown in following figure with numbers.



Now the NodeTree is assigned to the scene.

Press Shift + A to add nodes to the node editor.

Add all the nodes that are shown in the figure below:

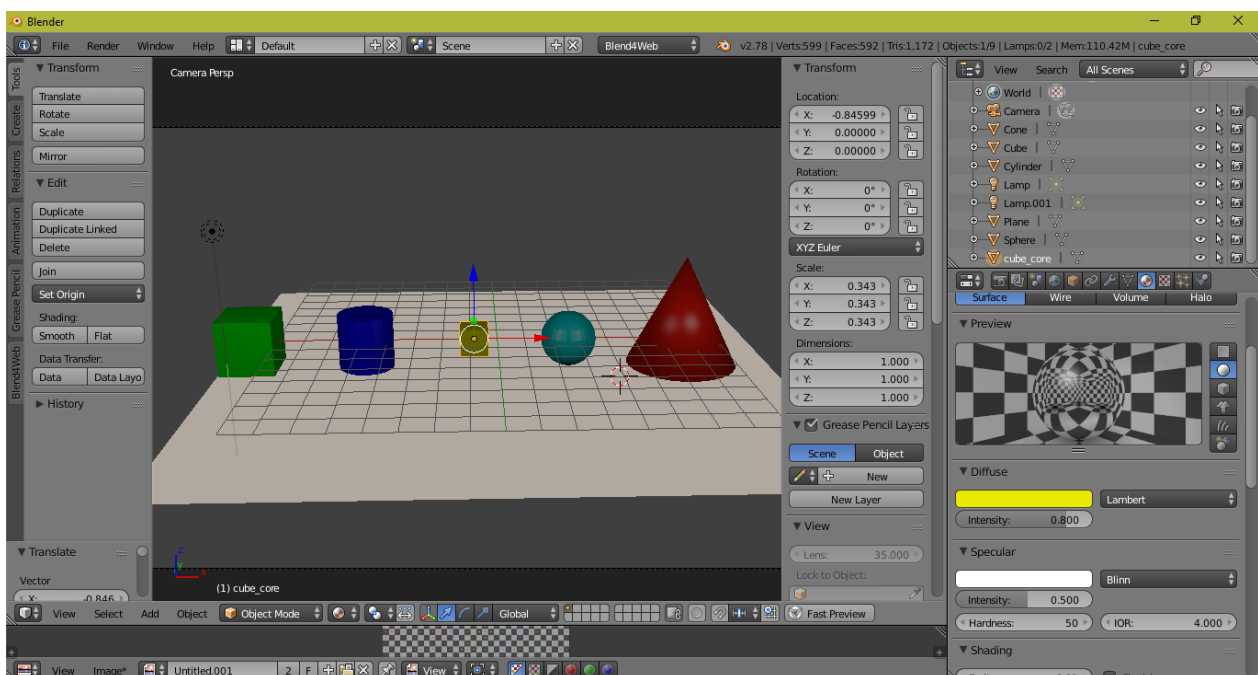


Now your basic camera movement is ready. Click Preview to test your scene in a browser. If everything is fine then export to html format.

Level of details

In this tutorial, you will learn how to use the level of detail feature in blend4web. This has many application, especially for detailing of objects. So, different layers of a single objects with different detail level can be use just to reduce the burden on GPU.

1. Add some objects and assign them some materials. Just pick 1 object and assign it the level of detail feature. Please setup proper lighting in the scene so that the scene would be enough enlighten.



2. Move all objects on the same location.
3. Select the core object which you wanted to get visible in the end.
4. Go to object properties (Cube symbol).

5. Click + to add level.
6. For every level, assign an object and camera distance.
7. For instruction, please see the figure below.

Click preview to check your work and change it accordingly when required.

