# Process to Get Animations From 3dsMax to Blender and exported into ThreeJS Format

## Part 1 – Export FBX from 3DSMax

1. Load the proper Max file. The rig has to match the final rig. The one we’re using is the Evolver Rig used in the Face Controller app.
2. Select all the bones. These should be the ones that start with ‘Fbx.’
3. Export Selected Objects to an FBS. Don’t’ forget to export animation.

## Part 2 – Export BVH from Motionbuilder

1. Load the exported FBX into Motionbuilder.
2. Select all the bones. Do this in the Navigator Tab under Scene. Open the Scene tree and right-click on the first bone and choose Select Branches
3. Export to BVH by going to File > Motion File Export.
4. NOTE: Motionbuilder will append a ‘Take001’ on the end of the file. If you need to re-export and overwrite an existing file remove this prefix first.

## Part 3 – Import BVH into Blender

1. Open the marine\_anims.blend file in Blender.
2. Select the marine\_rig object and go into Pose Mode.
3. Go to the Dope Sheet and select Action Editor from the drop down list.
4. Create a new action by hitting the ‘+’ button next to the action name. Name it whatever you like. You’ll need this name in the next step.
5. When you create a new action in Blender, it doesn’t actually create a new action, but copies the currently selected action, so you’ll have keyframes already in your new animations. I don’t know if this step is necessary, but I like to delete all the keyframes in the new animations, and then clear all the transforms of all the bones. Use the Dope Sheet Editor to select and delete all the keyframes. In the 3D View, select the armature, then go to Pose Mode, then Select all the bones and go to Pose > Clear Transform > All. Make sure Autokey is set to off or it will create another keyframe.
6. Import the exported BVH by going to File > Import > BVH.

## Part 4 – Copy Animation from BVH to Rig

1. Open the Text Editor in Blender.
2. Select the copy\_animation script
3. Find the following code at about line 152:

sourceRig = bpy.data.objects['anim\_marine\_male\_idle\_wGun\_firing\_Take\_001']

sourceAction = bpy.data.actions['anim\_marine\_male\_idle\_wGun\_firing\_Take\_001']

targetAction = bpy.data.actions['idle\_with\_gun\_firing']

1. The text highlighted in yellow is the name of the Armature created by importing the BVH file. This will probably be the name of the BVH file. Copy the name of the Armature from the Outliner and replace the yellow highlighted text.
2. The text highlighted in green is the name of the Action associated with the newly imported Armature. It’s probably the same name as the Armature, so you can paste the same text you did in the previous step. Double-check to make sure the names match.
3. The text highlighted in cyan is the name of the new action in Step 3.
4. With the marine\_rig Armature selected, go into Pose Mode.
5. Click Run Script in the Text Editor.
6. When the Script is completed, delete the imported Armature.
7. Repeat Part 3 and Part 4 for however many animations you have.

## Part 5 – Convert Euler to Quaternion

1. ThreeJS currently does not support Euler rotations on bones, so all the Euler rotations on the imported animation need to be converted to Quaternion.
2. Go to the Text Editor in Blender.
3. These actions need to be converted one at a time, so you’ll need to set the targetAction to the current action. Go to line 25:

targetAction = bpy.data.actions['idle\_with\_gun\_firing']

1. Replace the green highlighted text with the name of the currently selected action. Make sure to select the action in the Dopesheet’s Action Editor
2. Run the Script.
3. Repeat Part 5 for as many actions as you need to convert Euler to Quaternion.

## Part 6 – Export the ThreeJS

1. Make sure to use the standard exporter. The forked exporter does not work with this rig.
2. You will need keyframes on every bone you want to export.
3. Make sure only one Armature is in the scene.
4. The mesh needs to be in the T-pose. Here are two ways to do this:
   1. Have a T-pose action. This action needs a frame where all bones have transforms cleared. This should be the current frame when the exporter is selected.
   2. Delete the Armature modifier from the mesh immediately before export. After the file is exported, undo the last action to get the modifier back.
5. Export the scene to ThreeJS by going to File > Export > ThreeJS. Make sure to select ‘All Animations’ in the exporter options.