How to Make a Splash with Maya Bifrost

A TECHNICAL PAPER BY SHANIQUE BROWN

Step 1: Make a folder for your files

- First thing to do before begin any project is to make a folder in a desired location.

- I recommend making a file on the desktop for easy access. Save as desired name.

Step 2: Open Maya and Set project

▶ Open Maya (I'm working in Maya 2016 ext.1)

▶ Set your project to the desired
   folder you made

▶ Go to File > Set Project > Click on your
   folder and click set

▶ Go to File > Project Window > Accept all Properties
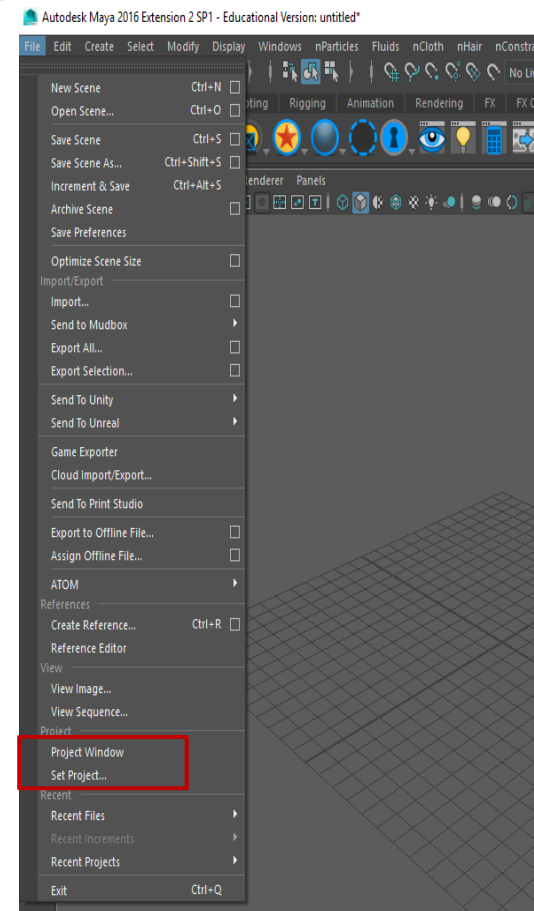
Step 3: Create an object for the bifrost

▶ Keep in mind that bifrost can only be created at the origin

▶ At the end we'll be able to import and position it into a new scene

▶ You can set any polygon object for the bifrost emitter

▶ Keep in mind the shape of the object should be similar to the object that you want to create the splash

▶ I'll be using a cylinder to emit the bifrost

▶ Go to Create > Polygon Primitives > Cylinder
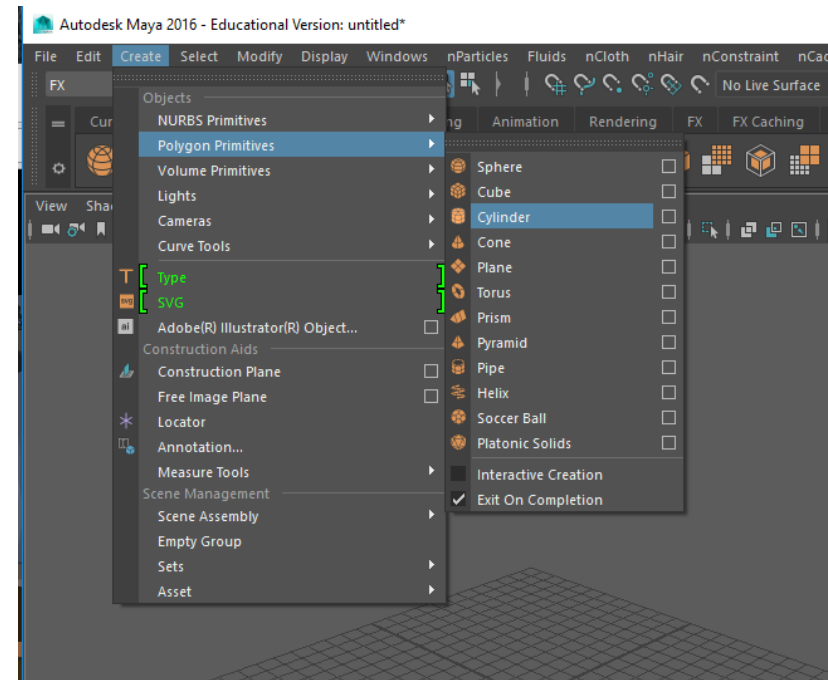
Step 4: Resize

▶ Try to keep the cylinder (or whatever object you decided upon) thin.

▶ Rename the cylinder Bifrost_emitter

▶ Next duplicate the cylinder to make the container object
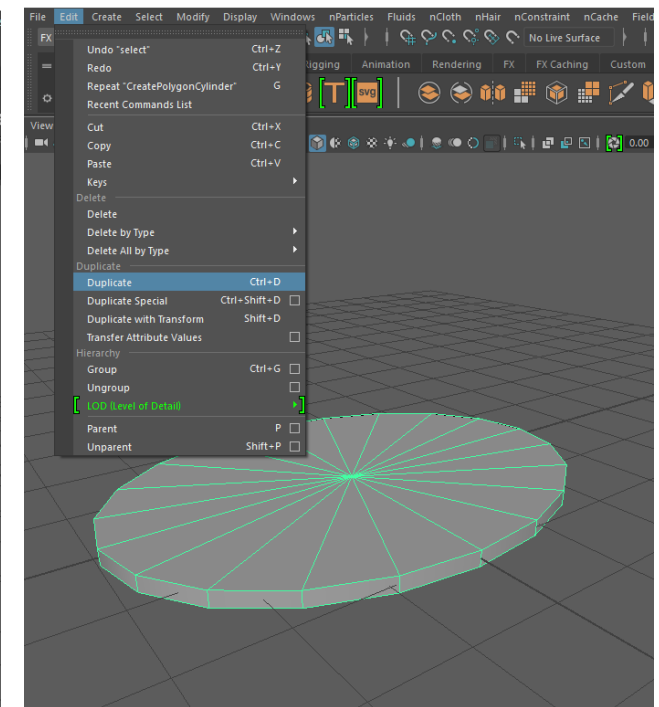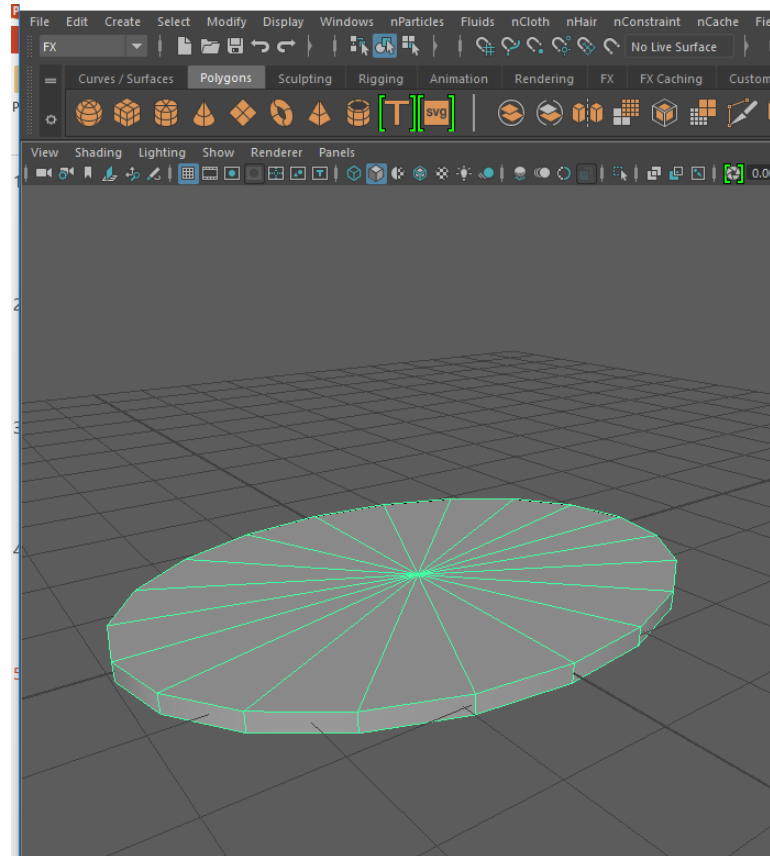
Step 5: Duplicate and Extrude

- Name the 2nd cylinder bifrost_container

- RMB click > click Face

- Shift select all the faces on top of the cylinder

- Make sure you're in the modeling tab and click > Edit Mesh > Extrude

- Select the scale click > R scale the cylinder faces a little smaller
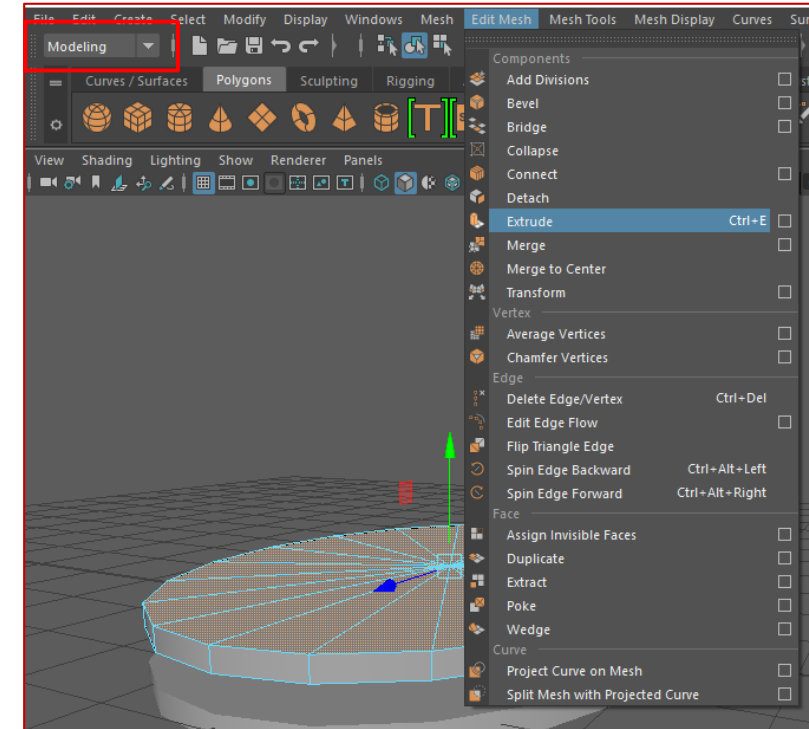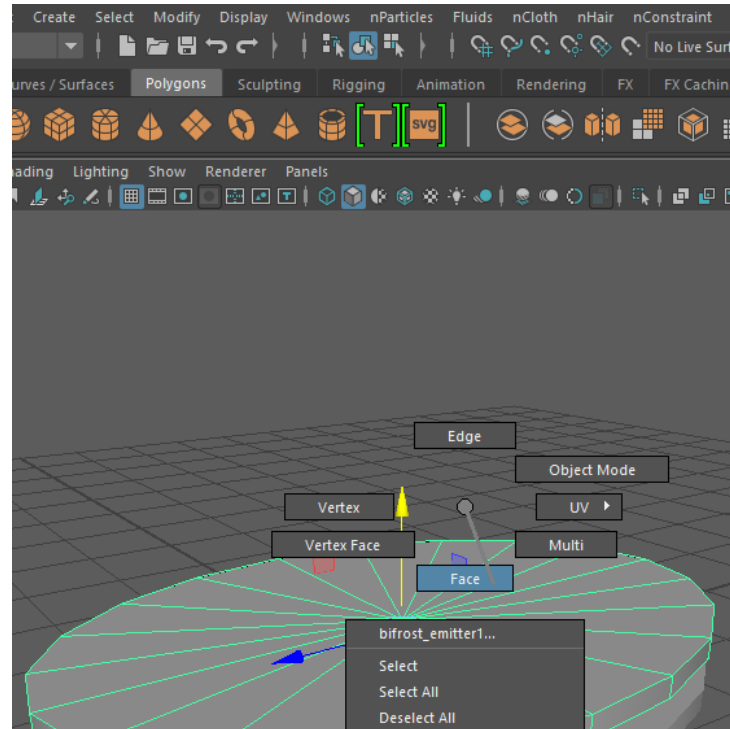
# Step 5 Cont: Duplicate and Extrude

▶ Extrude again, click the scale > W

▶ Translate down to create the bottom of the bifrost_container

▶ RMB click > object mode

▶ Move down the bifrost_container back to the origin. If the bifrost_container is clipping the biforst_emitter scale the container up

▶ Go to Edit > Delete by type > history
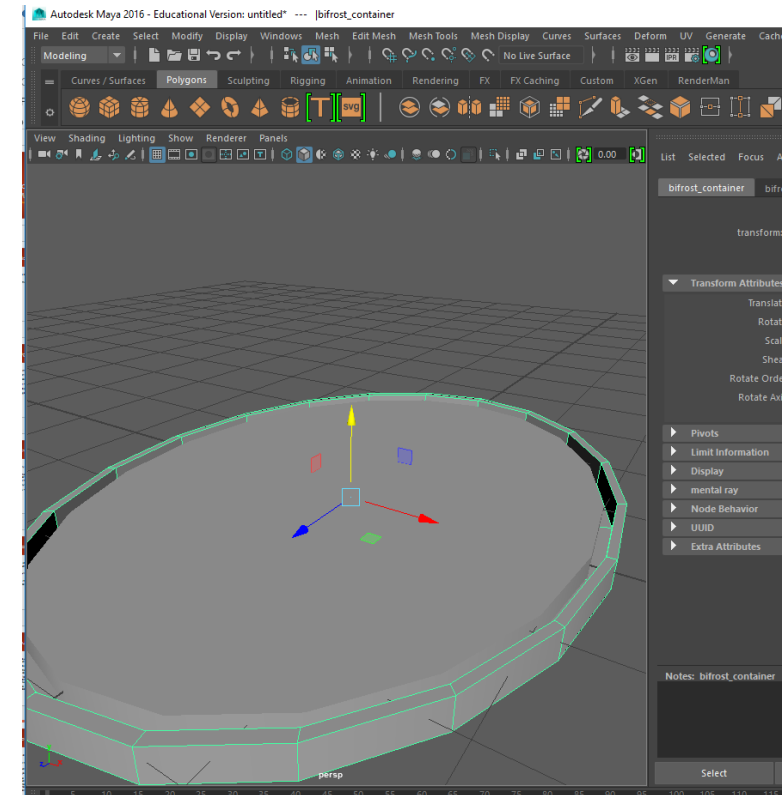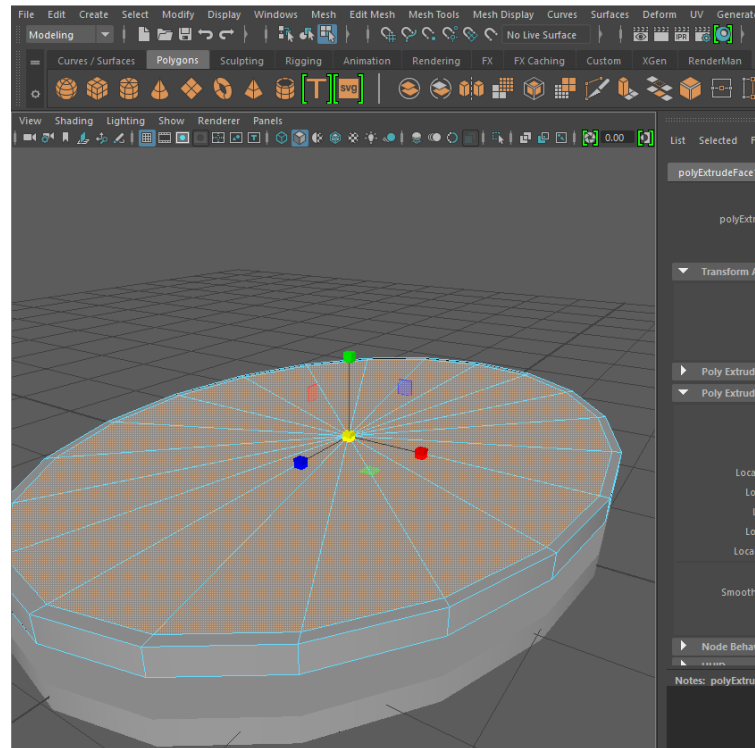
# Step 6: Add Liquid Emitter

▶ Click bifrost_emitter make sure you're in the FX tab

▶ Go to Bifrost > Create > Liquid

▶ Now we'll be changing a few preferences

▶ Mess around with it before you play it in the time slider
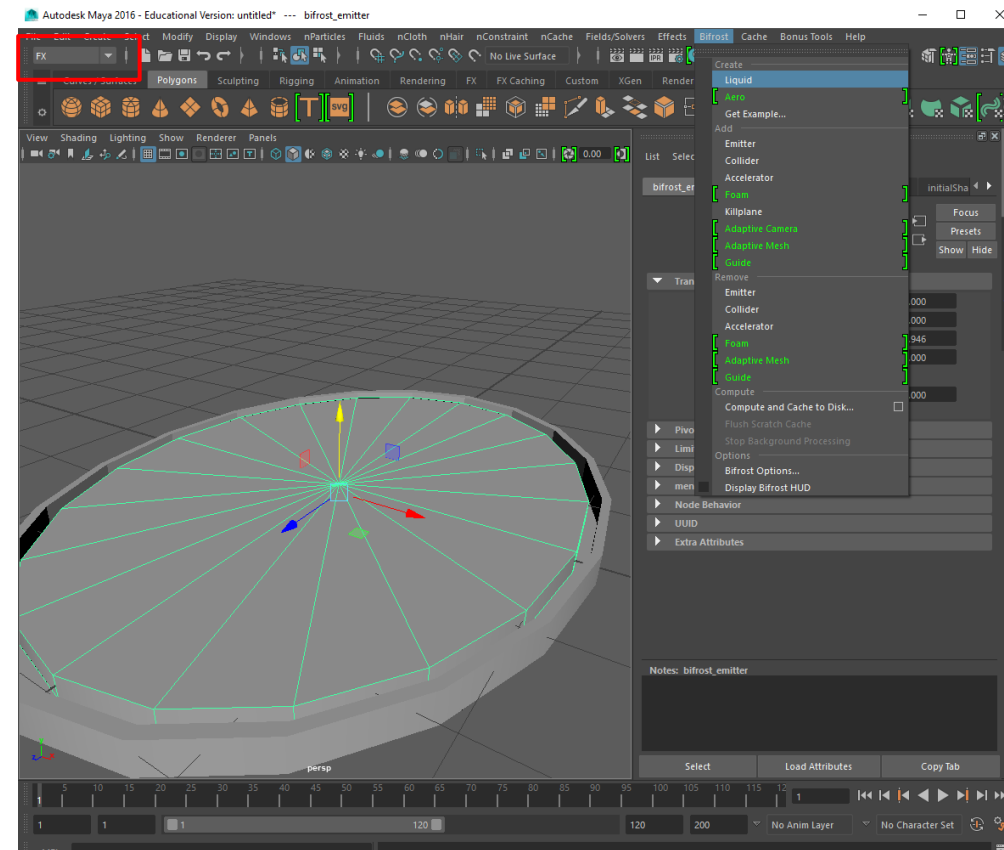
# Step 7: Liquid Attributes

▶ Using your outliner can help you select objects

▶ Go to Windows > Outliner

▶ Click bifrostLiquid1 > liquid1

▶ Open the attribute editor

▶ Go to liquidShape1 tab

▶ Render Quality > 1

▶ Check Voxels
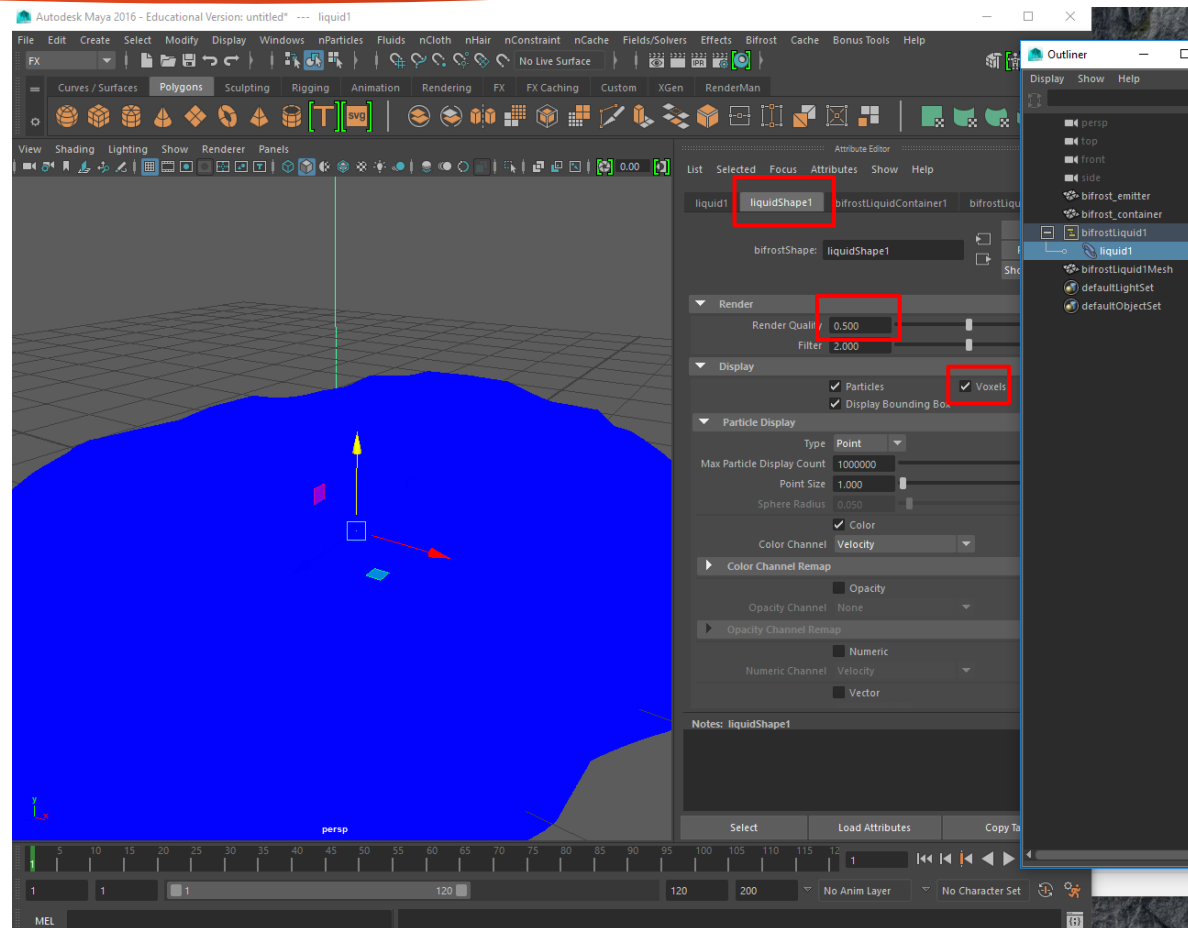
Step 7 Cont

- Go to bifrostLiquidContainer1 tab

- Resolution > Master Voxel Size > .10

- The smaller the Voxel size the more defined the liquid and the longer time it'll take to render

- Ctrl Click bifrost_container and liquid1 in the attribute editor

- Go to Bifrost > Add > Collider
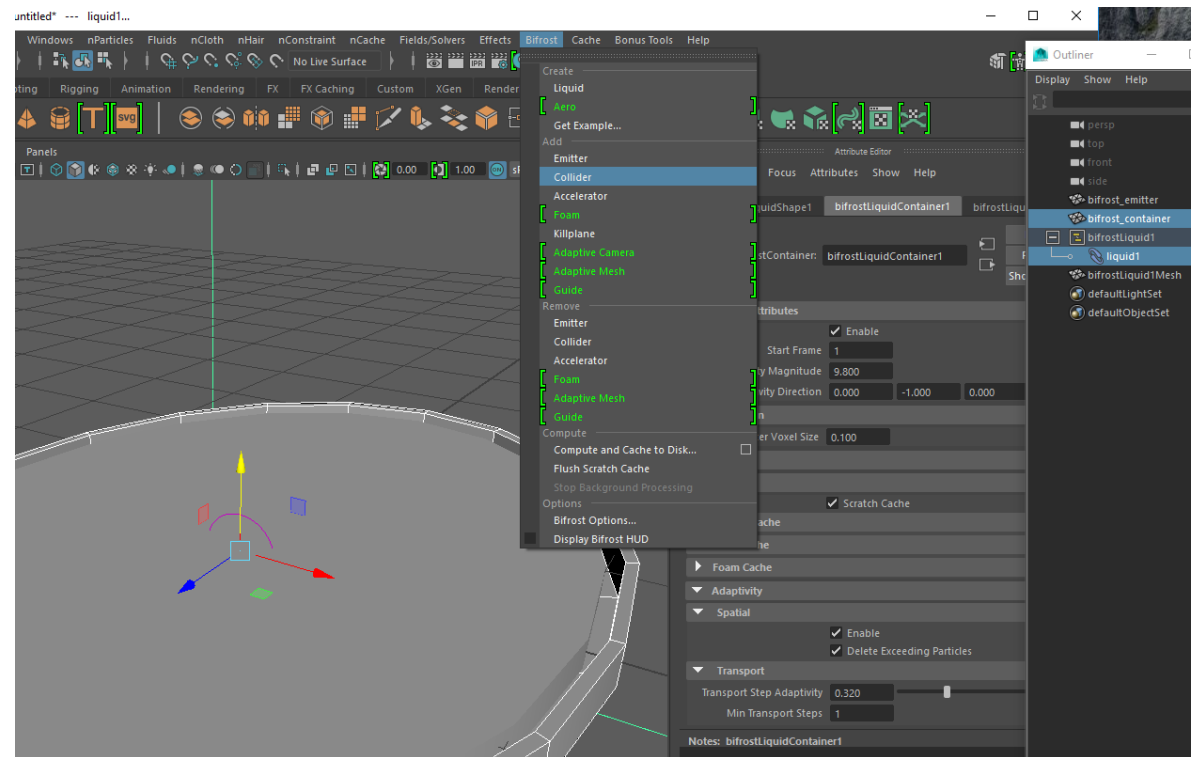
Step 8: Turn off Continuous Emission

▶ Depending on the effect you'd like you might want to turn of continuous emission

▶ To turn off continuous emission select bifrost_emitter

▶ Go to bifrost_emitterShape tab > Bifrost > Liquid emission > uncheck Continuous emission
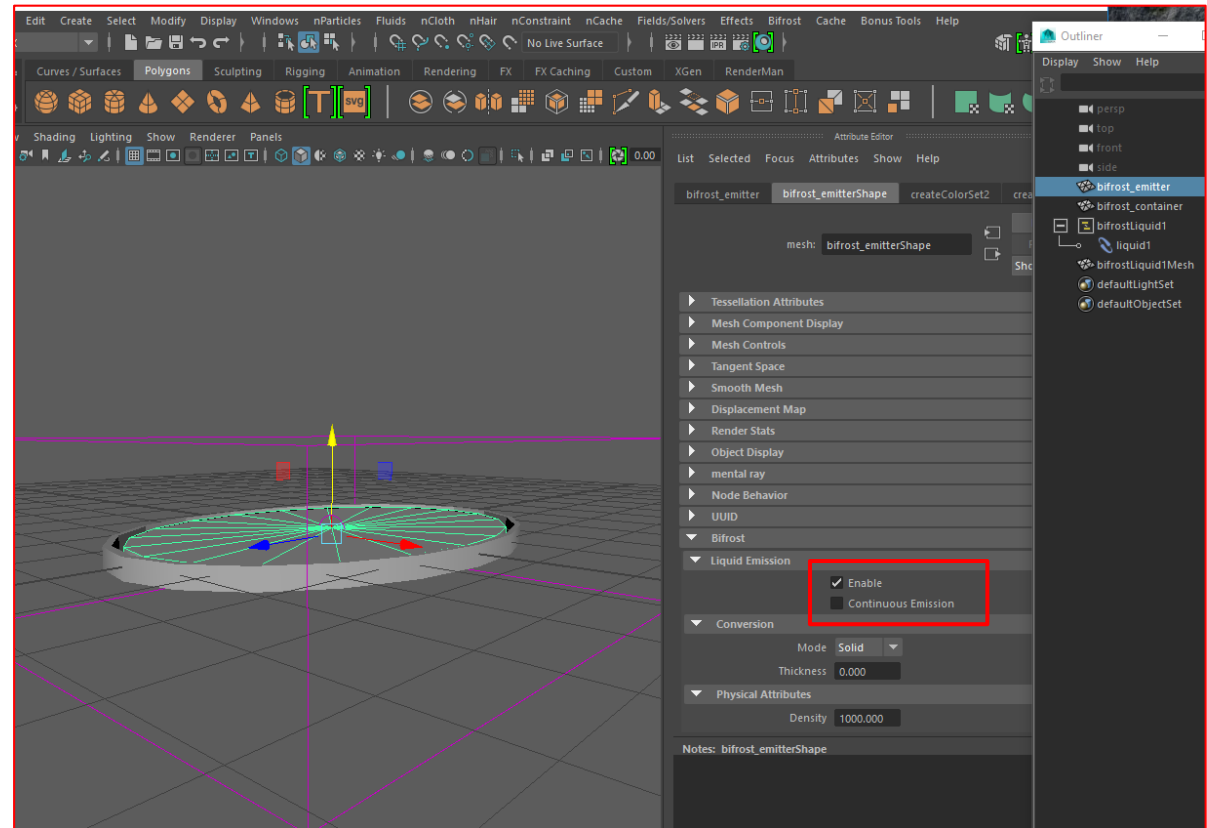
Step 9: Add the splash object

▶ For this powerpoint I'll be using a sphere to create the splash effect.

▶ You can create your own object for this.

▶ Go to Create > Polygon Primitives > Sphere

▶ From here youll need to set key frames on your sphere so it can move

▶ I'll have mine drop into the scene then bounce on the water like a beach ball
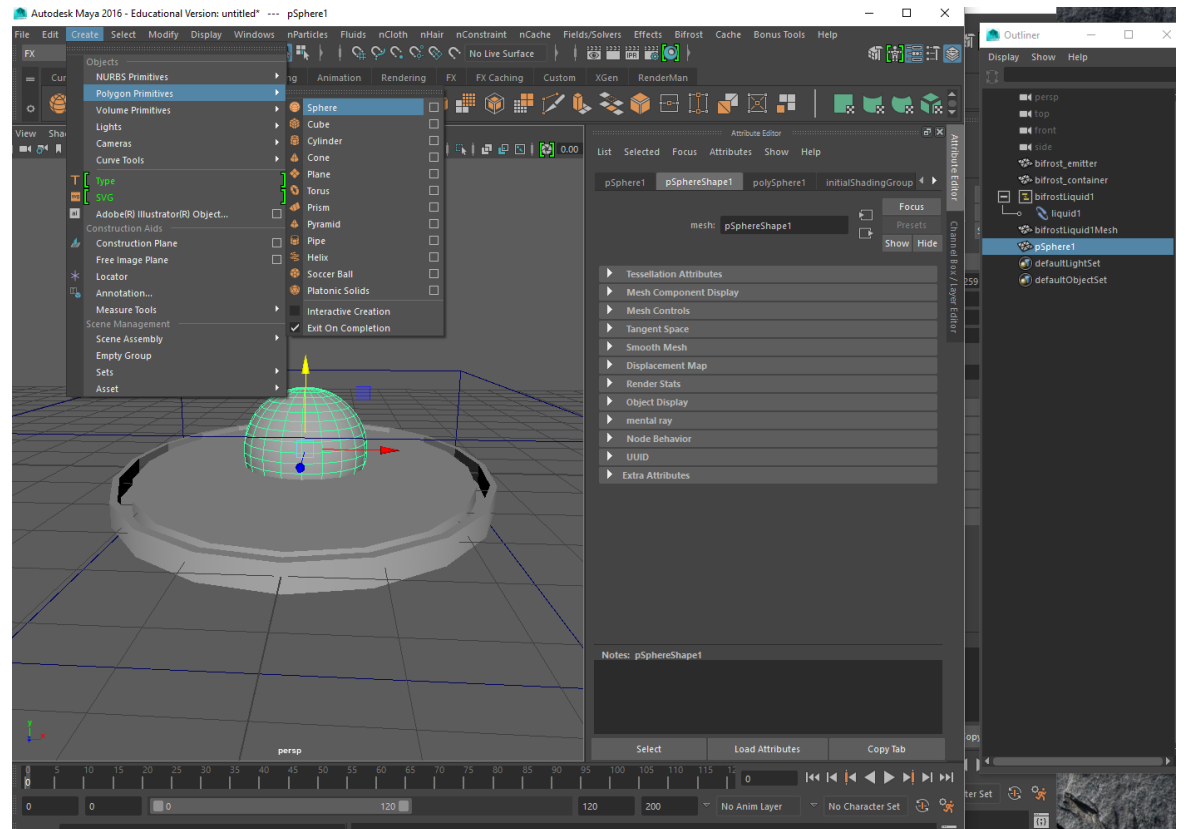
Step 10: Add keys for animation

- Set keys by positioning the sphere where you'd like it in the scene then go to the desired frame in the time slider and click "s"

- I have about 6 keys spanned over 80 frames

- Play the animation to make sure it looks realistic before putting on the collider
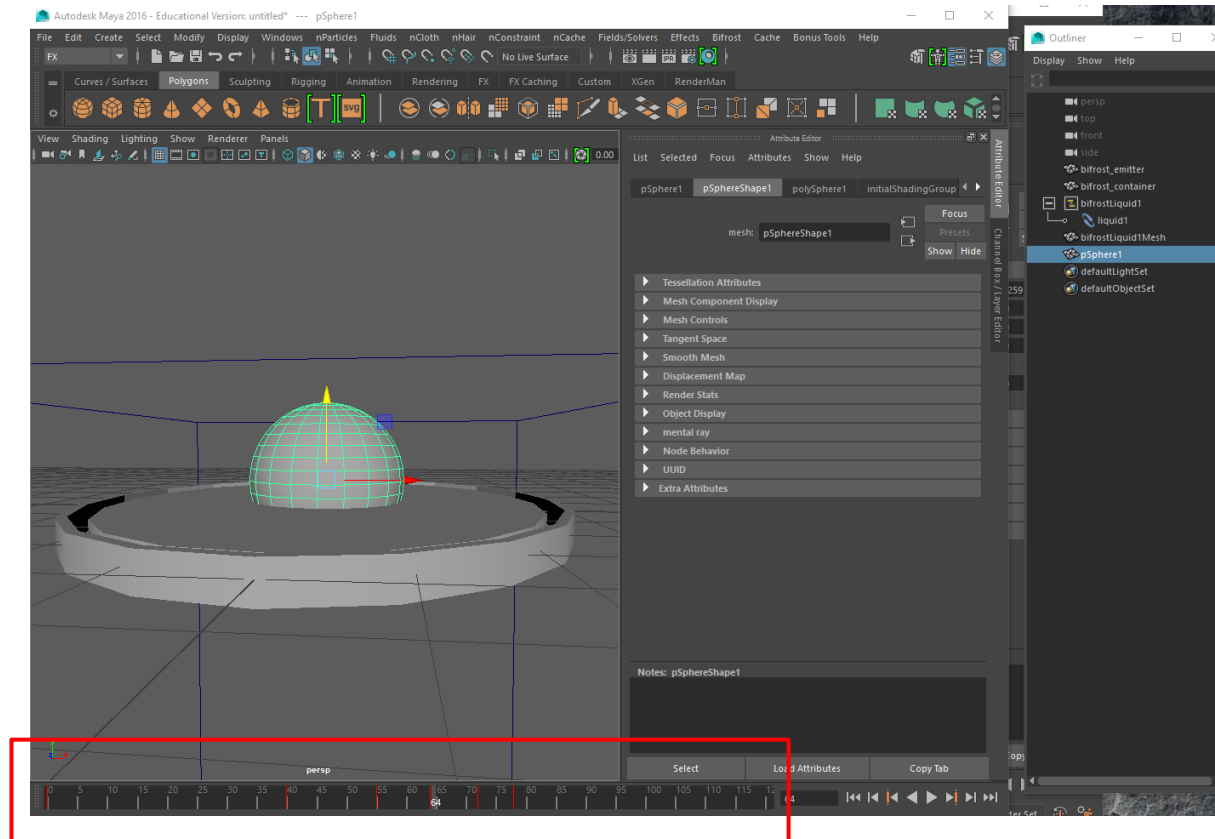
# Step 11: Add killplane

▶ Later on I'll be adding in an ocean so I don't need any computation of the effect under water.

▶ To reduce the render time I'll add a killplane if any water falls from the container

▶ Click liquid1 in Outliner

▶ Go to Bifrost > Add > Killplane

▶ Position and scale the killplane under the container and a lot larger then the container
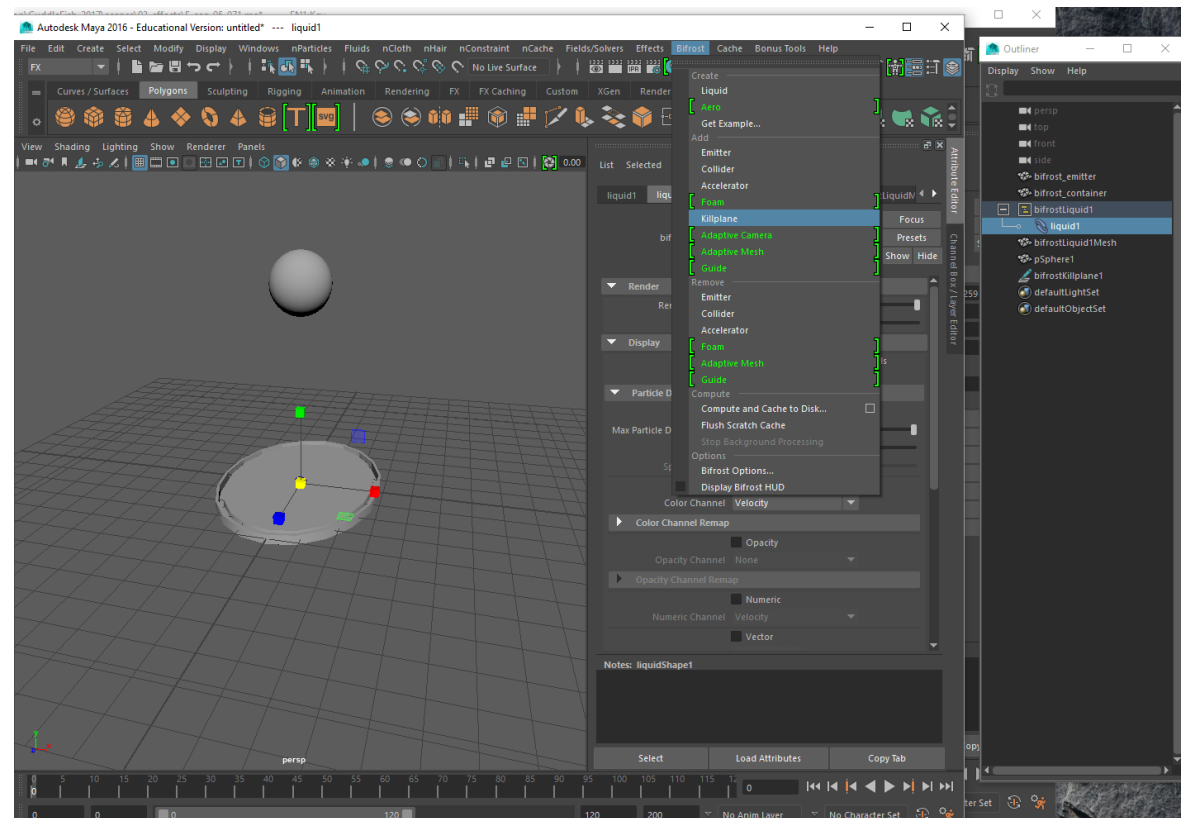
Step 12: Make sphere a collider

▶ Ctrl Click the psphere1 and liquid1 in outliner

▶ Go to Bifrost > Add > Collider

▶ Click Liquid1 in outliner and play your animation from start to finish so bifrost can begin its render

▶ The green on the time slider is how many frames were completed, the yellow means how many frames were submitted
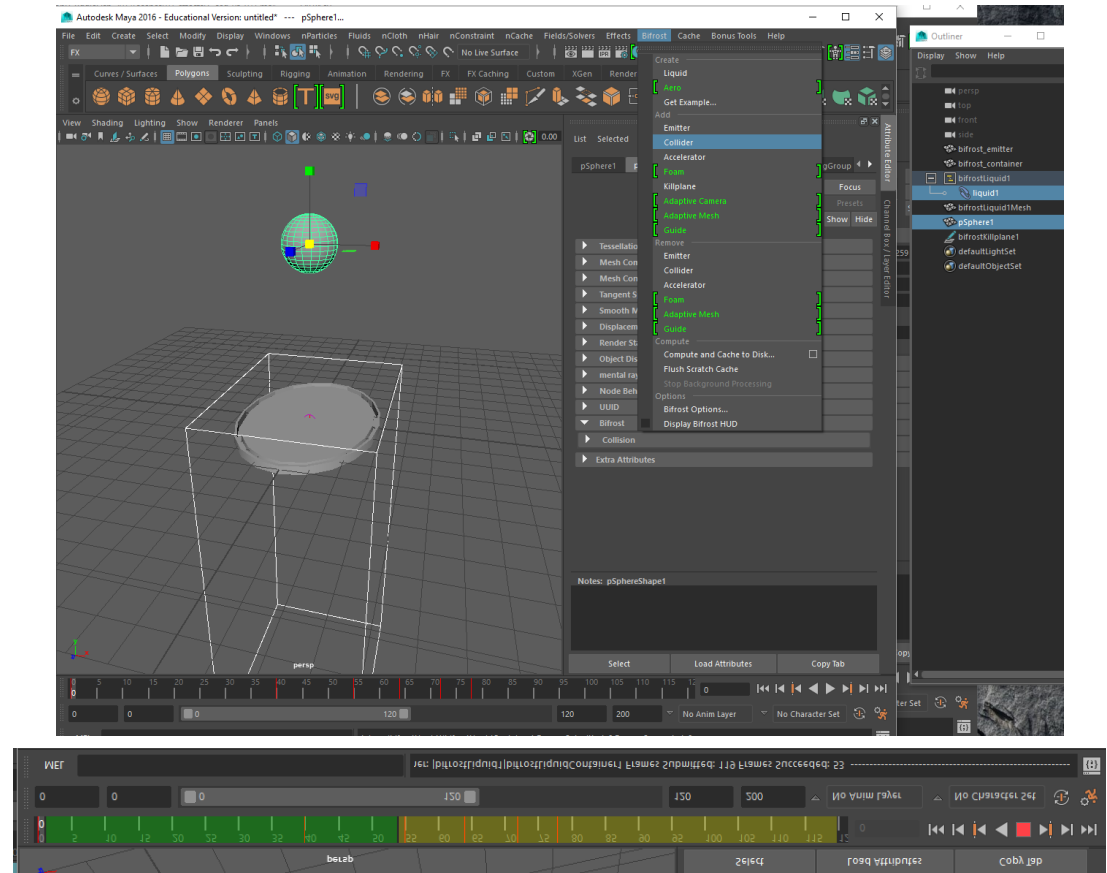
Step 13: Review the shot

▶ Once all the timeslider is green you can play back the animation and watch it. If its too slow in your playback you can create a render to see it in full time.

▶ You can mess around with the liquid attributes to see the changes in your animation

▶ The next step is to mesh the bifrost once you have it to the desired effect.

Step 14: Bifrost Meshing

▶ Click liquid1 in Outliner

▶ Go to liquidShape1 tab > Bifrost Meshing

▶ Change attributes

▶ Playback animation for another render

▶ Click liquid1 then click "h" this hides the blue simulation and shows the bifrost meshing that we just created
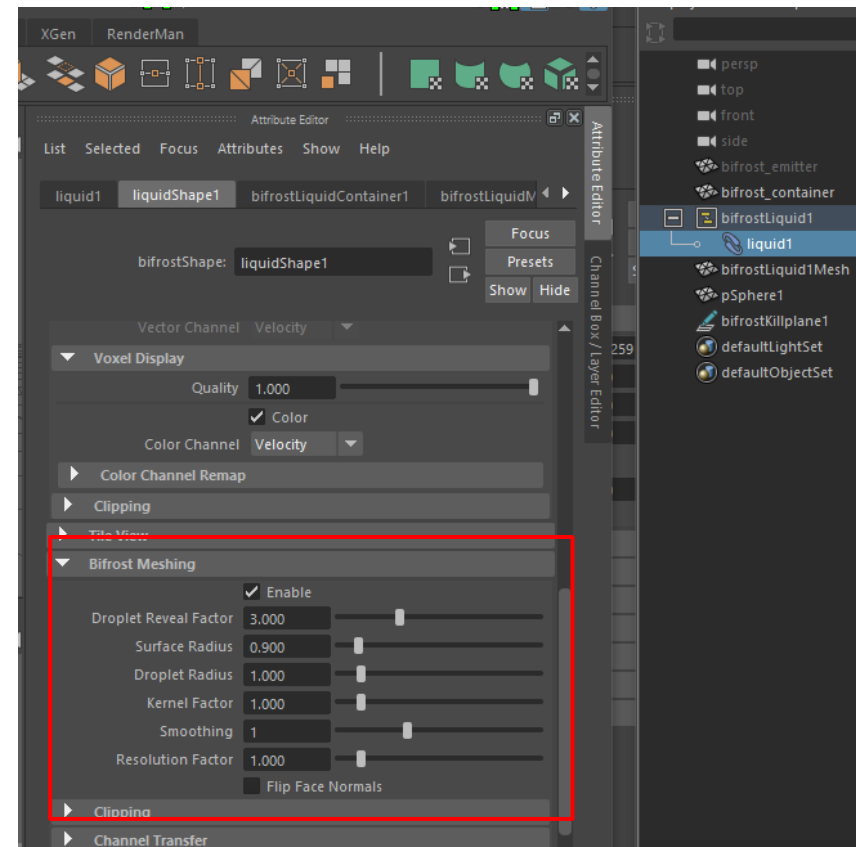
Step 15: Alembic cache

- There are several ways to use this effect in another scene. Were going to cache it so we can import the simulation without the heavy bifrost connected to it

- Click bifrostLiquid1Mesh in Outliner

- Go to Cache > Alembic Cache > Export Selection to Alembic

- Create file name and remember where it's exporting the selection
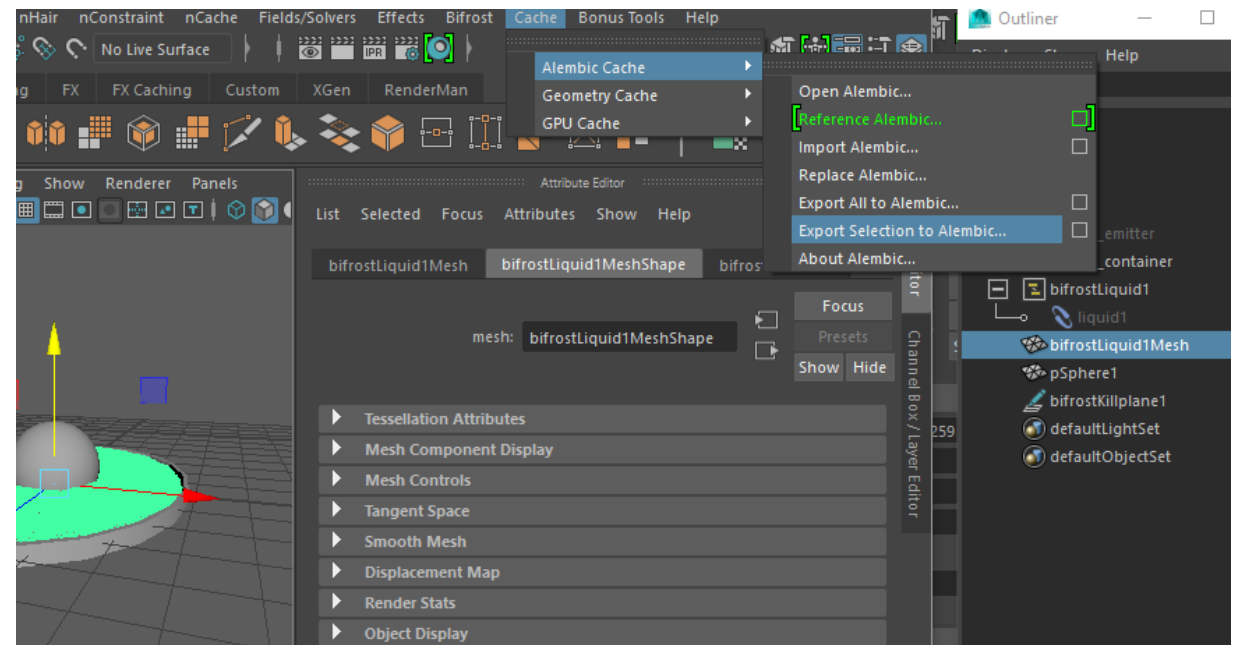
Step 16: Import the splash

- Because we cached the file we can now import the splash into any scene

- Open the final maya file where you'd like you're effect.

- Go to file > import

- Select the mesh, you'll be able to position it in the scene and watch the animation

- From here assign materials that look like water and hoorah you've made a splash

- Here is my final scene that I made for my water effect.

The End!