**Maya Rendering Notes**

*Notes regarding settings for rendering and potential errors.*

**Render Window**

* The render window can be accessed via Windows > Rendering > Render View
* If using Arnold, the Arnold window is accessed via Arnold > Open Arnold RenderView.

**Render Settings**

* Common
  + File Output – Has settings regarding the images we render. If we want to use a frame range, make sure to change the Frame/Animation ext to something like “name\_#.ext”
* Arnold Renderer
  + Sampling – Has settings regarding reducing noise in a rendered view. Each option reduces noise by increasing the sampling. Noise comes from many different things such as Motion blur, depth of field, diffuse, specular, etc. Increasing sampling for the wrong rays can make the render times increase without helping to remove the noise, so it’s important to adjust only change the settings that need it.
  + Specific info on removing noise can be found here: <https://docs.arnoldrenderer.com/display/A5AFMUG/Removing+Noise>
  + Avoid setting the Camera AA too high. 2 is a good number to work off and adjusting other settings like diffuse and a light sources sampling helps a lot.

**Render Quality**

* <https://create3dart.com/arnold-render-quality-in-maya/>

**Lights**

* (Important!) Noise can also be reduced by increasing the sampling of the light sources themselves. If the shadows are still very pixelated after increasing render samples, make sure to increase light samples too.
* Turning down the shadow color can help brighten up scenes.

**Standin**

* A standin is a file type (.ass) used by Arnold to help the scene run faster by hiding objects until a render is created.
* Standins are useful for things like grass when the scene could run very slow due to the number of polygons.
* A standin can be used with a MASH network to instantiate the object thousands of times in a scene.
* (NOTE: A duplicated standin might not show up properly in the render view. Make sure to use “duplicate special” (ctrl+shift+d) to duplicate a standin.)

**MASH**

* A MASH network is a procedural network inside of Maya. It’s useful for instantiating objects and adding property nodes such as noise, movement, etc.

**Redshift**

* Redshift is another alternative to Arnold that renders scenes much faster.
* Instead of a Standin it uses a “proxy” which is basically the exact same thing.