

## Sampling

These settings control the sampling quality of the rendered images. Increasing the sampling rates reduces the amount of noise in the images, but at the expense of increased rendering time.

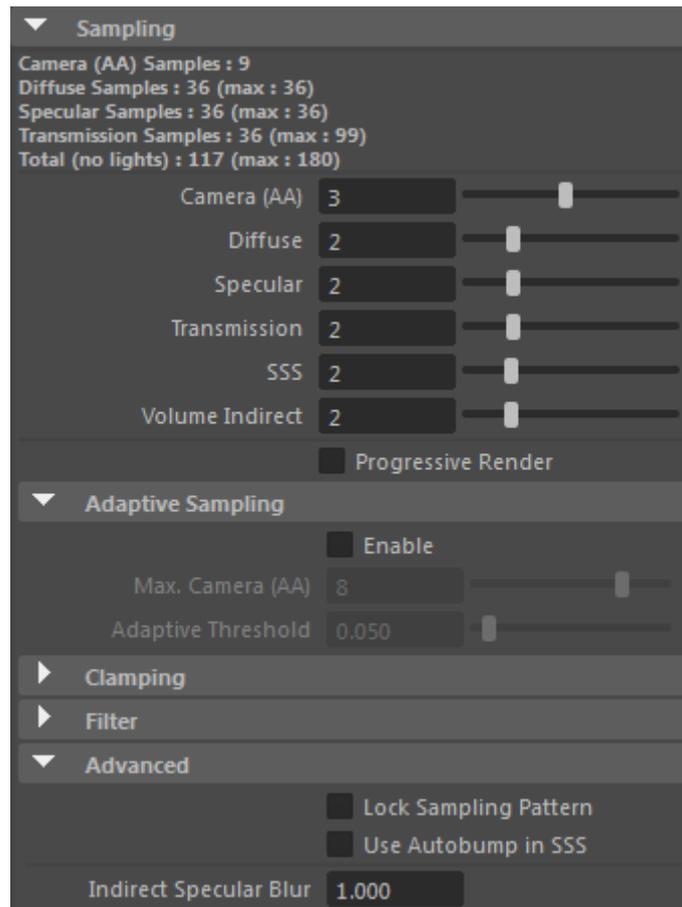
You will notice that this evolution is not linear, as, for each of these sampling rates, the actual number of samples is the square of the input value. For example, if *Camera (AA)* samples are 3, it means that  $3 \times 3 = 9$  samples will be used for Anti-Aliasing. If *diffuse* samples is 2, then  $2 \times 2 = 4$  samples will be used for the GI. The same applies to the other values.

*Diffuse, specular, transmission, SSS, and volume* sampling rates are expressed for each *Camera (AA)* sample. This AA sampling rate can, therefore, be considered as a global multiplier for all the other ones. In this example, the total amount of *diffuse* samples per-pixel is, therefore,  $9 \times 4 = 36$ .

The different per-pixel sample counts are listed at the top of the section.

The distribution of SSS samples are lit as if they were a diffuse shading effect after a split, so 1 sample to each direct light and 1 indirect sample at each SSS probe/randomwalk that successfully hits a point of the surface. Arnold will only “split” a path once when recursing through the various types of bounces and scattering events. So for example, if you have a diffuse GI sample setting of 3, and the camera ray hits a diffuse surface first, this means that from that moment on there will only 9 GI paths traversing the scene, even if these paths recursively hit the diffuse surface, or hit a transmissive or SSS surface with a different sampling rate, no more than the 9 paths will be spawned (with some caveats)

 Further information about sampling can be found [here](#).



Sampling is divided into the following sections:

- Samples
- Adaptive Sampling
- Clamping
- Sample Filtering
- Advanced - settings

 More information about working with sampling and removing noise can be found [here](#).