


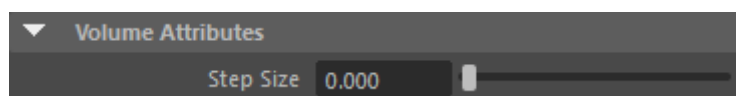
# Volumes



The following Arnold settings are available specifically for volumes via the attribute editor:

- [Maya Fluids](#)
- [Volume](#)

 Rendering of volumes should not be confused with [Atmosphere Volume](#), which is a global effect.

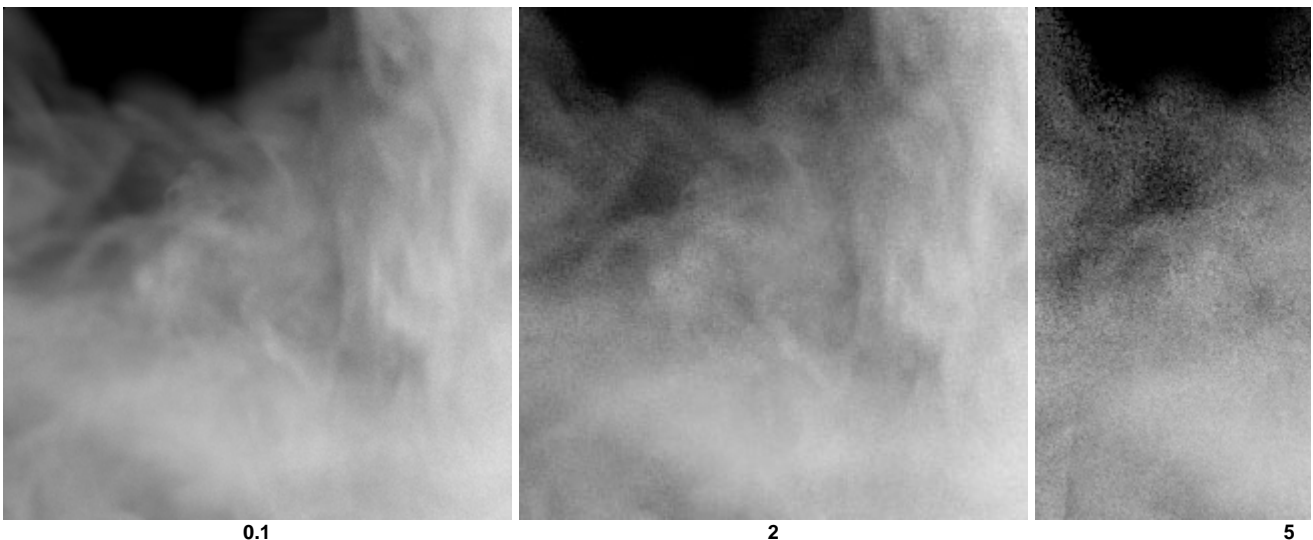


## Step Size

Sets the size for sampling inside the volume. It should be small enough to capture the smallest feature in the volume (aka the Nyquist limit). If the size is too large, aliasing, bias, or banding will appear. Smaller (and therefore more accurate) sizes will increase render times while larger sizes will render more quickly.

*Step\_size* basically controls the rate at which the volume shader gets called. The value indicates the average distance between adjacent volume shader samples along a given ray, in world space units. Generally, you will want this setting to be as large as possible before visibly noticeable artifacts occur, and in the case of voxelized volumes no smaller than about half the size of your voxels (in world space). A low *step\_size* will increase render times. For example, when the *step\_size* is 0.1 and the volume is 10 units big in world space, there are approximately 100 primary samples and therefore the volume shader is called 100 times.

**i** The *step\_size* has a fixed size, therefore, the larger the container the more steps will be taken and the longer it will take to render. Also, beware that if the *step\_size* is too small your render times will increase. If you cannot see the rendered volume, you may need to reduce the *step\_size* value.



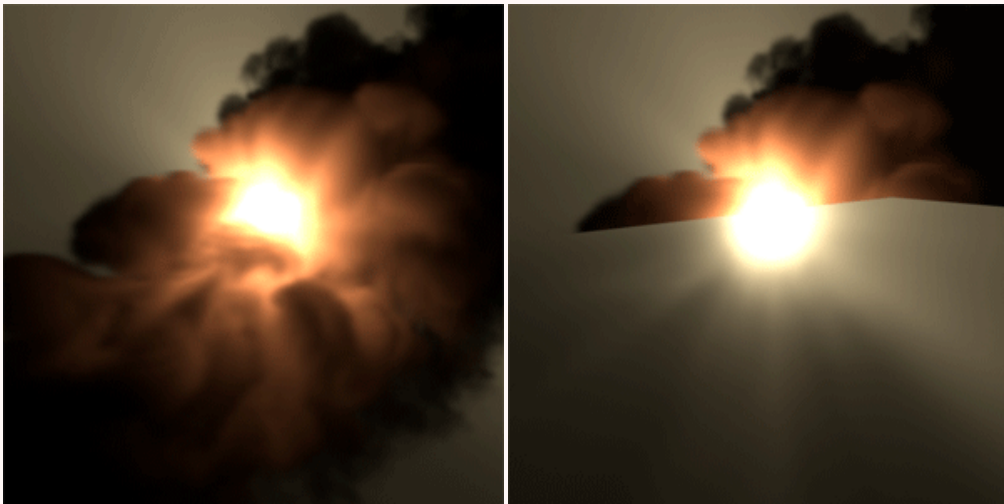
Step size basically controls the rate at which the volume shader gets called. The value indicates the average distance between adjacent volume shader samples along a given ray, in world space units. Generally you will want this setting to be as large as possible before visibly noticeable artifacts occur, and in the case of voxelized volumes no smaller than about half the size of your voxels (in world space). Low Step Sizes will increase render times. For example, when the step size is 0.1 and the volume is 10 units big in world space, there are approximately 100 primary samples and therefore the volume shader is called 100 times.

**i** The step size has a fixed size, therefore, the larger the container the more steps will be taken and the longer it will take to render. Also beware that if the step size is too small your render times will increase. If you cannot see the rendered Fluid, you may need to reduce the Step Size value.

**i** More information about volume Step Size can be found [here](#).

### **i** Volumes and Atmosphere Volume

Currently, *Atmosphere Volume* does not compose well against volumes. This is because atmosphere's return a single flat result that is opacity mapped on top of whatever is in the background of the pixel.



Left: floor plane geometry hidden. Right: floor plane geometry visible. Fluid renders incorrectly. Click images above to view animation.

