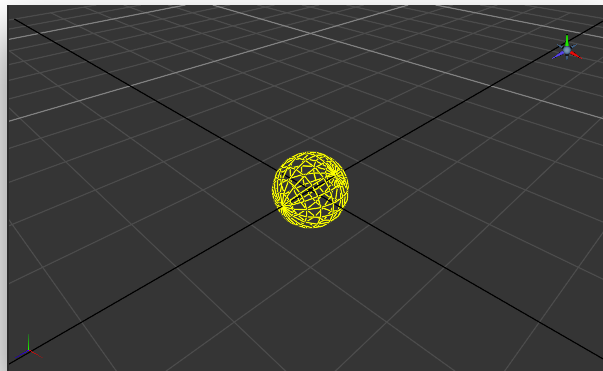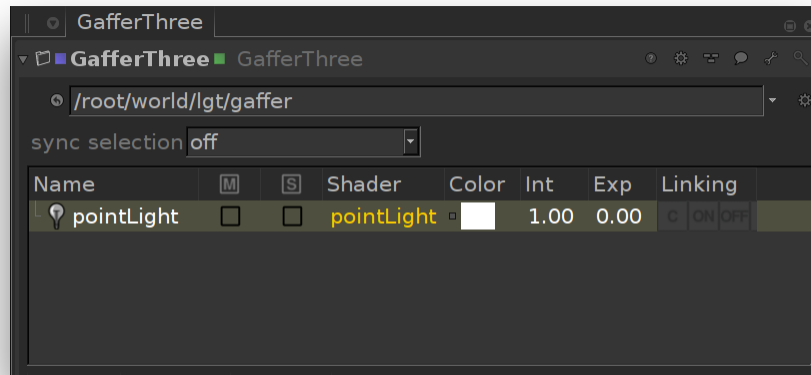# The Point Light

The point light is an omnidirectional light source - a small sphere emitting light in all directions.

Creating a Point Light

To create a distant light, right-click in the *GafferThree's Object table* and select *Add Point Light*, or press the P key. A point light appears as a sphere in the *Viewer*.

A point light in the Gaffer Object Table *and in the* Viewer.

Positioning a Point Light

The point light's transform can be edited in the *Object* tab, or interactively in the *Viewer*.

Adjusting a Point Light Shape Visibility

A point light's light-emitting sphere can be made *Visible to Camera* in the *Object tab*.

Controlling the Light from a Point Light

The *Object* tab allows specifying the *Radius* of the point light (as is explained in more details below). The *Material* tab serves to control several light parameters. The effect of these are explained and illustrated in the next sections.
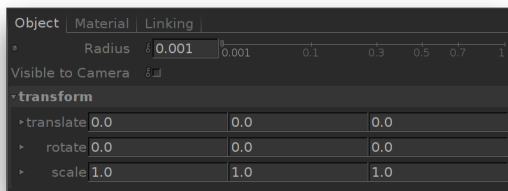
The Object *tab of a point light.*
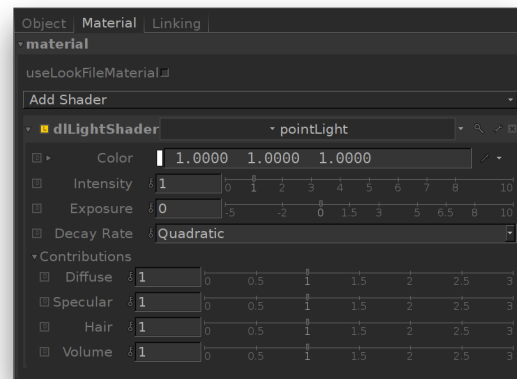
The Material *tab of a point light.*

Point Light Controls

Radius

The radius of the sphere that emits light in all directions. Increasing the *Radius* will soften the lit region edge and the shadows casted by the spot light.

0.0

0.1

0.5

3.0

Visible to Camera

Makes the light source visible to the camera (a.k.a primary rays). Since the point light is rendered as a sphere with the specified *Radius,* the visible shape will be a sphere. Note that a *Radius* of 0 might still produce a very tiny visible dot. This option is only available in *3Delight for Katana.*

Light Intensity and Color Controls

Color

Defines the light color.

Intensity

Species the light intensity.

Exposure

This is an additional control over the standard light intensity. Exposure is in many cases a preferred control due to its likeness to photography. Final light intensity is thus computed by:

```
I = intensity * pow(2, exposure)
```

Decay Rate

Specify the rate at which the light intensity decreases in function of the distance to the light source. The available values are:

No Decay	Light intensity remains constant with respect to distance.
Linear	Light intensity decreases linearly with distance.
Quadratic	Light intensity decreases proportionally to the square of the distance. This is the physically correct behaviour.
Cubic	Light intensity decreases proportionally to the cube of the distance.

Fine Tuning the Light Contribution to the Shading Components

It is sometimes useful to have a fine and direct control on how the light intensity affects various shading components. The following controls allows for that:

Diffuse Contribution

Specifies a multiplier for the light contribution to diffuse shading.

Specular Contribution

Specifies a multiplier for the light contribution to specular shading.

Hair Contribution

Specifies a multiplier for the light contribution to hair shading.

Volume Contribution

Specifies a multiplier for the light contribution to volumetric effects in atmosphere and OpenVDB volumes.