



# **KeyShot 6 Manual**

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# KeyShot 6 Online Manual



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Error rendering macro 'contentbylabel' : No WorkContext set

## PDF Manuals

[KeyShot 6 Manual - English](#)

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## Other Resources

[KeyShot Quick Tips](#)

[KeyShot Tutorials](#)

## Overview

### What is KeyShot?

KeyShot is a real-time ray-tracing and global illumination program used to create 3D renderings, animations and interactive visuals. With its CPU-based architecture, photorealistic real-time rendering can be achieved on both Mac and PC, even on laptops, without the need for special graphics cards. KeyShot supports more 3D file formats than any other rendering software, importing over 20 different file types. It has a simple user interface with drag-n-drop material and environment presets, interactive labeling, texture mapping, physical lighting, animation and much more. KeyShot is...

#### Fast

Everything inside KeyShot happens in real-time. KeyShot uses unique rendering technology which makes it possible to see all changes to materials, lighting, and cameras instantly.

#### Easy

You don't have to be a rendering expert to create photorealistic images of your 3D models. Simply import your data, assign materials by dragging and dropping them onto the model, adjust the lighting, and move the camera, Done.

#### Accurate

KeyShot is the most accurate rendering solution for your 3D data. KeyShot is built on Luxion's internally developed, physically correct render engine based on research in the areas of scientifically accurate material representation and global illumination.

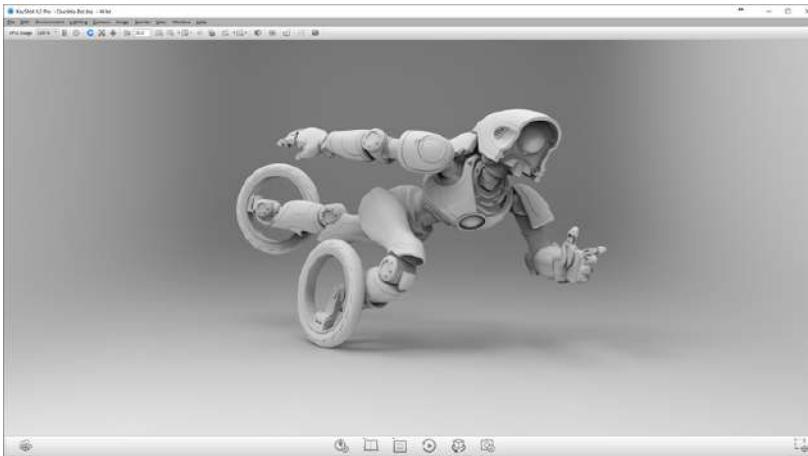
## Getting Started

## How Easy is KeyShot?

KeyShot's drag and drop based workflow will have you rendering images in minutes. With a simple interface with many advanced features and instant real-time feedback, you save time while being able to focus on your design.

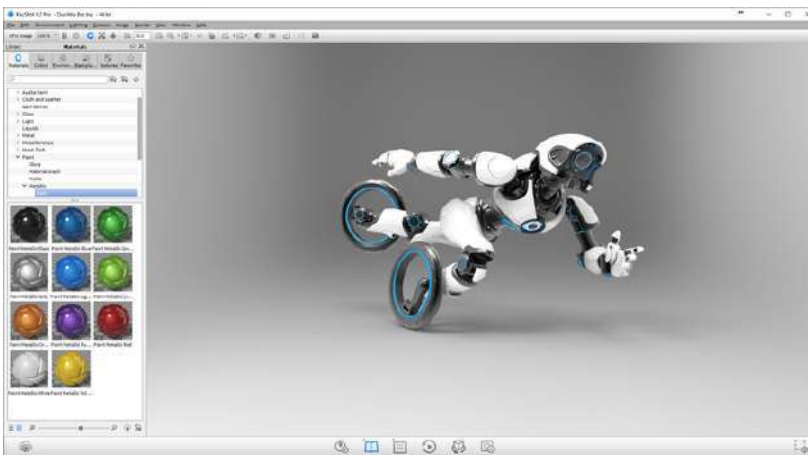
### Step 1: Import Your 3D Model

Launch KeyShot. Import your 3D model via *File, Import...* KeyShot supports over 20 3D file formats, including SketchUp, SolidWorks, Solid Edge, Pro/ENGINEER, PTC Creo, Rhinoceros, Maya, 3ds Max, IGES, STEP, OBJ, 3ds, Collada, and FBX. KeyShot also features many plugins that add more features, including KeyShot BIP export and LiveLinking. [Learn More](#)



### Step 2: Assign Your Materials

From the *Library Window*, select the *Materials* tab. Apply any of the 600+ scientifically accurate materials from the material library by simply dragging and dropping them onto your model in the *Real-time View*. Changes appear on your model instantly with accurate color and lighting under the current lighting conditions. [Learn More](#)



### Step 3: Choose Your Environment

Now select the *Environment* tab. Drag and drop an Interior, Outdoor or Studio lighting environment (HDR) into your scene you will notice the effect of the scientifically accurate real world lighting and how it captures your models, colors and finishes.

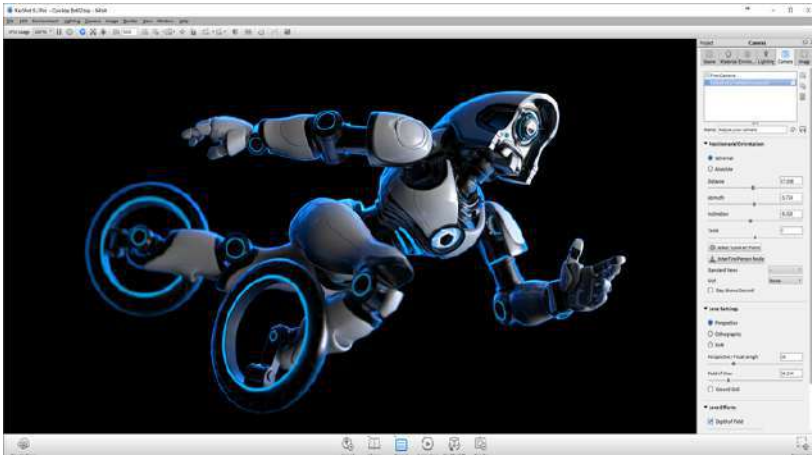
#### On this page:

- [How Easy is KeyShot?](#)
- [Step 1: Import Your 3D Model](#)
- [Step 2: Assign Your Materials](#)
- [Step 3: Choose Your Environment](#)
- [Step 4: Adjust Your Camera](#)
- [Step 5: Enjoy the Perfect Image](#)



### Step 4: Adjust Your Camera

Your mouse adjusts the camera with additional settings available from the *Project, Camera* tab. Adjust the angle and distance, control perspective with focal length and field of view settings and easily add depth of field to your scene. [Learn More](#)



### Step 5: Enjoy the Perfect Image

Hit *Render* from the main toolbar. Use the default setting or adjust output or options. Select the *Render* button to watch your image render before your eyes. [Learn More](#)



# Installation

## Installing Your License

The standard node-locked license of KeyShot can only be active on one machine at a time. However, you can transfer your license repeatedly between up to three machines of mixed platforms.

### Automatic Install

When you receive your *keyshot6.lic* file save it to your computer. Next, start KeyShot, and select *Install a license file (\*.lic)* and browse to the *keyshot6.lic* file. If your license fails to install, check to ensure you have full permissions set on your *KeyShot 6 resources* folder for PC, or full permissions set on the KeyShot application *package contents* for Mac.

### Manual Install

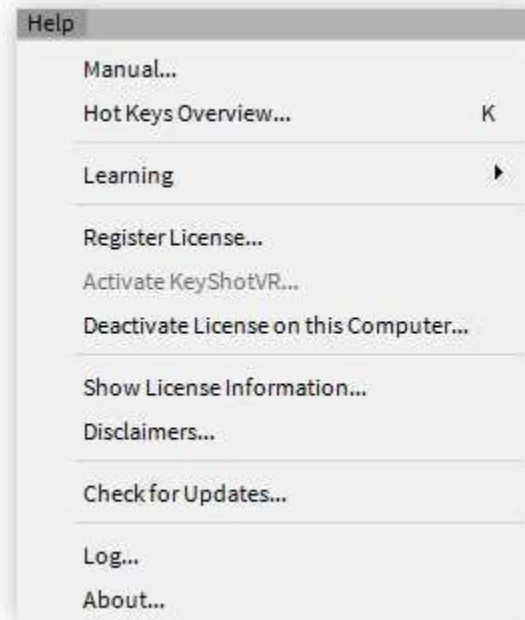
When you receive your *keyshot6.lic* file, you can manually copy it to the *Keyshot 6 resources* folder on PC or Mac.

## Transferring Your License

During the license transfer process, an internet connection is required. Once the license has been successfully transferred, KeyShot can run without being connected to the internet.

## How to Transfer Your License

To transfer your license, ensure you are connected to the internet on the active machine. Start KeyShot and go to *Help, Deactivate License on this Computer...*



Next, ensure the new machine is connected to the internet and KeyShot is installed. Start the software, fill out your information on the activation screen, and press *Next*.

### On this page:

- Installing Your License
  - Automatic Install
  - Manual Install
- Transferring Your License
  - How to Transfer Your License



Please Register KeyShot 6

**Registration Information**

Please enter your information.

Name

Email

Phone

Company

Industry

Country

Software

Reseller (optional)

Sign up for the KeyShot newsletter

[Buy Now](#)  
[Learn Online](#)

On the following screen you will be asked for your KeyShot serial code(s). Type in your information and press *Next* to finalize the activation.

Please Register KeyShot 6

**Serial Code**

Enter your serial code

[Buy Now](#)  
[Learn Online](#)

## Resource Folder

### KeyShot Resource Folder

Your KeyShot installation contains a folder of preset KeyShot resources (or assets). Resources such as materials, environments, and textures are stored here. When you open a .bip file, KeyShot references the KeyShot resources folder location and loads

any files that apply to the scene. You can specify the location of the KeyShot resources folder from *Edit, Preferences* under the *Folder Preferences* tab.

The KeyShot resources folder contains the following sub-folders:

### Animations

Animations will be saved to this folder by default. At render time, other locations can be specified in the Render Options window.

### Backplates

The KeyShot Library loads backplates from the this location and saves imported backplates to this folder by default.

### Colors

The KeyShot Library loads color library files from the this location and saves imported color library files to this folder by default.

### Downloads

Resources downloaded from the KeyShot Cloud will be saved to this location .

### Environments

The KeyShot Library loads environments from this location and saves imported environments to this folder by default.

### Favorites

This folder is empty until a favorite list of resources is created. Once created, the favorite list is saved to this location as a XML file.

### Materials

The KeyShot Library loads materials this location and saves imported materials to this location by default.

### Material Templates

This folder is empty until a material template is created. Once created, the material template is saved to this location.

### Models

This folder contains standard primitives that you can import into KeyShot.

### Renderings

Renderings will be saved to this folder by default. At render time, other locations can be specified inside the Render Options window.

### Scenes

This folder contains sample scenes that you can only open with KeyShot. These scenes are saved as BIP files.

#### On this page:

- KeyShot Resource Folder
  - Animations
  - Backplates
  - Colors
  - Downloads
  - Environments
  - Favorites
  - Materials
  - Material Templates
  - Models
  - Renderings
  - Scenes
  - Scripts
  - Textures
- PC Location
  - Setting Permissions
- Mac Location
  - Setting Permissions

## Scripts

This folder contains sample scripts that you can use with KeyShot.

## Textures

The KeyShot Library loads textures from this location and saves imported textures to this folder by default.

You can specify the location of the KeyShot Resources folder [Preferences, Folder Locations](#).

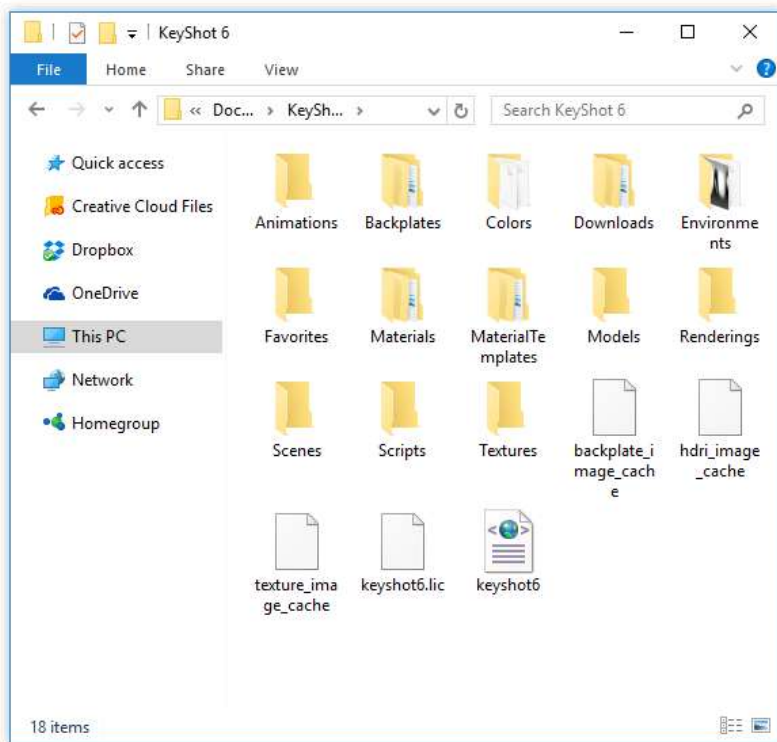
## PC Location

After KeyShot 6 is installed, a “KeyShot 6 Resources” shortcut will be created on your desktop. By default, this shortcut points to: *Documents/KeyShot 6*.

## Setting Permissions

You must have read and write permissions for your KeyShot 6 folder in order to save renders, animations, and more. Here’s how to set permissions:

- Right click the KeyShot 6 resources folder and select “Properties”.
- Go to the Security tab and highlight your group or user name.
- Click the “Edit” button.
- Set permissions to “Full Control.”
- Click “Apply” and “OK.”



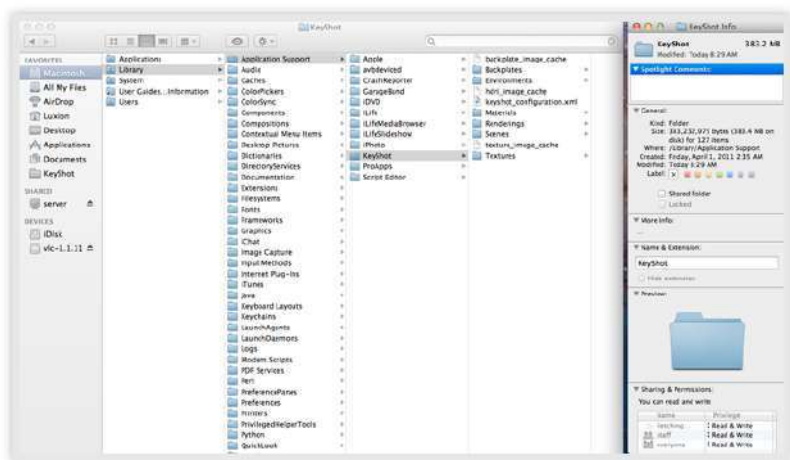
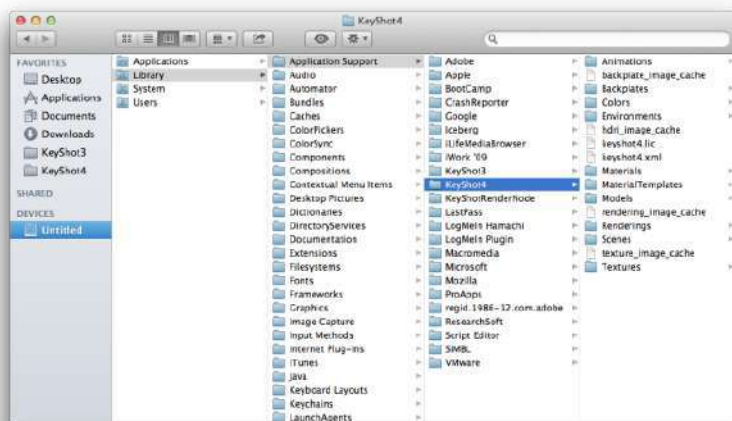
## Mac Location

On a Mac your KeyShot 6 resources folder is saved inside the “Application Support”:  
Library/Application Support/KeyShot 6

## Setting Permissions

You must have read and write permissions to your KeyShot 6 folder in order to save renders, animations, and more. Here's how to set permissions:

1. Right click the KeyShot 6 resources folder and select "Get Info."
2. Expand "Sharing & Permissions" and unlock access.
3. Change all privileges to "Read & Write."
4. Click the settings button and select "Apply to enclosed items..."
5. Click "OK" and close the window.



## Pro Floating Installation

Welcome to the KeyShot Pro Floating Installation Guide! This guide will walk you through the installation process starting with the license server system: **LMTTools (PC)** or **KeyShot License Manager (Mac)**. You will then install and configure the client application, KeyShot! We have also included a list of features and add-ons, a troubleshooting guide, and licensing terminology with definitions.

**On this page:**

- Windows PC Setup
- Mac OS X Setup

**LMTTools (PC)**

**KeyShot License Manager (Mac)**



LMTools and KeyShot License Manager utilizes the latest FlexNet licensing tools (v11.11.1.1) by Flexera Software LLC. KeyShot Pro Floating and KeyShot License Manager are both provided by Luxion Inc.

## Windows PC Setup

LMTools is the license management application for PC. During license setup, you will install LMTools on a single computer in your network. This computer will host your license file and will be referred to as the license server.\*

## Mac OS X Setup

KeyShot License Manager is the license management application for Mac. During license setup, you will install KeyShot License Manager on a single computer in your network. This computer will host your license file and will be referred to as the license server.\*

**\*Please note that your license server must be powered on and connected to the network at all times.**

## Windows PC Setup

Before you can run KeyShot Pro Floating, it is important that your license server is configured properly. The following sections will walk you through the process starting with the license server setup: [automatic](#) or [custom](#). You will then install and configure [KeyShot Pro Floating](#) on your client machines.

1. [License Server Installation \(PC\) - Automatic](#)
2. [License Server Installation \(PC\) - Custom](#)
3. [KeyShot Pro Floating Installation \(PC\)](#)

## License Server Installation (PC) - Automatic

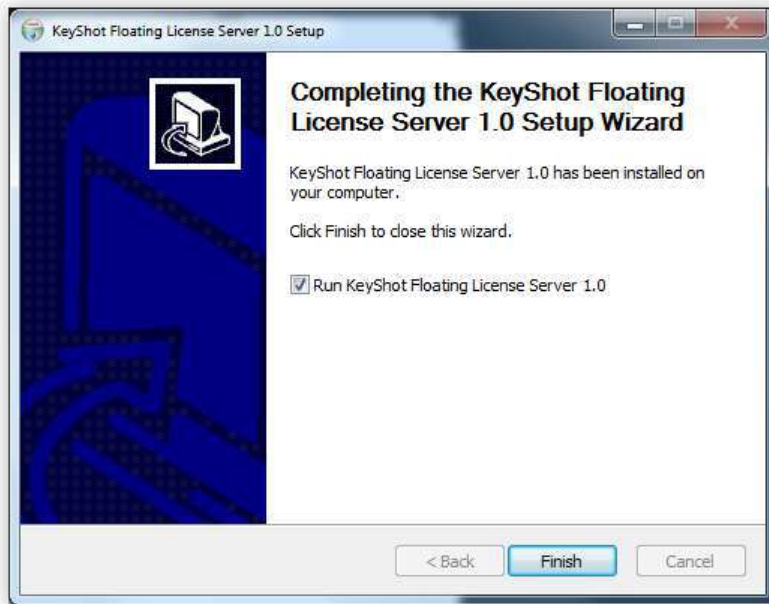
The instructions below will walk you through the typical first-time license service setup. Our licensing team will provide you with a license file and the appropriate software links. You may reach our licensing team at [license@luxion.com](mailto:license@luxion.com). If you already have a license server set up you can then [make changes](#).

### ***Automatic License Server Setup Instructions***

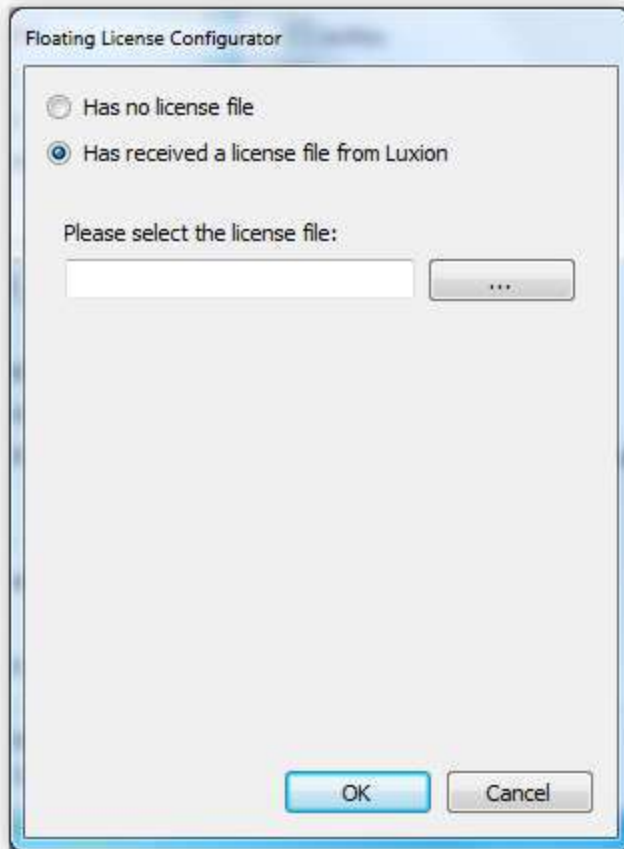
1. Download and run the "keyshot\_floating\_license\_server.exe" installer. Follow the prompts and finish the installation.

#### **On this page:**

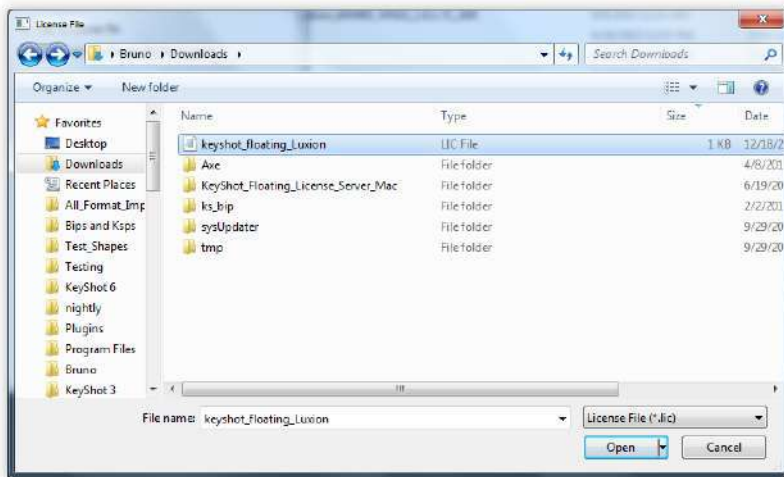
- [Automatic License Server Setup Instructions](#)



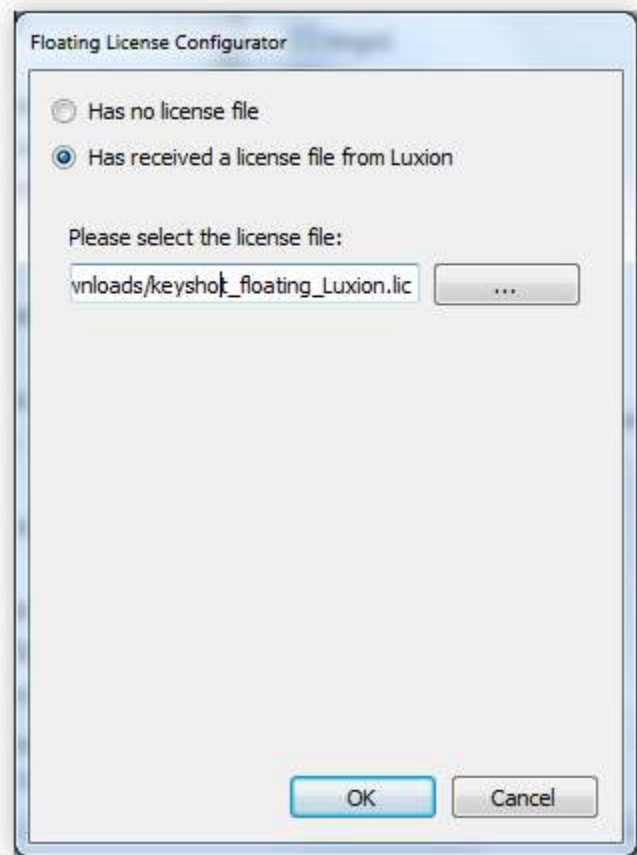
2. Launch the *Floating License Configurator*. Select *Has received a license file from Luxion*.



3. Click the Browse button (...) and browse to your license file in Windows Explorer.

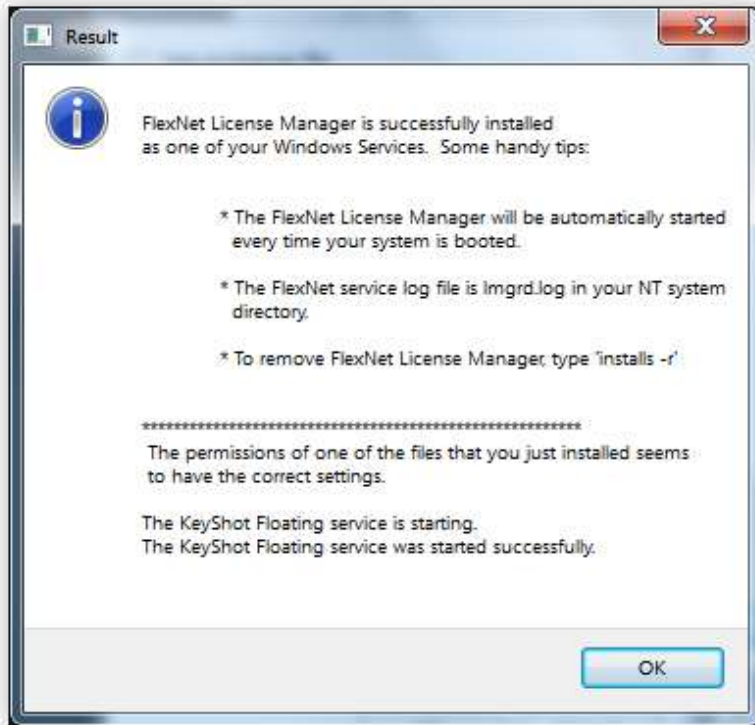


4. Click **Open**. Your license file will be loaded into the configurator. Click **OK**.

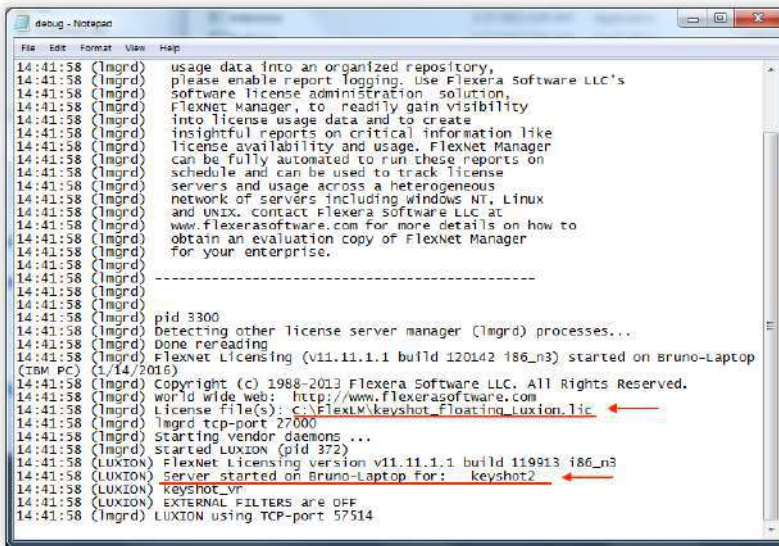


5. A dialog will tell you that the server has started. Click **OK**. If you run into any errors here, then you may perform a [custom license service setup](#).





6. Open the “debug.log” file inside your C:\FlexLM folder (this folder contains the licensing software). The debug log will reference your license file and tell you that the server started on your computer system. If you don’t see any errors, then your license service is up and running.



**Technical Tip:** If your debug log does not look similar to the above image or if you are getting an error message inside *Floating License Configurator*, then you can use the [troubleshooting guide](#) for diagnosis or perform a [custom license service setup](#). You may also contact Luxion Customer Support at [support@luxion.com](mailto:support@luxion.com) for assistance.

## Licene Server Installation (PC) - Custom

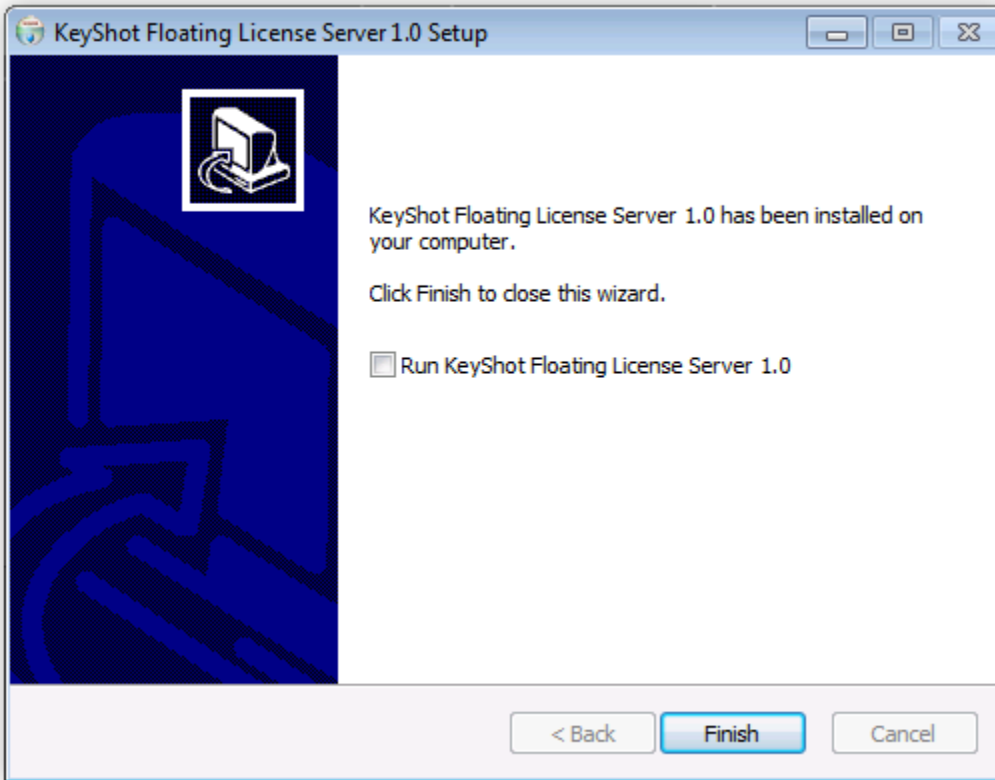
The *Floating License Configurator* application automatically creates a service in *LMTools*. But what if you wish to create a custom license service? Then, you will need to understand *LMTools* in greater detail. The instructions below will walk you through creating your very own custom license service. Our licensing team will provide you with a license file and the appropriate software links. You may reach our licensing



team at [license@luxion.com](mailto:license@luxion.com). If you already have a license server set up you can then [make changes](#).

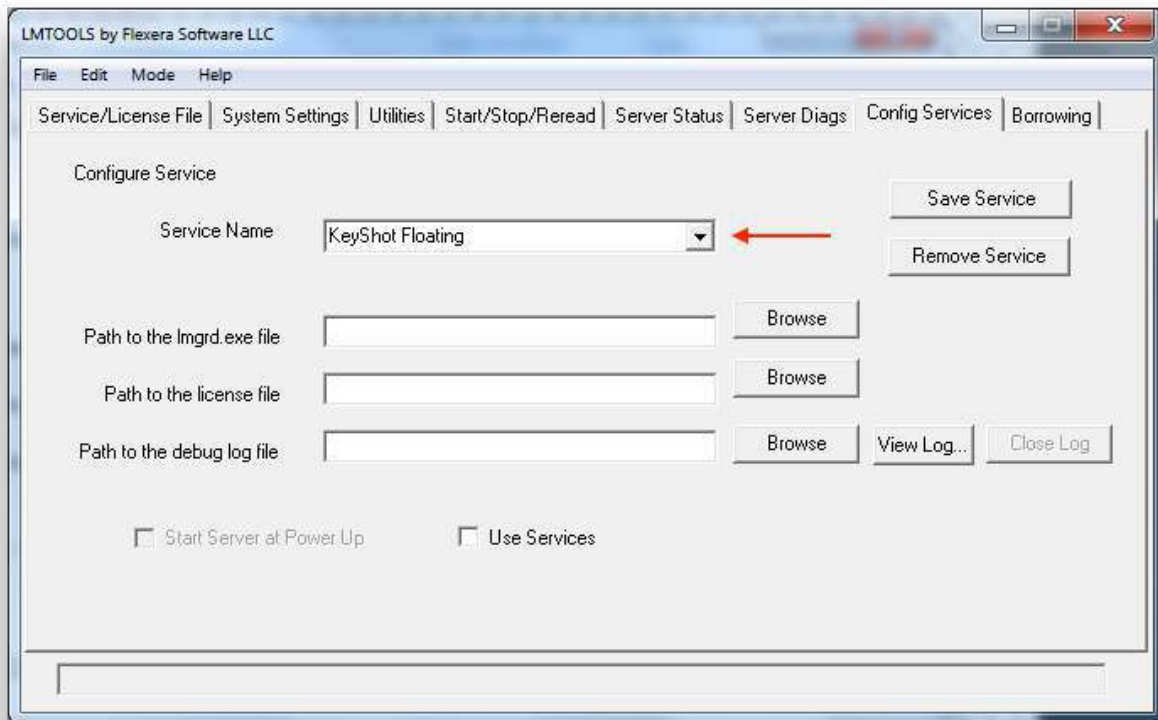
### **Custom License Server Setup Instructions**

1. Download and run the "keyshot\_floating\_license\_server.exe" installer. Follow the prompts and make sure that "Run KeyShot Floating License Server 1.0" is disabled. Click Finish.

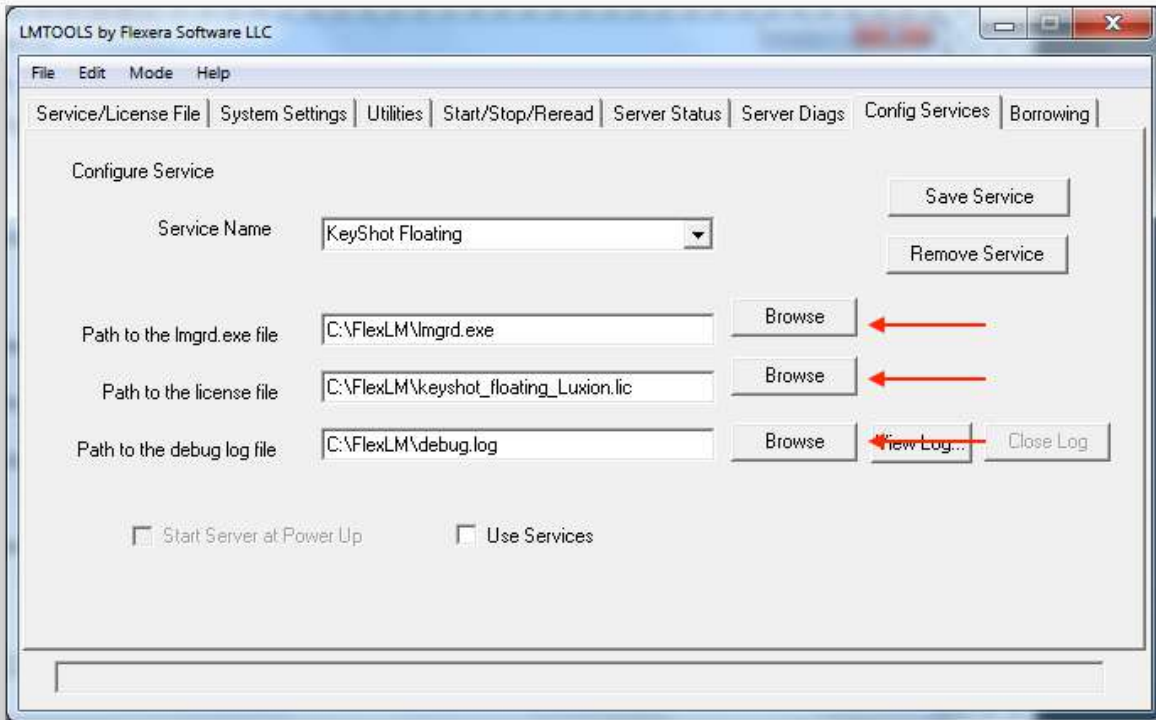


2. Launch the *LMTools* application (found inside *C:\FlexLM*) and go to the Config Services tab.

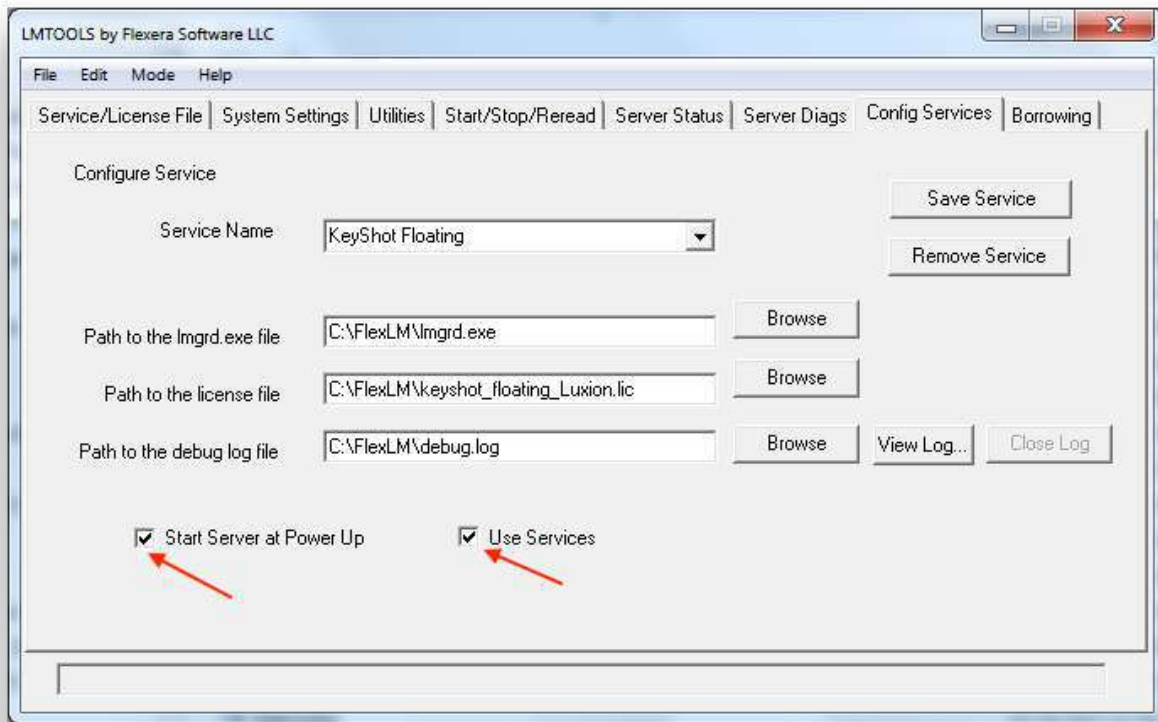
3. Write a new service name.



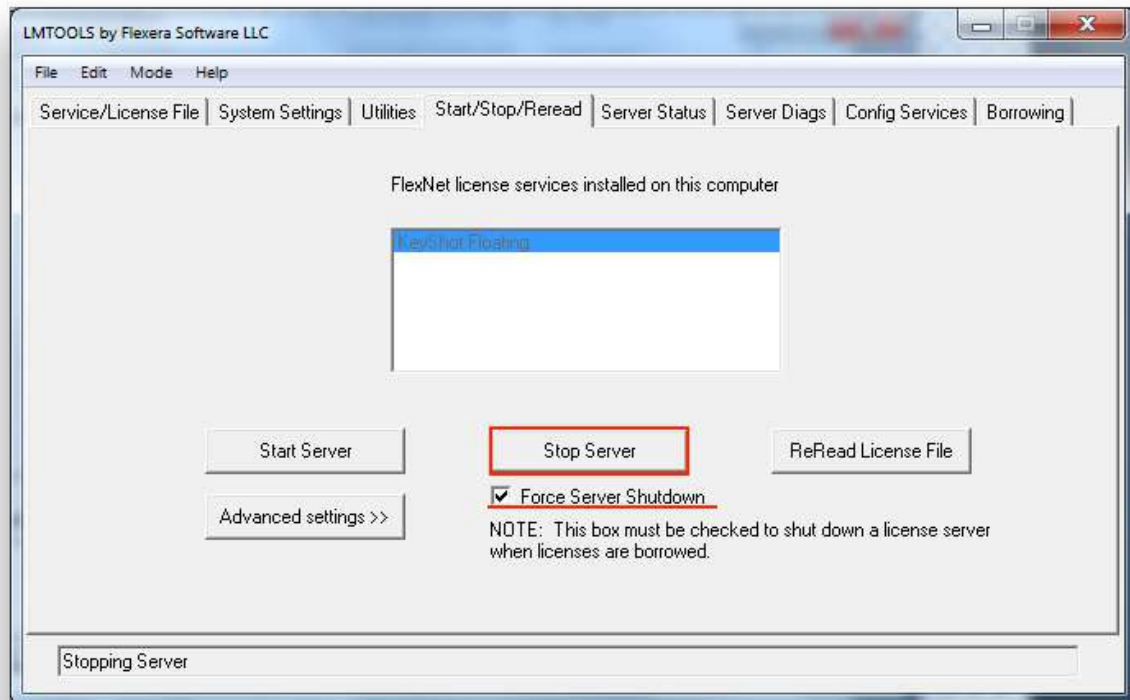
4. Browse to the *lmgrd.exe*, license (*.lic*), and *debug.log* files. You should be able to find all of these files in your *C:\FlexLM* folder. Note that the *debug.log* is created after you start the service. For now, you can simply specify the correct path: *C:\FlexLM\debug.log*



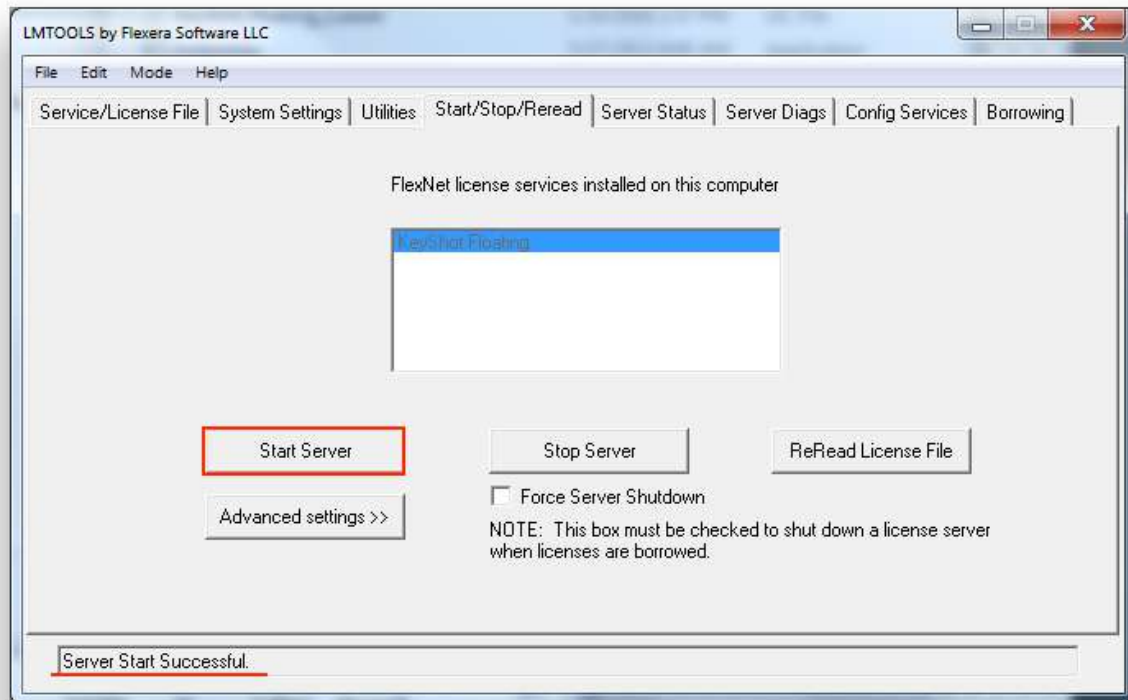
5. Enable *Start Server at Power Up* and *Use Services*. Then click *Save Service* and confirm.



6. Launch *LMTools* and go to the *Start/Stop/Reread* tab. Enable *Force Server Shutdown* and click *Stop Server*. You may also stop the *Key Shot Floating* service within the *Windows Services* dialog (*services.exe*).



7. Click *Start Server*. You may also start the *KeyShot Floating* service within the *Windows Services* dialog (*services.exe*).



8. Open the *debug.log* file inside your *C:\FlexLM* folder (this folder contains the licensing software). The debug log will reference your license file and tell you that the server started on your computer system.

```
15:04:35 (lmgrd) In order to capture accurate license
15:04:35 (lmgrd) usage data into an organized repository,
15:04:35 (lmgrd) please enable report logging. Use Flexera Software LLC's
15:04:35 (lmgrd) software license administration solution,
15:04:35 (lmgrd) FlexNet Manager, to readily gain visibility
15:04:35 (lmgrd) into license usage data and to create
15:04:35 (lmgrd) insightful reports on critical information like
15:04:35 (lmgrd) license availability and usage. FlexNet Manager
15:04:35 (lmgrd) can be fully automated to run these reports on
15:04:35 (lmgrd) schedule and can be used to track license
15:04:35 (lmgrd) servers and usage across a heterogeneous
15:04:35 (lmgrd) network of servers including windows NT, Linux
15:04:35 (lmgrd) and UNIX. Contact Flexera Software LLC at
15:04:35 (lmgrd) www.flexerasoftware.com for more details on how to
15:04:35 (lmgrd) obtain an evaluation copy of FlexNet Manager
15:04:35 (lmgrd) for your enterprise.
15:04:35 (lmgrd) -----
15:04:35 (lmgrd)
15:04:35 (lmgrd) pid 9992
15:04:35 (lmgrd) Done rereading
15:04:35 (lmgrd) FlexNet Licensing (v11.11.1.1 build 120142 i86_n3) started on Bruno-Laptop
15:04:35 (lmgrd) (IBM PC) (1/14/2016)
15:04:35 (lmgrd) Copyright (C) 1988-2013 Flexera Software LLC. All Rights Reserved.
15:04:35 (lmgrd) world wide web: http://www.flexerasoftware.com
15:04:35 (lmgrd) License file(s): C:\FlexLM\keyshot_floating_Luxion.lic
15:04:35 (lmgrd) lmgrd tcp-port 27005 ←
15:04:35 (lmgrd) Starting vendor daemons ...
15:04:35 (lmgrd) Started LUXION (pid 10224)
15:04:35 (LUXION) FlexNet Licensing version v11.11.1.1 build 119913 i86_n3
15:04:35 (LUXION) Server started on Bruno-Laptop for: keyshot2 ←
15:04:35 (LUXION) keyshot_vr
15:04:35 (LUXION) EXTERNAL FILTERS are OFF
15:04:35 (lmgrd) LUXION using TCP-port 58389
```

**Technical Tip:** If your debug log does not look similar to the above image or if you are getting an error message inside *Floating License Configurator*, then you can use the [troubleshooting guide](#) for guidance. You may also contact Luxion Customer Support at [support@luxion.com](mailto:support@luxion.com) for assistance.

## KeyShot Pro Floating Installation (PC)

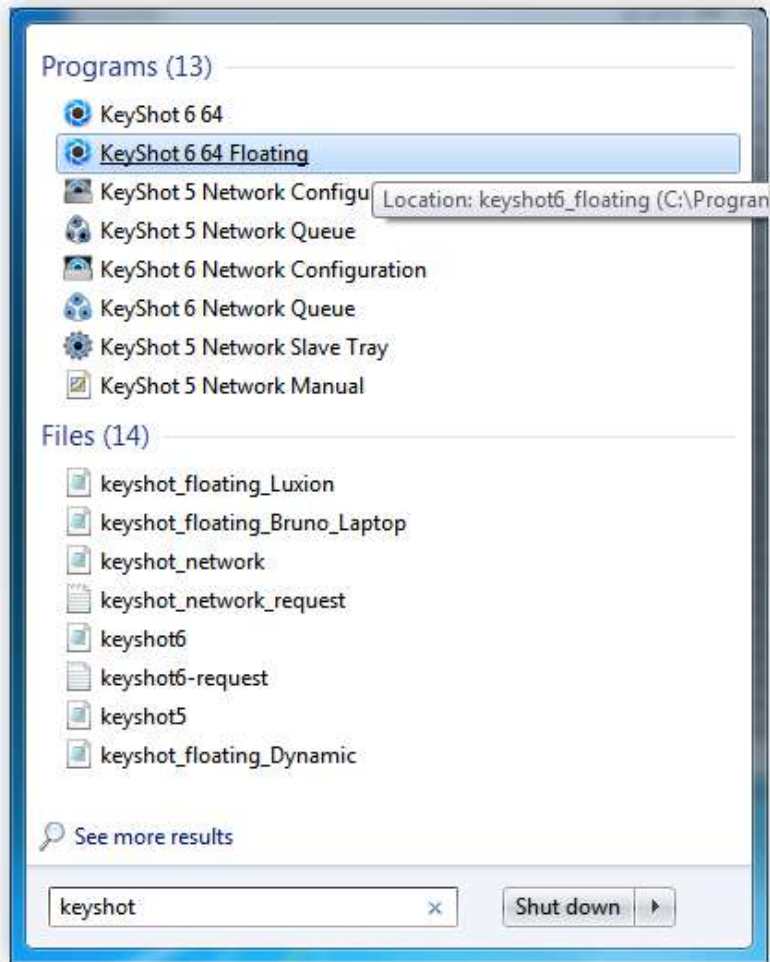
Now that your [server](#) is up and running, you are ready for the client setup. The instructions below will walk you through setting up your PC clients. For setting up your Mac clients, click [here](#). Our licensing team will provide you with software links to download KeyShot Pro Floating (the client application). You may contact our licensing team at [license@luxion.com](mailto:license@luxion.com).

### On this page:

- [License Client Setup Instructions](#)

### **License Client Setup Instructions**

1. Download and install the KeyShot Pro Floating application.
2. Launch KeyShot Pro Floating.

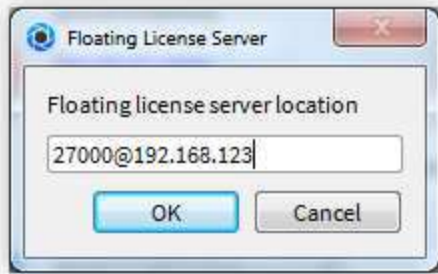


3. Specify the port number, followed by the "@" sign and the server's hostname. For example, *27000@Bruno-Laptop*.



You may also use the server's IP Address (use the IP Address if your license server is a PC). For example, *27000@192.168.1.123*





4. Click OK. KeyShot Pro Floating will start. From now on, KeyShot will remember the server information. You will be able to check out the license as long as your system can connect to the computer acting as the license server.



**Technical Tip:** If your debug log does not look similar to the above image or if you are getting an error message when you install the license, then you can use the [troubleshooting guide](#) for diagnosis. You may also contact Luxion Customer Support at [support@luxion.com](mailto:support@luxion.com) for assistance.

## Mac OS X Setup

Before you can run KeyShot Pro Floating, it is important that your license server is configured properly. The following sections will walk you through the process starting with the license server setup. You will then install and configure KeyShot Pro Floating on your client machines.

1. License Server Installation (Mac)
2. KeyShot Pro Floating Installation (Mac)

## License Server Installation (Mac)

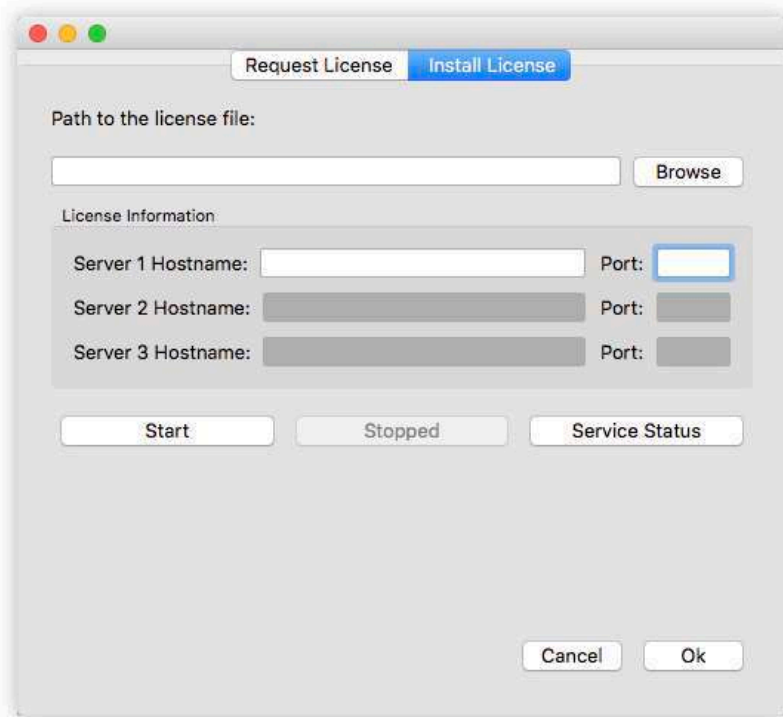
The instructions below will walk you through a typical first-time license service setup. Our licensing team will provide you with a license file and the appropriate software links. You may reach our licensing team at [license@luxion.com](mailto:license@luxion.com). If you already have a license server set up, you can then [make changes](#).

## License Server Setup Instructions

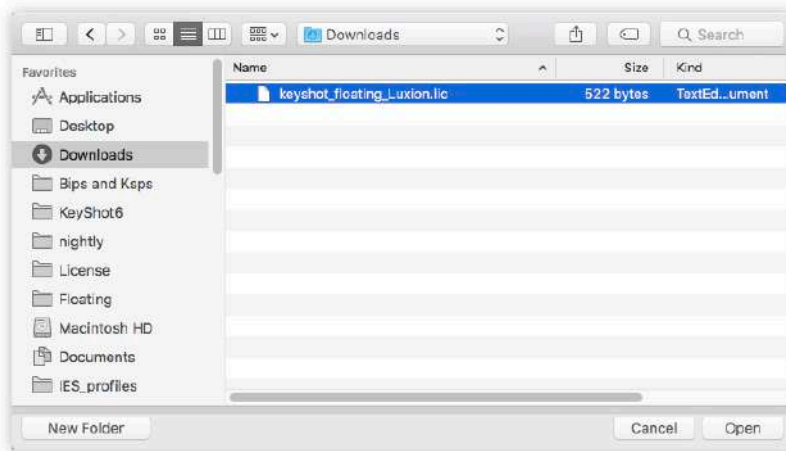
1. Download and unzip KeyShot License Manager.
2. Launch the *KeyShot License Manager* application.

### On this page:

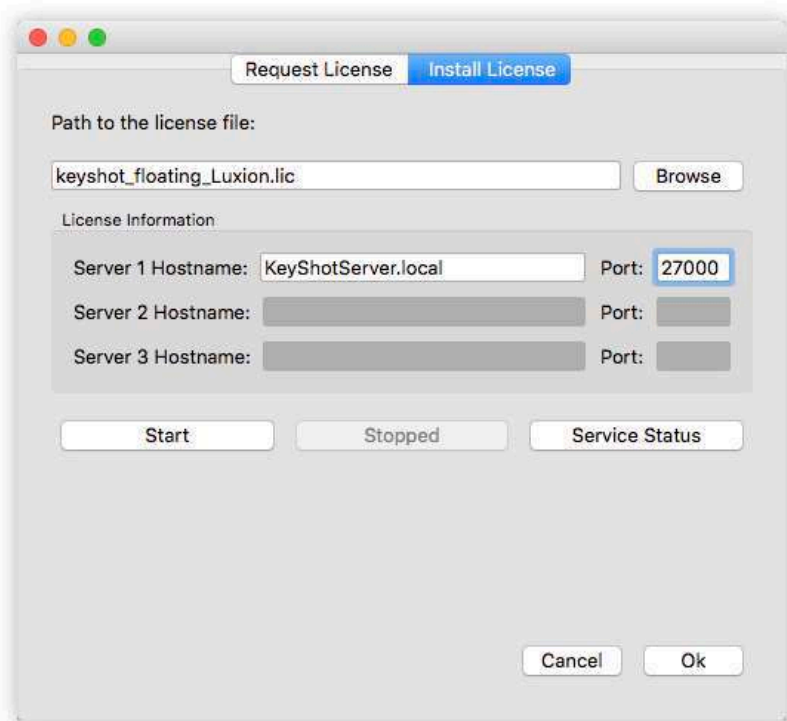
- License Server Setup Instructions



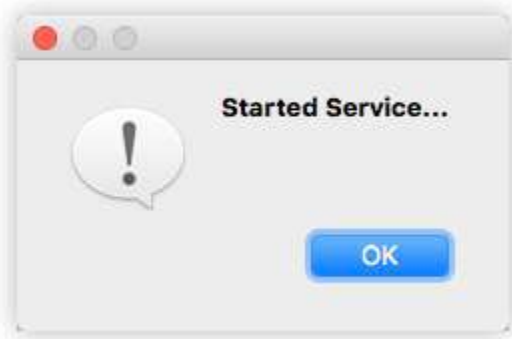
3. Click *Browse* and browse to your license file in the Finder app.



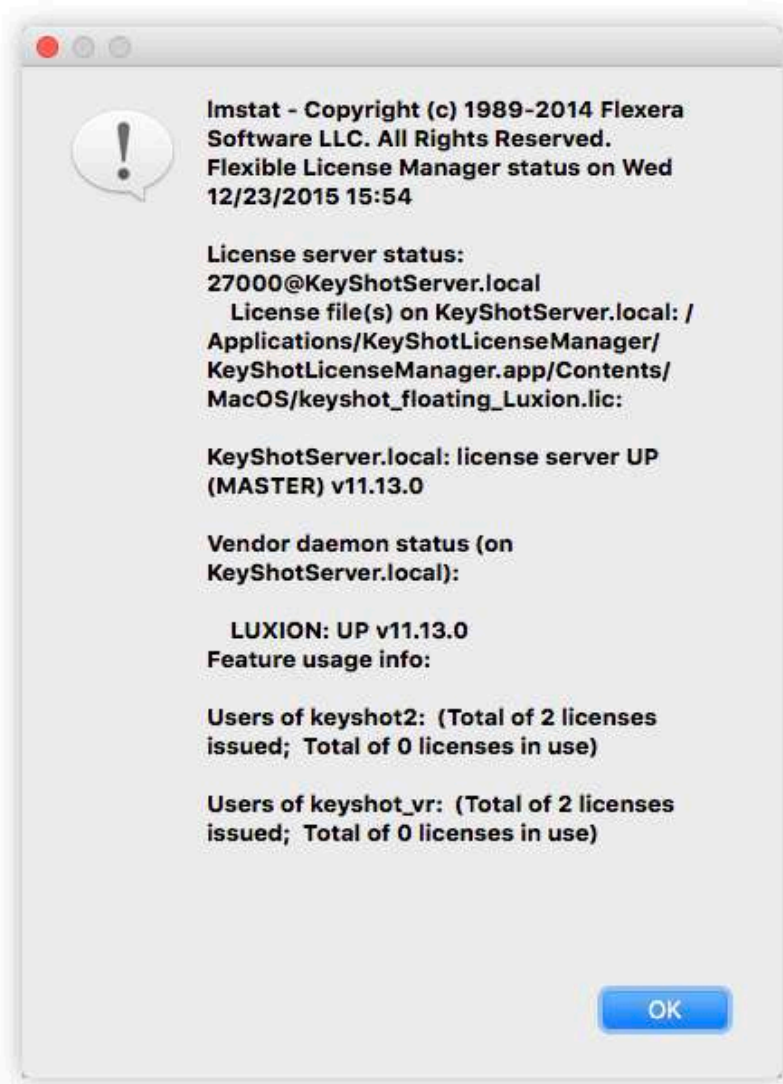
4. Click *Open*. Your license file will be loaded into *KeyShot License Manager*.



5. Check that the correct hostname appears in the appropriate field and click *Start*. A dialog will tell you that the server has started. Click *Ok*.



6. Click *Service Status*. Your license server's status will appear in the service status window. The service status window will tell you how many seats are available and how many seats have been issued.



**Technical Tip:** If your service status window does not look similar to the above image or if you are getting an error message when you start the server, then you can use the [troubleshooting guide](#) for diagnosis. You may also contact Luxion Customer Support at [support@luxion.com](mailto:support@luxion.com) for assistance.

## KeyShot Pro Floating Installation (Mac)

Now that your [server](#) is up and running, you are ready for the client setup on your. The instructions below will walk you through setting up your Mac clients. For setting up your PC clients, click [here](#). Our licensing team will provide you with software links to download KeyShot Pro Floating (the client application). You may contact our licensing team at [license@luxion.com](mailto:license@luxion.com)

### ***KeyShot Pro Floating Setup Instructions***

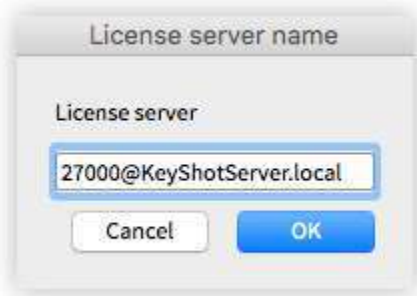
1. Download and install the KeyShot Pro Floating application.
2. Launch KeyShot Pro Floating.

#### **On this page:**

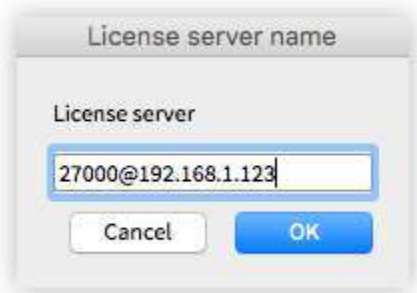
- [KeyShot Pro Floating Setup Instructions](#)



3. Specify the port number, followed by the "@" sign and the server's hostname. For example, 27000@KeyShotServer.local.



You may also use the server's IP Address (use the IP Address if your license server is a PC). For example, 27000@192.168.1.123.



4. Click OK. KeyShot Pro Floating will start. From now on, KeyShot will remember the server information. You will be able to check out the license as long as your system can connect to the computer acting as the license server.



**Technical Tip:** If your service status window does not look similar to the above image or if you are getting an error message when you start the server, then you can use the [troubleshooting guide](#) for diagnosis. You may also contact Luxion Customer Support at [support@luxion.com](mailto:support@luxion.com) for assistance.

## Pro Floating Features

In this section we'll go over some of the licensing features and add-ons available for KeyShot Pro Floating. First we'll explore how KeyShot Pro Floating handles the KeyShotVR feature in terms of licensing. We'll then learn about license borrowing and how to change the server connection.

KeyShot Pro Floating is available as a single license or as a bundle with KeyShot Enterprise. Refer to the [KeyShot Comparison](#) for a look at all features.

<b>KeyShot Pro Floating</b>	<b>KeyShot Enterprise</b>
<p>KeyShot Pro Floating is the floating license version of KeyShot Pro. It allows for KeyShot to be run on several machines (purchase multiple licenses to run simultaneously) while the license(s) is (are) served from a central server using <b>FlexNet</b> from Flexera. It also includes the Animation add-on:</p> <ul style="list-style-type: none"> <li>• All KeyShot Pro features</li> <li>• KeyShot Animation</li> <li>• FlexNet based server license</li> <li>• Floating license manager</li> <li>• Floating license borrowing</li> <li>• Camera animation</li> <li>• Part and object animation</li> <li>• Multiple turntable animations</li> <li>• Interactive setup, editing and playback in realtime</li> <li>• Individual frame output</li> <li>• Compiled movie output (Quicktime, AVI, FLV)</li> </ul>	<p>KeyShot Enterprise is all encompassing solution, including KeyShot Pro Floating, Animation, KeyShotVR, Siemens NX plugin and Network Rendering (32 cores):</p> <ul style="list-style-type: none"> <li>• All KeyShot Pro features</li> <li>• KeyShot Animation</li> <li>• FlexNet based server license</li> <li>• Floating license manager</li> <li>• Floating license borrowing</li> <li>• Camera animation</li> <li>• Part and object animation</li> <li>• Multiple turntable animations</li> <li>• Interactive setup, editing and playback in realtime</li> <li>• Individual frame output</li> <li>• Compiled movie output (Quicktime, AVI, FLV)</li> <li>• Interactive, touch-enabled <a href="#">KeyShotVR</a></li> <li>• 32 Cores <a href="#">Network rendering</a></li> <li>• <a href="#">Plugin</a> for Siemens NX</li> </ul>

## Enabling KeyShotVR

KeyShotVR is included with your [KeyShot Enterprise](#) license. Otherwise, it is sold separately as an [add-on](#). KeyShotVR allows you to create interactive (touch-enabled) visuals for your website. Please refer to the [KeyShot 6 Manual](#) for additional information regarding the KeyShotVR feature.

### How To Enable KeyShotVR

On Windows PC	On Mac OS X
<ol style="list-style-type: none"><li>1. Go to the top menu and click <i>Help, Select Floating License Type</i>.</li><li>2. Enable <i>Check out KeyShotVR feature from license server</i>.</li><li>3. Click <i>OK</i>. KeyShot will restart and KeyShotVR will be enabled.</li></ol>	<ol style="list-style-type: none"><li>1. Go to the top menu and click <i>KeyShot, Select Floating License Type</i>.</li><li>2. Enable <i>Check out KeyShotVR feature from license server</i>.</li><li>3. Click <i>OK</i>. KeyShot will restart and KeyShotVR will be enabled.</li></ol>

**Note:** If your license does not contain the KeyShotVR feature, then KeyShot will tell you that there are "no additional options available".

## Borrowing A License

As you know, to check out a KeyShot Pro Floating license, your computer must be connected to the license server. To continue using KeyShot Pro Floating, the connection must be maintained at all times. But what if you want to work from a remote location and take KeyShot with you? Well, then you borrow the license.

The client and server must be connected during the borrowing process. Once you've borrowed the license, you can take your laptop and KeyShot anywhere for up to 30 days. Educational license holders must submit a request with their IT staff to activate this feature.

### How To Borrow A License

On Windows PC	On Mac OS X
<ol style="list-style-type: none"><li>1. Ensure that your client computer can connect to the server, then open KeyShot Pro Floating.</li><li>2. Go to the top menu and click <i>Help, Borrow Floating License</i>.</li><li>3. Select a return date and click <i>OK</i>.</li><li>4. You will receive a confirmation message. Click <i>OK</i>.</li></ol>	<ol style="list-style-type: none"><li>1. Ensure that your client computer can connect to the server, then open KeyShot Pro Floating.</li><li>2. Go to the top menu and click <i>KeyShot, Borrow Floating License</i>.</li><li>3. Select a return date and click <i>OK</i>.</li><li>4. You will receive a confirmation message. Click <i>OK</i>.</li></ol>

**Technical Tip:** Please note that other clients cannot checkout or borrow a license seat that has already been borrowed. The borrowed license seat remains with the client that borrowed it until the return date expires or until the client manually returns the license seat. If your license server holds more than one license seat, the remaining seats can still be checked out normally.

### How To Return A Borrowed License

On Windows PC	On Mac OS X
<ol style="list-style-type: none"> <li>1. Ensure that your client computer can connect to the server (otherwise, this will not work). Then, open KeyShot Pro Floating.</li> <li>2. Go to the top menu and click <i>Help, Return Borrowed Floating License</i>.</li> <li>3. You will be asked to confirm this action. Click <i>Yes</i>.</li> </ol> <p>KeyShot will close and your borrowed license will return to the license server.</p>	<ol style="list-style-type: none"> <li>1. Ensure that your client computer can connect to the server (otherwise, this will not work). Then, open KeyShot Pro Floating.</li> <li>2. Go to the top menu and click <i>KeyShot, Return Borrowed Floating License</i>.</li> <li>3. You will be asked to confirm this action. Click <i>Yes</i>.</li> </ol> <p>KeyShot will close and your borrowed license will return to the license server.</p>

## Changing Server Connection

In larger companies, there may be more than one KeyShot license server in the same location or in other locations. KeyShot allows you to choose between different license servers. Below you will find instructions for changing the license server connection within KeyShot. Please contact your IT department for VPN connection instructions when trying to connect to a remote license server.

### How To Change Your License Server Connection

On Windows PC	On Mac OS X
<ol style="list-style-type: none"> <li>1. Ensure that your client computer can connect to the current server, then open KeyShot Pro Floating.</li> <li>2. Go to the top menu and click <i>Help, Change Floating License Server</i>.</li> <li>3. Change the port number and the hostname/IP address as needed. Click <i>OK</i>.</li> </ol>	<ol style="list-style-type: none"> <li>1. Ensure that your client computer can connect to the current server, then open KeyShot Pro Floating.</li> <li>2. Go to the top menu and click <i>KeyShot, Change Floating License Server</i>.</li> <li>3. Change the port number and the hostname/IP address as needed. Click <i>OK</i>.</li> </ol>

**Technical Tip:** Please refer to the included [troubleshooting](#) section if you are unable to establish your new client-server connection.

## Pro Floating Troubleshooting

This troubleshooting guide will help you diagnose the cause of an error message and assist you in finding a solution. Below, we list errors under two main categories: server errors and client errors. Errors inside KeyShot License Manager are server errors. Errors from KeyShot Pro Floating are client errors. Please find your error in the categories shown below.

### Server Errors

- [Invalid Hostname](#)
- [Invalid Mac Address](#)
- [Expired License](#)
- [Cannot Connect To Server](#)

### Client Errors

- [Looping KeyShot Prompt](#)
- [No Licenses Available](#)
- [Unsupported KeyShot Version](#)



## Server Error: Invalid Hostname

**Reason:** The hostname in your license file does not match your computer's hostname. LMTools assumes that the hostname inside your license file is correct. However, this is not always the case.

### How To Fix It:

On Windows PC	On Mac OS X
<ol style="list-style-type: none"><li>1. Launch the Windows command prompt (<i>cmd.exe</i>), by right-clicking on the Windows Start menu and selecting <i>Run</i>. Type <i>cmd</i> and hit <i>Enter</i> to open the command prompt, then type the following command: <i>hostname</i>  Press <i>Enter</i>. Make a note of the correct hostname.</li><li>2. Open your license file with any text editor (e.g. Notepad, <a href="#">Notepad ++</a>). Add the correct hostname to the SERVER line and save your changes.</li><li>3. Launch LMTools and go to the <i>Start/Stop/Reread</i> tab. Enable <i>Force Server Shutdown</i> and click <i>Stop Server</i>. You may also stop the <i>KeyShot Floating</i> service within the Windows Services dialog (<i>services.exe</i>).</li><li>4. Click <i>Start Server</i>. You may also start the <i>KeyShot Floating</i> service within the Windows Services dialog (<i>services.exe</i>).</li><li>5. Open the <i>debug.log</i> file inside your <i>C:\FlexLM</i> folder (this folder contains the licensing software). The debug log will reference your license file and tell you that the server started on your computer system.</li></ol>	<ol style="list-style-type: none"><li>1. Open your System Preferences application and go to <i>Sharing</i>. In your Sharing preferences you will find your computer's hostname. Make a note of this hostname.</li><li>2. Inside the <i>KeyShot License Manager</i>, click <i>OK</i> and correct the Hostname.</li><li>3. Click <i>Stop</i> and <i>OK</i>. Then click <i>Start</i> and <i>OK</i>. The service will start.</li><li>4. Click <i>Service Status</i>. You should see a dialog box with license server and status information. If correcting the hostname in the license file did not fix this issue, then you can proceed to step 5.</li><li>5. Open the Terminal app. Type the following command inside the terminal and press <i>Enter/Return</i>:  <pre>sudo scutil -set HostName computer_hostname</pre> In the command above, substitute <i>computer_hostname</i> with your server's hostname.</li><li>6. Type your password and press <i>Enter/Return</i>.</li><li>7. Type <i>hostname</i> and press <i>Enter/Return</i> to check that the change took effect. Your hostnames should now match and you can attempt <b>steps 3</b> and <b>4</b> again.</li></ol>

**Technical Tip:** If results are not consistent with the above, please reference other possible solutions in the [troubleshooting guide](#). You may also contact Luxion Customer Support at [support@luxion.com](mailto:support@luxion.com) for assistance.

## Server Error: Invalid Mac Address

**Reason:** The Mac Address (or HostID) in the license file does not match your computer's **active** mac address (or HostID).

### How To Fix It:

### On Windows PC

1. Open your license file with any text editor (e.g. Notepad, [Notepad ++](#)) and look at the SERVER line. Make a note of the expected Mac Address. This is a 12-digit hexadecimal number.

2. Launch the Command prompt (*cmd.exe*) and type the following command: *ipconfig /all*

Press *Enter* and you will see a list of devices; each listed with its corresponding mac address (aka Physical Address).

3. Once you find a match for the mac address in your license file, you will want to turn on/connect that device (i.e. turn on Wi-Fi and connect to a network or connect ethernet cable).

**Note:** If you found a typo in the license file or wish to use another device, then skip to **step 7** below.

4. Launch LMTTools and go to the *Start/Stop/Reread* tab. *Enable Force Server Shutdown* and click *Stop Server*. You may also stop the *KeyShot Floating* service within the Windows Services dialog (*services.exe*).

5. Click *Start Server*. You may also start the *KeyShot Floating* service within the Windows Services dialog (*services.exe*).

6. Open the *debug.log* file inside your *C:\FlexLM* folder (this folder contains the licensing software). The debug log will reference your license file and tell you that the server started on your computer system. You can now open KeyShot on your client computer (ignore **steps 7 and 8** below).

7. If it does not start, you will need a new license file. Send an email to [license@luxion.com](mailto:license@luxion.com) describing the error. Please make sure to specify which Mac Address to use in your new license. Also, you will want to attach your current license file to your email.

8. Once you receive your new license file, you can follow the [license replacement](#) instructions.

### On Mac OS X

1. Click *OK* and go to the *Request License* tab. Make a note of the Mac Address.

2. Open your *System Preferences* application.

3. Go to *Network* and select a device: *Ethernet* or *Wi-Fi*.

4. Click *Advanced, Hardware* for that device and check the Mac Address. Once you find a match for the mac address in **Step 1** above, you will want to turn on/connect that device (i.e. turn on Wi-Fi and connect to a network or connect ethernet cable).

**Note:** If you found a typo in the license file or wish to use another device, then skip to **step 7** below.

5. Close and re-open KeyShot License Manager. Then, click *Start Server* in the *Install License* tab.

6. Click *Service Status*. Your license server's status will appear in the service status window. The service status window will tell you how many seats are available and how many seats have been issued. You can now open KeyShot on your client computer (ignore **steps 7 and 8** below).

7. If it does not start, you will need a new license file. Go back to *KeyShot License Manager* and fill the request form. Click *Email* and send an email to [license@luxion.com](mailto:license@luxion.com) describing the error. Please make sure to specify which Mac Address to use in your new license. Also, you will want to attach your current license file to your email.

8. Once you receive your new license file, you can follow the [license replacement](#) instructions.

**Technical Tip:** If results are not consistent with the above, please reference other possible solutions in the [troubleshooting guide](#). You may also contact Luxion Customer Support at [support@luxion.com](mailto:support@luxion.com) for assistance.

## Server Error: Expired License

**Reason:** An *EXPIRED* (PC) or *vendor daemon is down* (Mac) error means that your license has expired. It is common practice for the licensing team to issue a temporary license while a purchase order is paid. Once the payment is processed, the licensing team will send you your permanent license file. Please consult your IT staff or your [sales](#) representative for any questions regarding payment.

### How To Fix It:

#### On Windows PC

1. Send an email to [license@luxion.com](mailto:license@luxion.com) describing the situation. You will want to attach the *debug.log* and your current license file.

2. Once you receive your new license file, you can follow the [license replacement](#) instructions.

#### On Mac OS X

1. Send an email to [license@luxion.com](mailto:license@luxion.com) describing the situation. You will want to attach the *debug.log* and your current license file.

2. Once you receive your new license file, you can follow the [license replacement](#) instructions.

**Technical Tip:** If results are not consistent with the above, please reference other possible solutions in the [troubleshooting guide](#). You may also contact Luxion Customer Support at [support@luxion.com](mailto:support@luxion.com) for assistance.

## Server Error: Cannot Connect

**Reason:** There are multiple reasons this error may be seen:

1. The service has not started
2. One of the required files is missing: LUXION.exe, Imgrd.exe, or license (.lic) file (PC)
3. The user changed the server's port number on the server after launching KeyShot Pro Floating on that same computer (Mac)

### How To Fix It:

On Windows PC	On Mac OS X
<ol style="list-style-type: none"><li>1. Make sure that the <i>C:\FlexLM</i> folder contains all the required files: <i>LUXION.exe</i>, <i>Imgrd.exe</i>, and your license (.lic) file. You can always re-install these files using the provided server software.</li><li>2. Launch <i>LMTools</i> and go to the <i>Start/Stop/Reread</i> tab. Enable <i>Force Server Shutdown</i> and click <i>Stop Server</i>. You may also stop the <i>KeyShot Floating</i> service within the Windows Services dialog (<i>services.exe</i>).</li><li>3. Click <i>Start Server</i>. You may also start the <i>KeyShot Floating</i> service within the Windows Services dialog (<i>services.exe</i>).</li><li>4. Open the <i>debug.log</i> file inside your <i>C:\FlexLM</i> folder (this folder contains the licensing software). The debug log will reference your license file and tell you that the server started on your computer system.</li></ol>	<ol style="list-style-type: none"><li>1. Make sure that you have started the service and that you receive a confirmation prompt when you click <i>Start</i> inside the <i>KeyShot License Manager</i> application. Press <i>OK</i>. You can now click <i>Service Status</i>. If your status window doesn't show any errors, then your license service is running properly. You can skip the instructions below and start KeyShot.</li><li>2. If it doesn't start, Open KeyShot Pro Floating</li><li>3. Edit the port number so that it matches with KeyShot License Manager. Click <i>OK</i>.</li><li>4. KeyShot will launch. You can click <i>Server Status</i> once more on the <i>KeyShot License Manager</i> application. The server status window will tell you that your service is up and running.</li></ol>

**Technical Tip:** If results are not consistent with the above, please reference other possible solutions in the [troubleshooting guide](#). You may also contact Luxion Customer Support at [support@luxion.com](mailto:support@luxion.com) for assistance.

## Client Error: Looping Prompt

**Reason:** This means that KeyShot is unable to connect to KeyShot License Manager on your license server.

### How To Fix It:

On Windows PC	On Mac OS X
<p><b>1. Server status</b> - Is your license server running properly? You can check the service status within the debug.log file (found inside your <i>C:\FlexLM</i> folder). If you find any problems, see server errors for troubleshooting.</p> <p><b>2. Computer connection</b> - Make sure that your client computer can ping the license server and that your client computer can “see” the server in your office network. Contact your IT department if you are using a VPN connection.</p> <p><b>3. Port conflict</b> - Remember that KeyShot uses port number 27000 by default. It is possible that another application in your computer is using this port. You can try to change the port number in the license first and then inside KeyShot Pro Floating. Please refer to instructions on how to <a href="#">change the port number</a>.</p> <p><b>4. Firewall/Anti-virus settings</b> - Turn off the firewall on the server and the client. If this is already the case, then you can try to add LUXION.exe and lmgrd.exe to the list of programs allowed through the firewall and through the anti-virus. Please consult your IT representative for further assistance with firewall/anti-virus settings.</p> <p><b>5. Client Environment Variable/Registry</b> - Depending on your system’s restrictions, it is possible that KeyShot is unable to write into the registry. If so, you can manually edit this <a href="#">registry entry</a>.</p>	<p><b>1. Server status</b> - Is your license server running properly? You can check the service status inside KeyShot License Manager. If you find any problems on the server, see server errors for troubleshooting.</p> <p><b>2. Computer connection</b> - Make sure that your client computer can ping the license server and that your client computer can “see” the server in your office network. Contact your IT department if you are using a VPN connection.</p> <p><b>3. Port conflict</b> - Remember that KeyShot uses port number 27000 by default. It is possible that another application in your computer is using this port. You can try to change the port number in KeyShot License Manager first and then inside KeyShot Pro Floating. Please refer to instructions on how to <a href="#">change the port number</a>.</p> <p><b>4. Firewall/Anti-virus settings</b> - Turn off the firewall on the server and the client. Please consult your IT representative for further assistance with firewall/anti-virus settings.</p> <p><b>5. Client Environment Variable/Registry</b> - Depending on your system’s restrictions, it is possible that KeyShot is unable to create the correct environment variable. If so, you can manually edit this <a href="#">environment variable</a>.</p>

**Technical Tip:** If results are not consistent with the above, please reference other possible solutions in the [troubleshooting guide](#). You may also contact Luxion Customer Support at [support@luxion.com](mailto:support@luxion.com) for assistance.

### Client Error: No Licenses Available

**Reason:** There are no more licenses available on the server. This means that the license server has issued all the available license seats to other clients in your office network.

**How To Fix It:**

On Windows PC	On Mac OS X
<ol style="list-style-type: none"> <li>1. Close KeyShot Pro Floating on one of your other clients.</li> <li>2. Re-open KeyShot Pro Floating on the desired client.</li> </ol>	<ol style="list-style-type: none"> <li>1. Close KeyShot Pro Floating on one of your other clients.</li> <li>2. Re-open KeyShot Pro Floating on the desired client.</li> </ol>

**Technical Tip:** If results are not consistent with the above, please reference other possible solutions in the [troubleshooting guide](#). You may also contact Luxion Customer Support at [support@luxion.com](mailto:support@luxion.com) for assistance.

### Client Error: Unsupported KeyShot Version

**Reason:** Your current floating license does not support the version of KeyShot that you are trying to open.

**How To Fix It:**

On Windows PC	On Mac OS X
<ol style="list-style-type: none"> <li>1. Send an email to <a href="mailto:license@luxion.com">license@luxion.com</a> describing the error message. You will want to attach the <i>debug.log</i> and your current license file.</li> <li>2. Once you receive your new license file, follow the <a href="#">license replacement</a> instructions.</li> <li>3. Edit the <a href="#">registry entry</a>.</li> </ol>	<ol style="list-style-type: none"> <li>1. Send an email to <a href="mailto:license@luxion.com">license@luxion.com</a> describing the error message. You will want to attach the <i>debug.log</i> and your current license file.</li> <li>2. Once you receive your new license file, follow the <a href="#">license replacement</a> instructions.</li> <li>3. Edit the <a href="#">environment variable</a>.</li> </ol>

**Technical Tip:** If results are not consistent with the above, please reference other possible solutions in the [troubleshooting guide](#). You may also contact Luxion Customer Support at [support@luxion.com](mailto:support@luxion.com) for assistance.

## Pro Floating Server Changes

In the corporate world, software licensing practices vary. Companies replace hardware, move license servers, and restrict ports every so often. The KeyShot Pro Floating license server system provides you with tools for making adjustments to your license.

- [Change The Port Number](#)
- [Replace The License File](#)

## Change Port Number

When you upload your license file into KeyShot License Manager, the port number is displayed next to the hostname. KeyShot uses port number 27000 by default. We recommend leaving the port number at default if KeyShot is the only FlexNet based application in your office network. Otherwise, you can change this number to any free port on your server computer system.

### **How To Change The Port Number:**

On Windows PC	On Mac OS X
<ol style="list-style-type: none"> <li>1. Open windows explorer and browse to <i>C:\FlexLM</i> (this folder contains the licensing software).</li> <li>2. Open your license file with any text editor (e.g. Notepad, <a href="#">Notepad ++</a>).</li> <li>3. Add a new port number to the SERVER line, say 27005, and save your changes.</li> <li>4. Launch LMTools and go to the <i>Start/Stop/Reread</i> tab. Enable <i>Force Server Shutdown</i> and click <i>Stop Server</i>. You may also stop the <i>KeyShot Floating</i> service within the Windows Services dialog (<i>services.exe</i>)</li> <li>6. Click <i>Start Server</i>. You may also start the <i>KeyShot Floating</i> service within the Windows Services dialog (<i>services.exe</i>).</li> <li>7. Open the <i>debug.log</i> file inside your <i>C:\FlexLM</i> folder (this folder contains the licensing software). The debug log will reference your license file and tell you that the server started on your computer system.</li> </ol>	<ol style="list-style-type: none"> <li>1. Launch KeyShot License Manager. Click the "Install License" tab.</li> <li>2. Enter a different number in the Port box.</li> <li>3. Click <i>Stop</i> and then click <i>OK</i>.</li> <li>4. Click <i>Start</i> and then click <i>OK</i>.</li> <li>5. Click <i>Service Status</i> to confirm that your new port number is in use.</li> </ol>

**Technical Tip:** If results are not consistent with the above, please reference other possible solutions in the [troubleshooting guide](#). You may also contact Luxion Customer Support at [support@luxion.com](mailto:support@luxion.com) for assistance.

## Replace License File

If you've received a new license file from us, you can easily replace the old license and update the license server.

### How To Replace The License File:

On Windows PC	On Mac OS X
<ol style="list-style-type: none"><li>1. Open windows explorer and browse to <code>C:\FlexLM</code> (this folder contains the licensing software).</li><li>2. Make sure that the new license file has the <u>exact same file name</u> as your previous license. Replace the old license file in <code>C:\FlexLM</code> with the new license file.</li><li>3. Launch <code>LMTools</code> and go to the <code>Start/Stop/Reread</code> tab. Enable <code>Force Server Shutdown</code> and click <code>Stop Server</code>. You may also stop the <code>KeyShot Floating</code> service within the Windows Services dialog (<code>services.exe</code>).</li><li>4. Click <code>Start Server</code>. You may also start the <code>KeyShot Floating</code> service within the Windows Services dialog (<code>services.exe</code>).</li><li>5. Open the <code>debug.log</code> file inside your <code>C:\FlexLM</code> folder (this folder contains the licensing software). The debug log will reference your license file and tell you that the server started on your computer system.</li></ol>	<ol style="list-style-type: none"><li>1. Launch <code>KeyShot License Manager</code>. Click the <code>Install License</code> tab.</li><li>2. Click <code>Stop</code> and then Click <code>OK</code>.</li><li>3. Click <code>Browse</code> and browse to your new license file in the Finder app.</li><li>4. Click <code>Open</code>. Your license file will be loaded into <code>KeyShot License Manager</code>.</li><li>5. Check that the license information is correct and click <code>Start</code>. A dialog will tell you that the server has started. Click <code>Ok</code>.</li><li>6. Click <code>Service Status</code>. Your license server's status will appear in the service status window. The service status window will tell you how many seats are available and how many seats have been issued.</li></ol>

**Technical Tip:** If results are not consistent with the above, please reference other possible solutions in the [troubleshooting guide](#). You may also contact Luxion Customer Support at [support@luxion.com](mailto:support@luxion.com) for assistance.

## Pro Floating Technical Info

FlexNet licensing tools and methods are commonly utilized in the software industry. This licensing method includes a myriad of different advanced features. In fact, there is an entire [FlexNet licensing manual](#) on the web. In this section, you will find definitions to common terminology and useful information for your advanced IT specialist. Here you will find:

- [Service Configuration \(PC\)](#)
- [Silent Install \(PC\)](#)
- [Edit Registry \(PC\)](#)
- [Environment Variable \(Mac\)](#)
- [Floating License Definitions](#)

## Silent Install (PC)

You or your IT department may wish to run the KeyShot Pro Floating installer for PC as a silent installation. The KeyShot Pro Floating installer takes the following arguments.

### Commands

`/S` – for a silent installation

`/AllUsers` – installs for all users with shortcuts in start menu

`/USERNAME=somepath` – changes the destination folder for the KeyShot contents. Inside quotations.

`/FLEXLM=27000@myserver` – set the FlexLM server's port and hostname. Inside quotations.

`/D=C:\Program Files\KeyShot 6` – set the program files destination. This must be placed at the end of the command line inside quotations

### Example

```
keyshot_floating_w64_6.x.x.exe /S "/USERNAME=C:\Users\Luxion\Documents" /FLEXLM=27000@myserver" /D=C:\Program Files\KeyShot 6"
```

### Unattended Uninstall

```
C:\Program Files\KeyShot 6\uninst.exe /S _?=C:\Program Files\KeyShot 6
```

## Edit Registry (PC)

Earlier you learned [how to connect KeyShot Pro Floating](#) to the license server system. When you specify the server name in KeyShot, a registry entry is created. Depending on your system's restrictions, it is possible that KeyShot is unable to write into the Windows registry. If so, you can manually edit this registry entry.

### How To Edit The Registry Entry

1. Click the Windows Start button and search for "regedit.exe".
  2. Launch the *Registry Editor* (*regedit.exe*)
  3. Go to *HKEY\_CURRENT\_USER > Software > FlexLM License Manager*.
  4. While the *FlexLM License Manager* key is selected you will see a string called *LUXION\_LICENSE\_FILE*. If you don't see this string, then create a new string. You can go to *Edit > New > String Value* and name it *LUXION\_LICENSE\_FILE*.
- Note:** You may also create the *FlexLM License Manager* key inside *HKEY\_CURRENT\_USER, Software* (i.e. *Edit > New > Key*).
5. Right-click the *LUXION\_LICENSE\_FILE* string and select "Modify".
  6. Change the *Value data* to the correct port number at the server's IP Address (e.g. 27000@192.168.1.123). Click *OK*, then close the *Registry Editor*.
  7. You may now open KeyShot on your client computer.

## Environment Variable (Mac)

Earlier, you learned how to connect [KeyShot Pro Floating](#) to the license server system. When you specify the server name in KeyShot, an environment variable is created. Depending on your system's restrictions, it is possible that KeyShot is unable to write into the environment variable. If so, you can manually edit this file.

### How To Edit The Environment Variable

1. Open up the terminal. Make sure you are in the home directory.
2. Type the following command to open the environment variable in vim (text editor): `vim .flexlmrc`
3. Press *Enter*.
4. Press the `"i"` key to start insert mode.
5. Change the IP Address or hostname to the correct server location (e.g. 27000@192.168.1.123). Once done, Press *ESC* on your keyboard to exit insert mode.
6. Hold *Shift* and press the *semicolon/colon* key.
7. Type the following command to write and quit: `wq`
8. Press *Enter*. You will be brought back to the screen shown in **step 2** above.
9. You may now open KeyShot on your client computer.

## Floating License Definitions

**Floating License:** This is a type of license that can be accessed by various computer systems. The actual license file is saved on the license server system. Your license file is an encoded text file that tells the license server which port to use, how many seats are available for checkout, and when will the license expire.

**Seat:** The number of seats in a license file tells the license server how many client computers can check out the floating license at the same time. This number is displayed and encoded in the license file.

**License Server:** The computer that hosts and manages the license file. Any Windows PC or Mac computer can be a license server. We recommend that you select a desktop computer in your office network that your design team can access during regular business hours or later if needed.

**Client:** In this manual, we refer to any computer in which KeyShot Pro Floating is installed as the client. If KeyShot Pro Floating is installed on your license server, then your license server computer is also a client.

**Server Hostname:** This is the name of your computer as listed under your computer network. The hostname is a label used for identification.

**Server Mac Address:** Your computer has various ways to connect to other computers on your network and to the internet. The most common connections are the ethernet adapter and the wireless adapter. Each of your adapters has a unique physical address also known as the mac address. The KeyShot Pro Floating license is tied to your server's mac address.

## User Interface

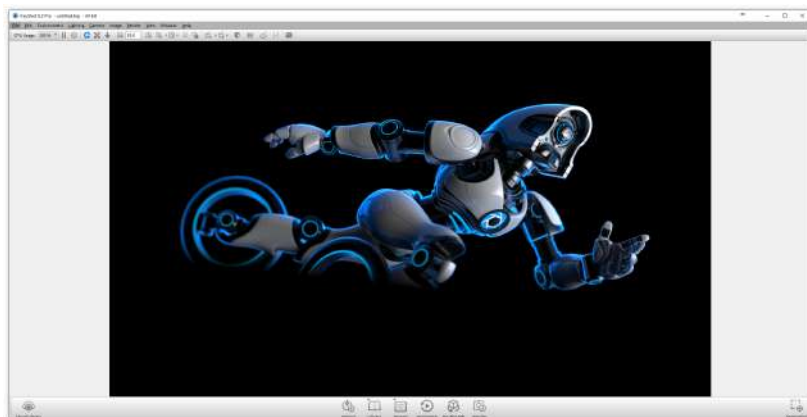
KeyShot is a single interface built around a real-time view of your scene. The docking windows allow scene authoring capabilities while the floating windows contain setting and output options.

Main Interface	Docking Windows	Floating Windows	Extras
<ul style="list-style-type: none"><li>• Real-time View</li><li>• Main Menu</li><li>• Toolbar</li><li>• Ribbon</li></ul>	<ul style="list-style-type: none"><li>• Library Window</li><li>• Project Window</li><li>• Animation Timeline</li><li>• Geometry View</li><li>• Material Templates</li></ul>	<ul style="list-style-type: none"><li>• Preferences</li><li>• Render Options</li><li>• Image Editor</li></ul>	<ul style="list-style-type: none"><li>• Welcome Window</li><li>• Hotkeys</li><li>• Multi-Touch</li></ul>

## Real-time View

### Real-time View

The KeyShot Real-time View is the main viewport in the KeyShot user interface. All real-time rendering of your 3D model will occur here. You can [navigate your scene](#) using the camera controls, [multi-select objects](#) and [much more](#).



## Main Menu

### File



### **New...**

Open a new blank scene in KeyShot.

### **Import...**

Import a 3D file into an open or new scene. See Importing section for more details.

### **Open...**

This will open a KeyShot scene, or opens the import panel.

### **Open Recent**

KeyShot lists the last 10 scenes that were opened/saved so you can quickly open them.

### **Save**

Save the currently open scene in KeyShot (BIP.)

### **Save As...**

Save the current scene in Keyshot with the option to change the name of the file.

### **Save Package...**

Save a KeyShot Package (KSP) which includes the model, materials, environments, textures, cameras, and backplates used in a given scene.

To learn how to quickly save a KeyShot Package click the link below.

### **Save Active Scene Set...**

Save only the scene set displayed.

### **Revisions Manager...**

Enable Backup options under "Preferences > General."  
See Preferences section for more details.

### **Export (Pro)**

KeyShot can export to OBJ, STL, and ZPR file formats.

### **Connect to Onshape...**

Launch the Onshape integration dialog.

### **Exit**

Quit and leave KeyShot.

## **Edit**

### **Undo**

Undo previous actions.

### **Redo**

Redo an action that was undone.

### **Add Geometry**

Add pre-installed primitives into your scene. You can also place commonly used models into the "Models" folder in your KeyShot 6 Resources directory.

### **Clear Geometry**

Clears all geometry in the scene.

### **Set Scene Units**

Change the set units used in the scene. For accurate results, use the same units the model was created in.

### **Preferences**

Set KeyShot preferences. See [Preferences](#) for more details.

## **Environment**

### **HDRI Editor (PRO)**

Open the HDRI editor. See the HDRI editor for more details

### **Background**

Toggle background mode between lighting environment, color, and backplate image.  
See Background for more information.

#### **On this page:**

- [File](#)
- [Edit](#)
- [Environment](#)
- [Lighting](#)
- [Camera](#)
- [Render](#)
- [View](#)
- [Window](#)
- [Help](#)

### **Ground Shadows**

Toggle ground shadows on and off. See "Ground Shadows" for more information.

### **Ground Reflections**

Toggle ground reflections on and off. See "Ground Reflections" for more information.

## **Lighting**

### **Performance Mode**

Toggle the performance mode on/off.

### **Basic, Product, Interior, Full Simulation, Custom**

Choose a lighting preset that best suits your scene. If you have created a custom preset, this option becomes available under "Custom."

### **Self Shadows, Global Illumination, Ground Illumination, Focused Caustics, Interior Mode**

Toggle these settings on/off. See "Lighting" for more information.

## **Camera**

### **Cameras**

Choose a saved camera. Cameras that are saved from your list of saved cameras is populated here.

### **Lock Camera**

Lock the camera in your realtime view.

### **Add Camera/Viewset**

Add a camera or viewset to your saved camera list. click [here](#) to learn more about Viewsets.

### **Perspective/Orthographic/Shift**

Toggle camera lens settings. See "Lens Settings" for more information.

### **Stay Above Ground**

Toggle camera to stay above ground.

### **Standard Views**

Choose from the preset orthographic cameras.

### **Grid**

Enable grid. See "Position and Orientation" for more information.

### **Ground Grid**

Enable ground grid. See "Lens Settings" for more information.

### **Match Backplate**

Enable the match backplate tool. See "Match Backplate" for more information.

### **Enter First Person Mode**

Switch the camera mode to First Person controls.

## **Render**

### **Pause Realtime Render**

Toggle on/off to pause your realtime rendering window.

### **Performance Mode**

Toggle on/off Performance Mode.

### **Save Screenshot**

Create an image file of the current state of your realtime render window.

### **Add to Queue**

Create a render job in your "Render Queue"

### **Render**

Open the "Render Options" panel.

## View

### Scene Sets

Switch between next and previous scene sets.

### Show Fullscreen

Toggle fullscreen mode.

### Presentation Mode

Toggle presentation mode.

### Heads-Up Display

Hide or show the heads-up display which contains frames per second, the amount of triangles in the scene, the current scene resolution, and the current focal length of the camera.

### Show Coordinate Legend

Hide or show the coordinate legend on the lower left corner of the realtime render window.

### Selection Outlines

Toggle selection outlines to be shown.

### Show Light Sources

Hide or show physical light sources.

### Stereoscopic Settings

A video card with stereoscopic capabilities and 3D glasses are required to enable this feature.

## Window

### Show Toolbar

Toggle the toolbar on/off.

### Show Ribbon

Toggle the Ribbon on/off.

### Show Geometry View

Hide or show the "Geometry View" window.

### Enable Docking

Toggle to allow window docking in the realtime render window.

### Dock Windows

Auto-docks all open windows to default locations.

### Cloud Library

Hide or show the "Cloud Library" window.

### Project

Hide or show the "Project" window.

### Library

Hide or show the "Library" window.

### Animation

Hide or show the "Animation" window.

### KeyShotVR

Open the KeyShotVR wizard (only available with applicable licenses).

### Scripting Console

Hide or show the "Scripting Console" window.

### Material Templates

Open the "Material Template" window.

## Help

### Manual

Directs you to where to download the KeyShot manual online.

### Hotkeys Overview

Display KeyShot hotkeys panel

### Learning

Opens the "Keyshot Learning" page for tutorials, and quicktips.

### Register License

Opens the "KeyShot Registration" window.

### Activate Animation

If you have purchased the animation add-on separately, click here to activate it.

### Activate KeyShotVR

If you have purchased the KeyShotVR add-on separately, click here to activate it.

### Deactivate License on this Computer

Deactivate your license so it can be used on a different computer.

### Show License Information

Shows Keyshot version and active licenses.

### Disclaimers

Opens disclaimers pertaining to KeyShot partners.

### Check for Updates

Checks Online for the latest version of KeyShot. Requires Internet connection.

### Log

Opens log window for errors.

### About

Displays KeyShot "about" window.

### Related pages:

There are no related labels.

## Toolbar

### KeyShot Toolbar

The KeyShot Toolbar is your main toolbar and will guide you through the process of creating images and/or animations. The toolbar icons can be displayed in different sizes and you can choose to hide the text by right-clicking on the toolbar and setting your options. The toolbar can also be torn away from the bottom of the real-time view by hovering over the handle on the far left side and left click and dragging to move the toolbar freely. It can be snapped to the left side of the interface by dragging and hovering the toolbar over the left edge of the real-time view.



### Cloud Library

Opens the Cloud Library site in your default browser. See Cloud Library for more details.

### Import

Opens import panel to import scenes and 3D data into KeyShot. See Working With Data for more details.

### Library

Opens the Library panel. See Library Window section for more details.

### Project

Opens the Project panel. See Project Window for more details.

### Animation

Opens the Animation Panel. See Animation for more details.

### KeyShotVR

Opens the KeyShotVR panel. See KeyShotVR for more details.

### Render

Opens the Render Options panel. See Render Options for more details.

### **Screenshot**

Takes a screenshot of the current state of your realtime render window. A camera will be automatically saved in your camera list. The screenshot will be saved in your Renderings folder.

## **Ribbon**

### **The KeyShot Ribbon Bar**

This is the ribbon which contains quick access to common tools used in KeyShot.



### **CPU Cores**

Select the number of cores used for the realtime render window.

### **Pause**

Pauses realtime rendering.

### **Performance Mode**

Togggle on to lower real-time render settings for faster performance. When it is enabled, an icon will display on the top right of the realtime window. It is also accessible via the Lighting tab.

### **Tumble, Pan, Dolly Camera**

Use these controls to isolate the movement of your camera. Useful for workstations that use a mouse without a scroll wheel.

### **Perspective angle**

Quick access to the perspective value.

### **New Camera**

Add a new camera to your saved camera list.

### **New Viewset**

Add a new a Viewset to your saved camera list.

### **Toggle Cameras/Viewsets**

Toggle through saved Cameras and Viewsets.

### **Reset Camera**

Reset the current Camera or Viewset to its saved state.

### **Lock Camera or Viewset**

Lock the properties of the current camera or viewset.

### **Geometry View**

Show/hide the Geometry View window.

### **Material Templates**

Show/hide the Material Templates window.

### **HDRI Editor (Pro)**

Opens HDRI Editor window. Also accessible via the environments tab.

### **NURBS Mode**

Enables NURBS Data to be rendered in the realtime rendering window.

### **Scripting**

Opens the KeyShot Scripting window.

## **Library Window**

This KeyShot Library is where default resources such as materials, colors, environments, backplates and textures are stored. Any content displayed here

is sourced from the locations set for KeyShot resources in the folder preferences. Click on any of the upper tabs to display related assets. The library is set up to work like a file browser in an operating system. You can add folders by manually placing them in the KeyShot resources folder through your OS, or by clicking the “Add Folder” button. You can refresh content by clicking the refresh button, and you can import or export content by clicking either the import or export button. You can also search the library by typing in the search field in the upper right corner.

The library is split horizontally into two view panes. The top pane shows the folder structure and the bottom pane shows the content of the currently highlighted folder as thumbnails. The thumbnail sizes can be scaled up or down with the scale slider at the bottom of the library window.

You can drag and drop content from the library by clicking and dragging any item from the lower pane into the realtime window.

Any shared folders will also be shown below “Shared Folders.”

Folders with a lock sign on the folder are “Read Only”. Permissions can be edited inside of the shared folders.

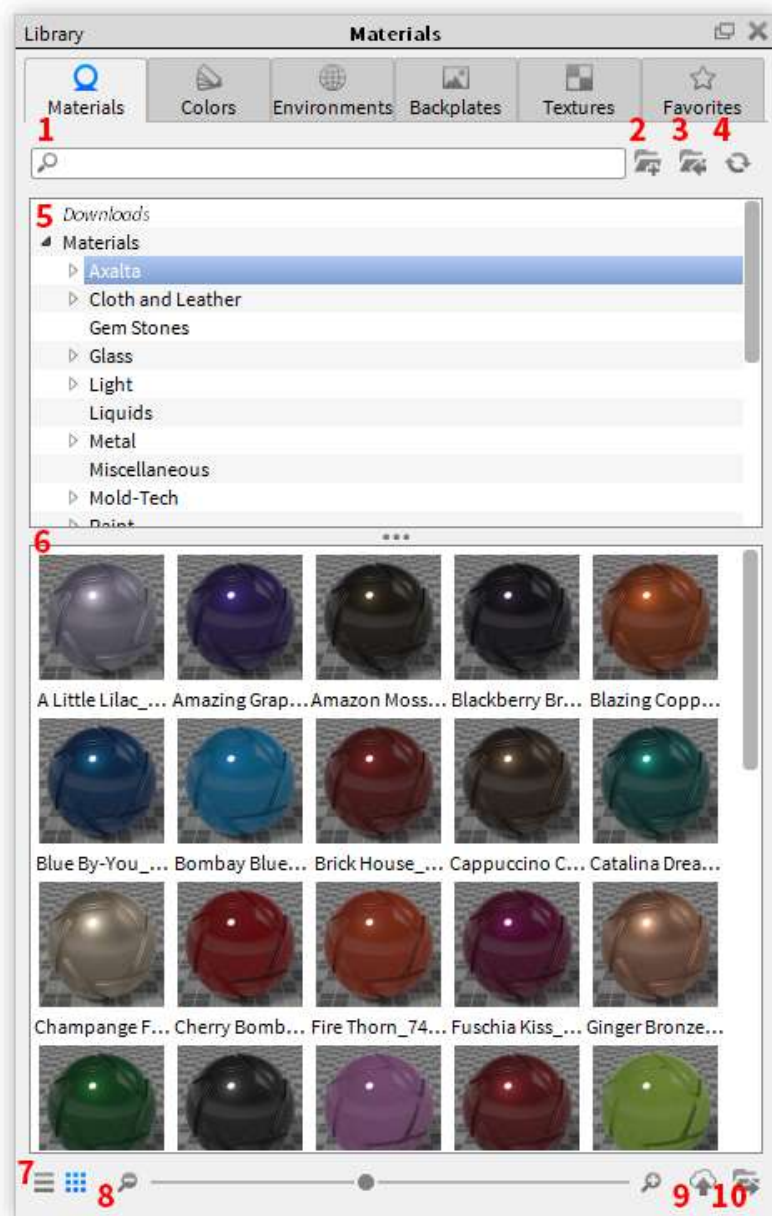
#### On this page:

- [Materials Tab](#)
- [Colors Tab](#)
- [Environments Tab](#)
- [Backplates Tab](#)
- [Textures Tab](#)
- [Favorites Tab](#)

## Materials Tab

The materials tab contains all your saved materials in your library.

1. **Search**  
Type in any keyword to search for a material by name.
2. **Add Folder**  
Click this button to add custom material folders.
3. **Import**  
Import a KMP material file.
4. **Refresh**  
Refresh material list if any changes were made.
5. **Folder Tree**  
Contains the folder structure of the material folders.
6. **Material Thumbnails**  
Mat ball swatches of materials within the selected folder.
7. **List/Thumbnail Toggle**  
Switch displaying the materials with thumbnails and in a list view.
8. **Zoom Slider**  
Slide to change the size of the thumbnails. You can also use +/- to change in steps.
9. **Upload to Cloud Library**  
Click this button to upload a custom material to the Cloud Library.
10. **Export**  
Export a saved material as a KMP file.



## Colors Tab

The colors tab contains all your saved colors in your library.

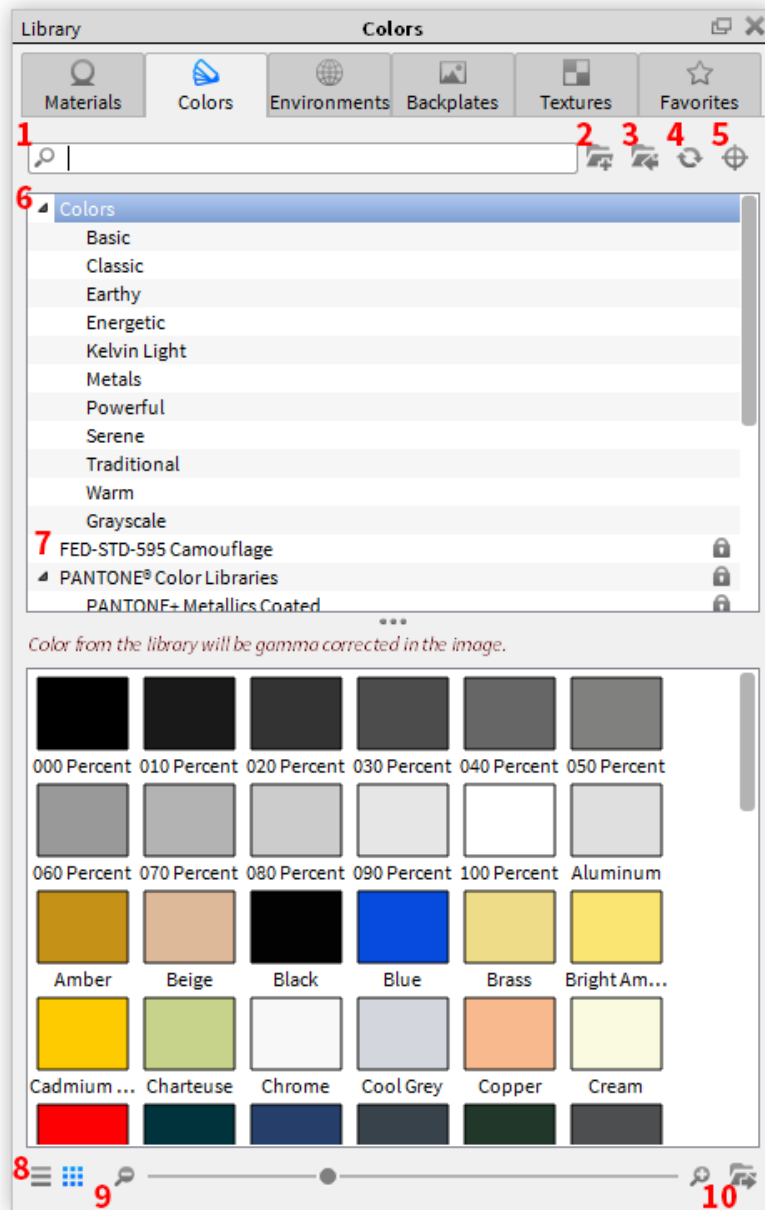
1. **Search**  
Type in any keyword to search for a color by name.
2. **Add Folder**  
Click this button to add custom color folders.
3. **Import**  
Import a KCP or CSV color file.
4. **Refresh**  
Refresh color list if any changes were made.
5. **Color Search**  
Opens color picker panel to search by closest color match.
6. **Folder Tree**  
Contains the folder structure of the color folders. It contains folders for RAL and Pantone Color Libraries.
7. **Color Swatches**  
Displays color swatches within the selected folder.
8. **List/Thumbnail Toggle**  
Switch between displaying the color with thumbnails and in a list view.

9. **Zoom Slider**

Slide to change the size of the thumbnails. Use +/- to change in steps

10. **Export**

Export a KCP color file.



## Environments Tab

The environments tab contains all your saved environments in your library.

1. **Search**

Type in any keyword to search for an environment by name.

2. **Add Folder**

Click this button to add custom environments folders.

3. **Import**

Import a HDR, HDZ, EXR, DDS file.

4. **Refresh**

Refresh environments list if any changes were made.

5. **Folder Tree**

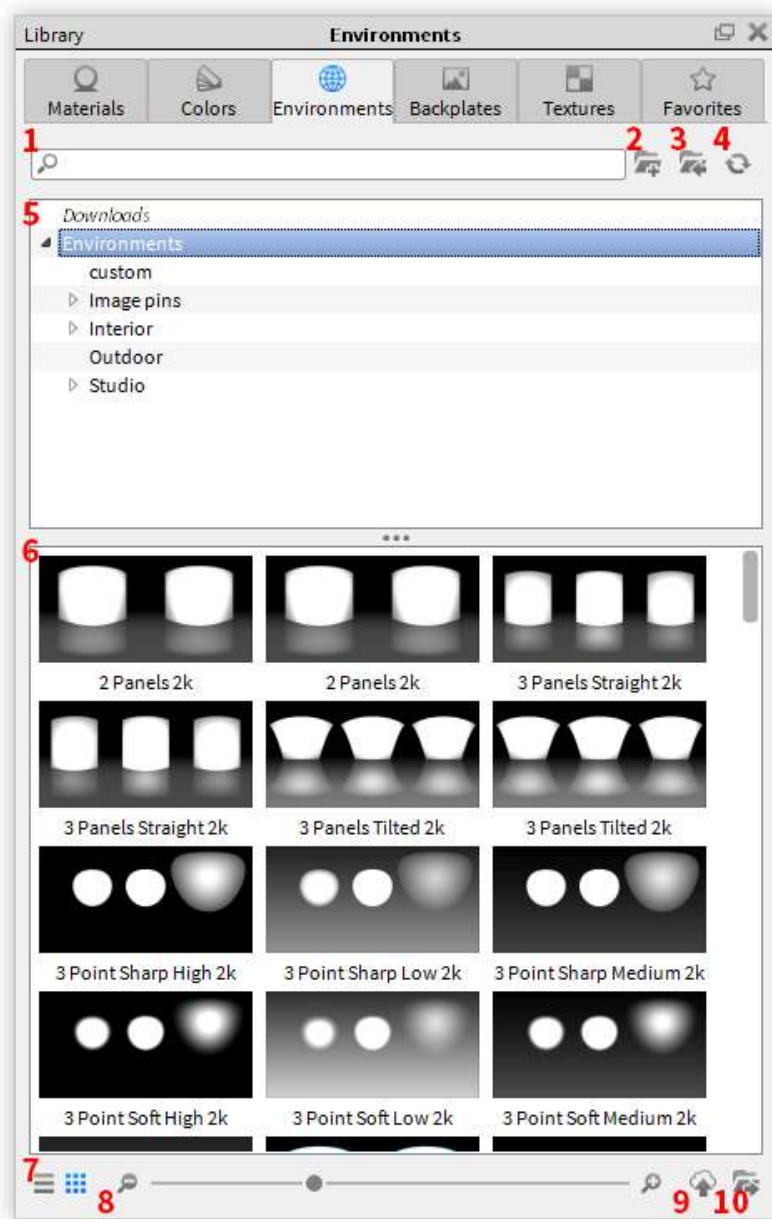
Contains the folder structure of the environment folders.

6. **Environment Thumbnails**

Thumbnails of environments within the selected folder.



7. **List/Thumbnail Toggle**  
Switch displaying the environments with thumbnails and a list view.
8. **Zoom Slider**  
Slide to change the size of the thumbnails. Use +/- to change in steps.
9. **Upload to Cloud Library**  
Click this button to upload a custom environment to the Cloud Library.
10. **Export**  
Export environment file.



## Backplates Tab

The backplates tab contains all your saved backplates in your library.

1. **Search**  
Type in any keyword to search for a backplate by name.
2. **Add Folder**  
Click this button to add custom backplate folders.
3. **Import**  
Import an image file.
4. **Refresh**  
Refresh backplate list if any changes were made.

5. **Folder Tree**  
Contains the folder structure of the backplate folders.
6. **Backplate Thumbnails**  
Thumbnails of backplates within the selected folder.
7. **List/Thumbnail Toggle**  
Switch between displaying the backplates with thumbnails, or a list view.
8. **Zoom Slider**  
Slide to change the size of the thumbnails use +/- to change in steps.
9. **Upload to Cloud Library**  
Click this button to upload a custom backplate to the Cloud Library.
10. **Export**  
Export an image file.

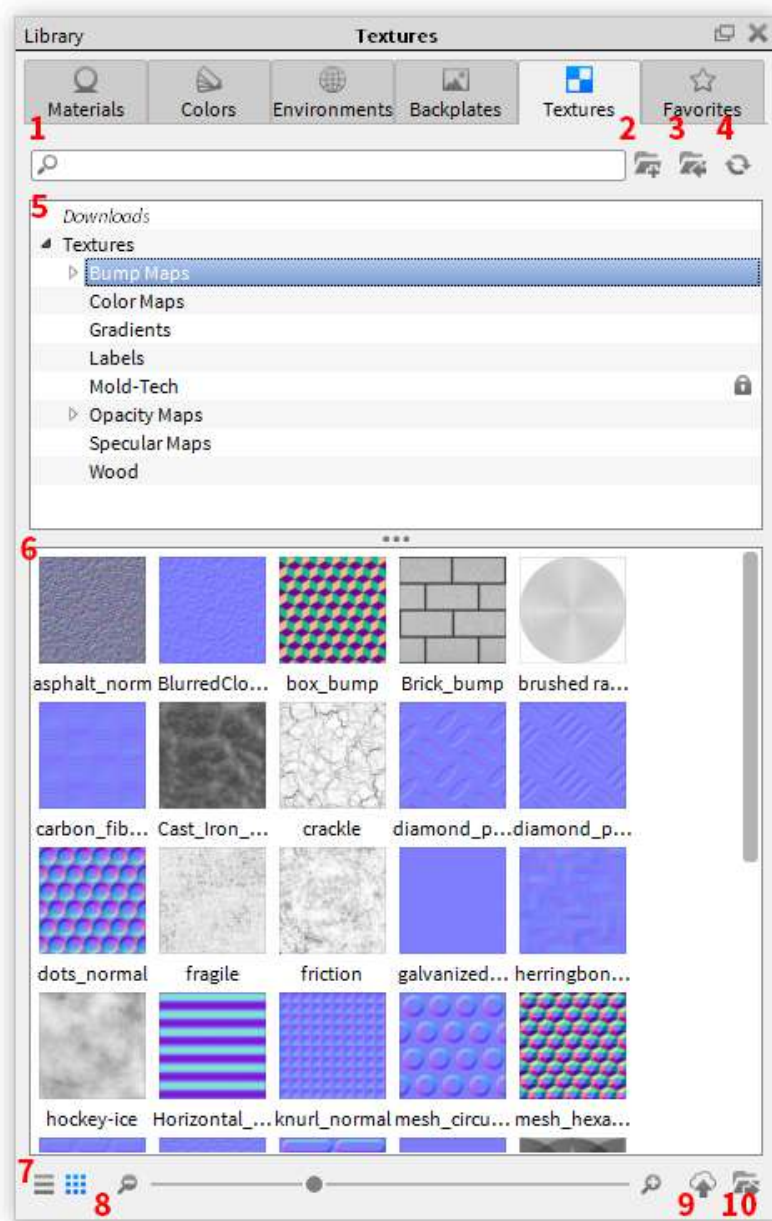


## Textures Tab

The textures tab contains all your saved textures in your library.

1. **Search**  
Type in any keyword to search for a texture by name.
2. **Add Folder**  
Click this button to add custom texture folders.

3. **Import**  
Import an image file.
4. **Refresh**  
Refresh texture list if any changes were made.
5. **Folder Tree**  
Contains the folder structure of the texture folders.
6. **Texture Thumbnails**  
Thumbnails of textures within the selected folder.
7. **List/Thumbnail Toggle**  
Switch between displaying the textures with thumbnails, or a list view.
8. **Zoom Slider**  
Slide to change the size of the thumbnails use +/- to change in steps.
9. **Upload to Cloud Library**  
Click this button to upload a custom texture to the Cloud Library.
10. **Export**  
Export an image file.

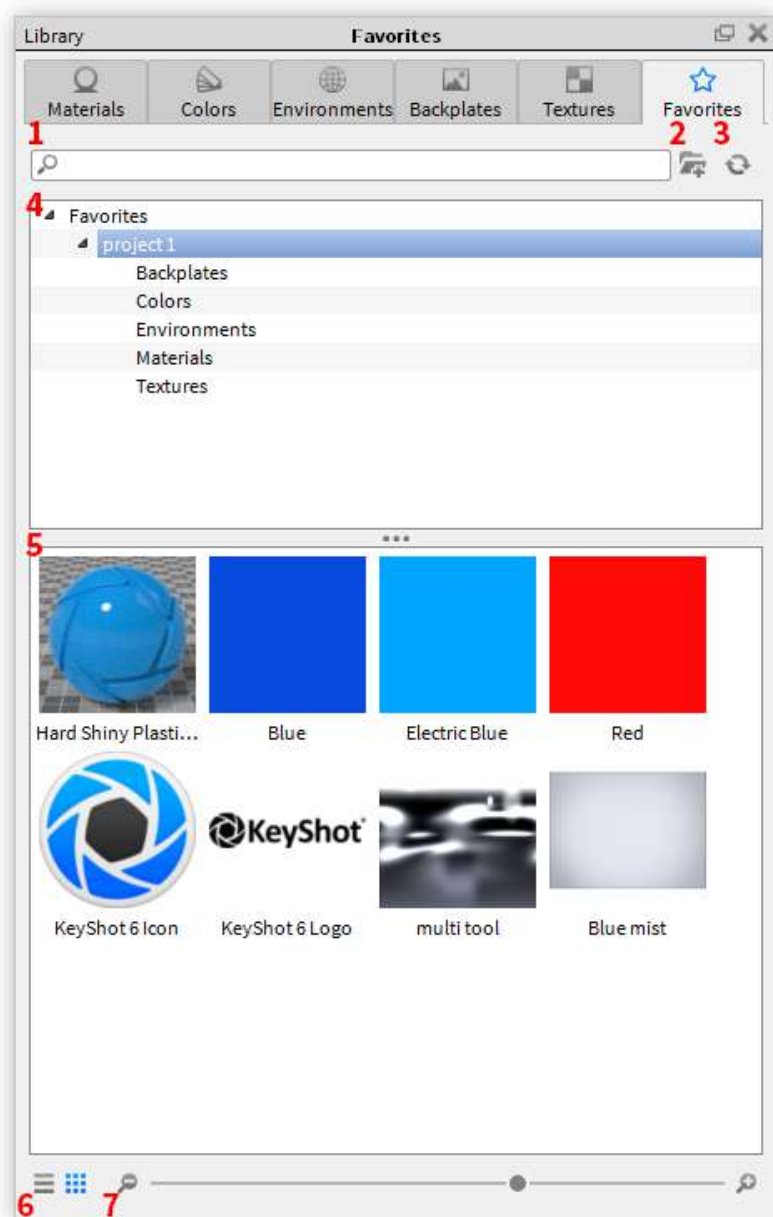


## Favorites Tab

The favorites tab allows you to organize commonly used resources into groups for a faster workflow. Right click a resource in your library, and select add to favorites, and

then select the folder you would like to add the resource to.

1. **Search**  
Type in any keyword to search for a resource by name.
2. **Add Folder**  
Click this button to add a favorites folders.
3. **Refresh**  
Refresh favorites list if any changes were made.
4. **Folder Tree**  
Contains the folder structure of the favorites folders. Each favorites folder contains categories for backplates, colors, environments, materials, and textures.
5. **Favorites Thumbnails**  
Thumbnails of resources within the selected folder.
6. **List/Thumbnail Toggle**  
Switch between displaying the favorites with thumbnails, or a list view.
7. **Zoom Slider**  
Slide to change the size of the thumbnails use +/- to change in steps.



## Project Window

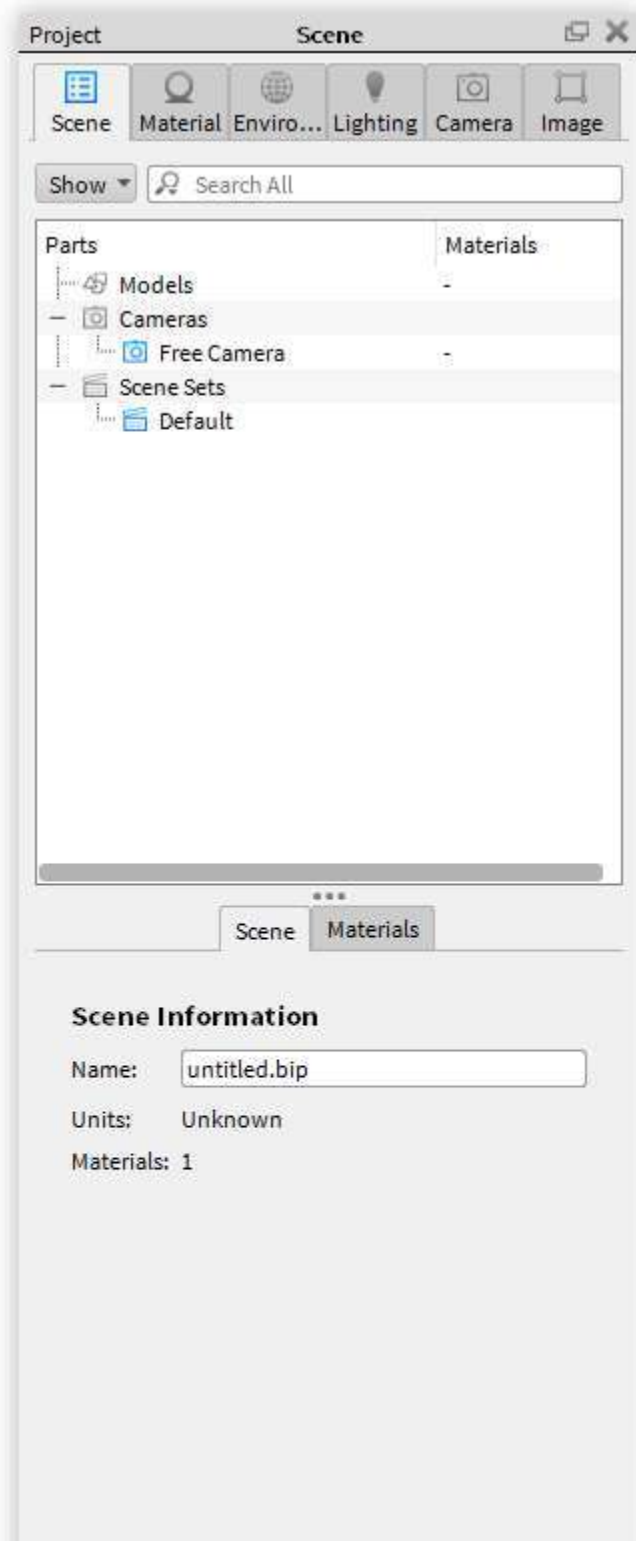
The *Project* window contains all the setup and setting for everything in your scene, organized into six tabs: *Scene*, *Material*, *Environment*, *Lighting*, *Camera* and *Image*.

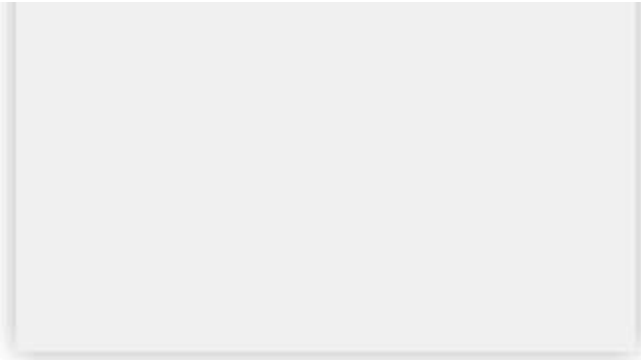
### Scene Tab

The scene tab contains all the content from your scene. Parts, Camera and Scene Sets.

#### On this page:

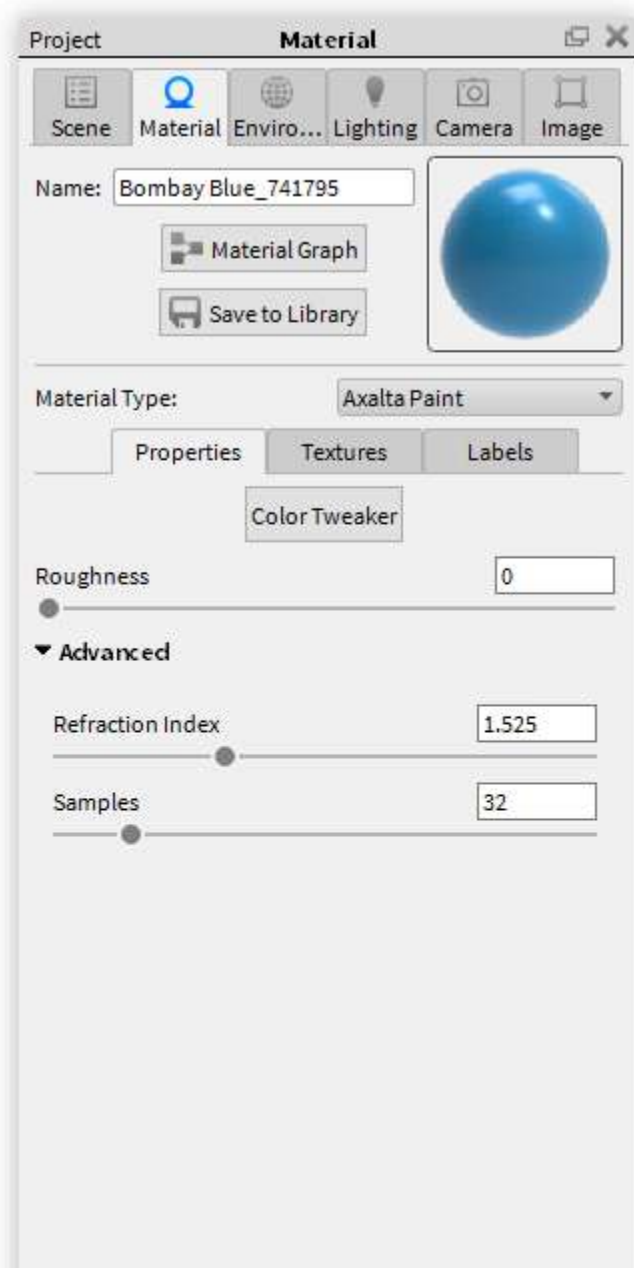
- Scene Tab
- Material Tab
- Environments Tab
- Lighting Tab
- Camera Tab
- Image Tab

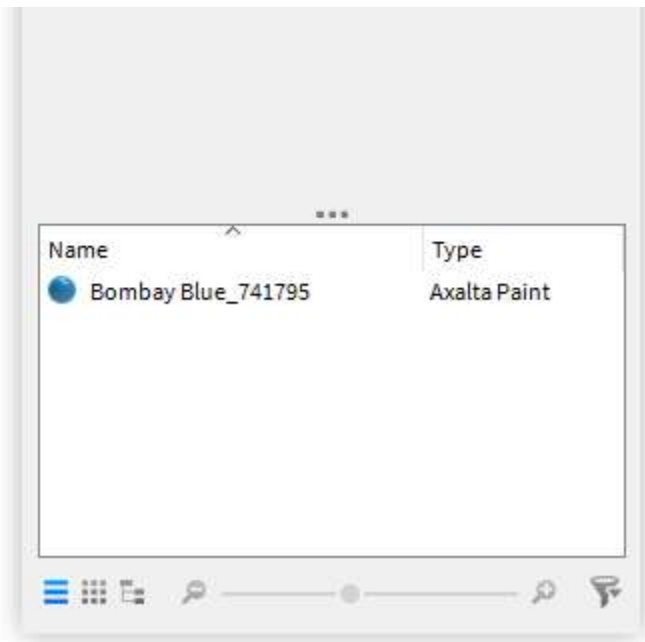




## Material Tab

The material tab is where you can edit the properties of your material such as changing the roughness, adding textures or labels.

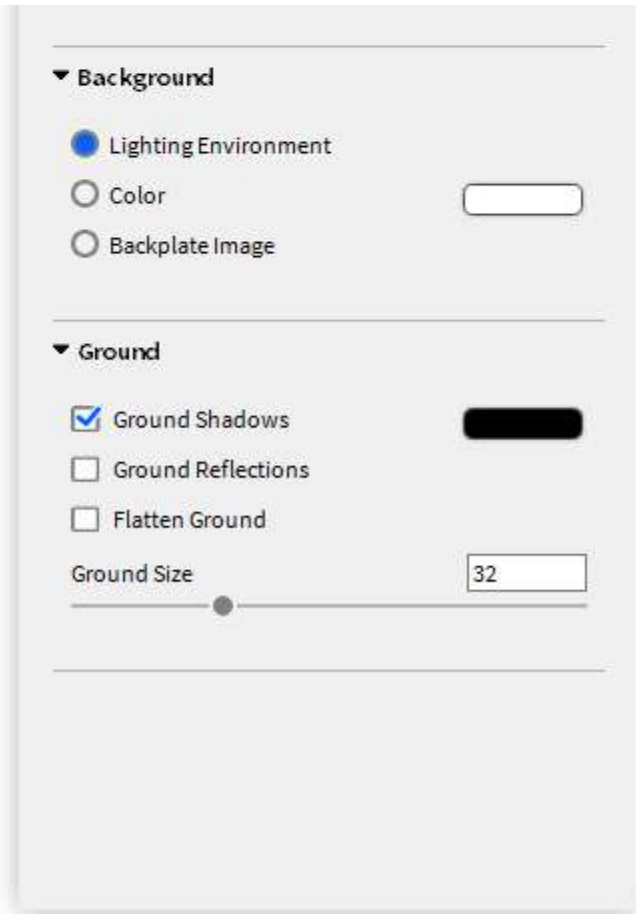




## Environments Tab

The environments tab is where you can edit the lighting of your scene provided by the HDR as well as the background and ground properties.





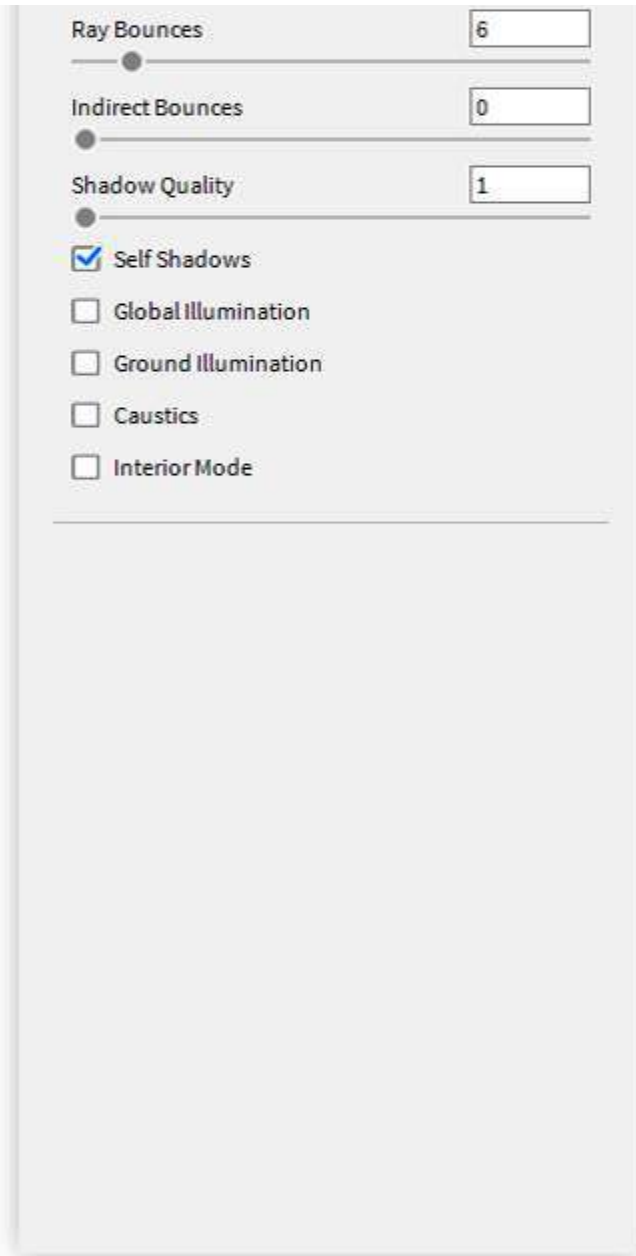
To learn how to apply sharp reflections to your model watch the video above.

## Lighting Tab

The lighting tab has multiple presets for lighting your scene and the quality shown in the real-time render view.



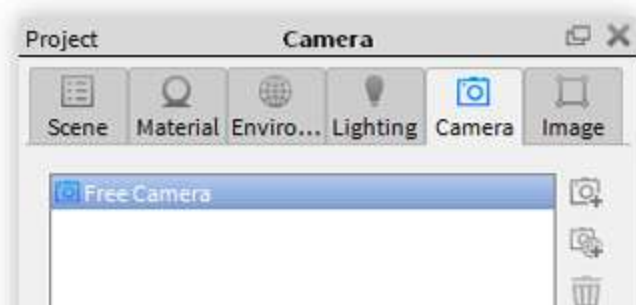


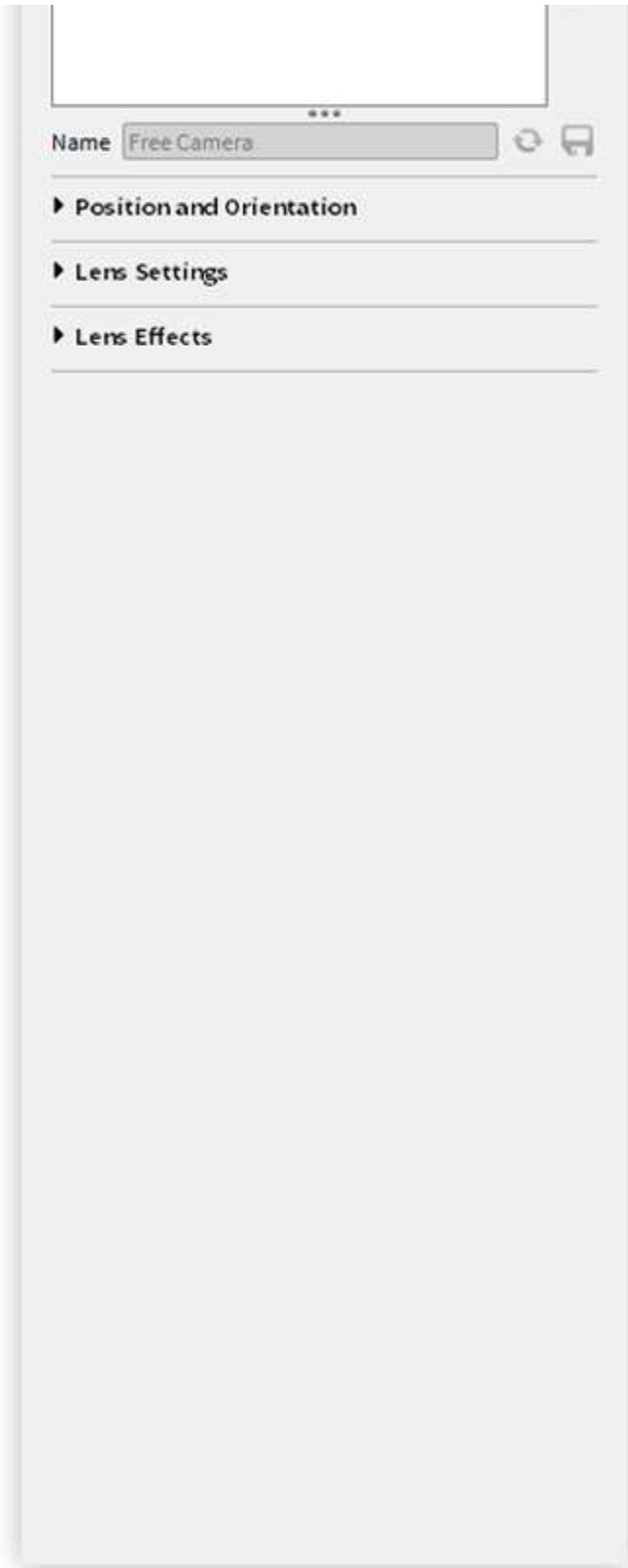


To learn how to quickly set up your custom lighting presets click below.

## Camera Tab

The camera tab is used to create cameras to capture the desired area of your project as well as various effects to enhance your camera view.

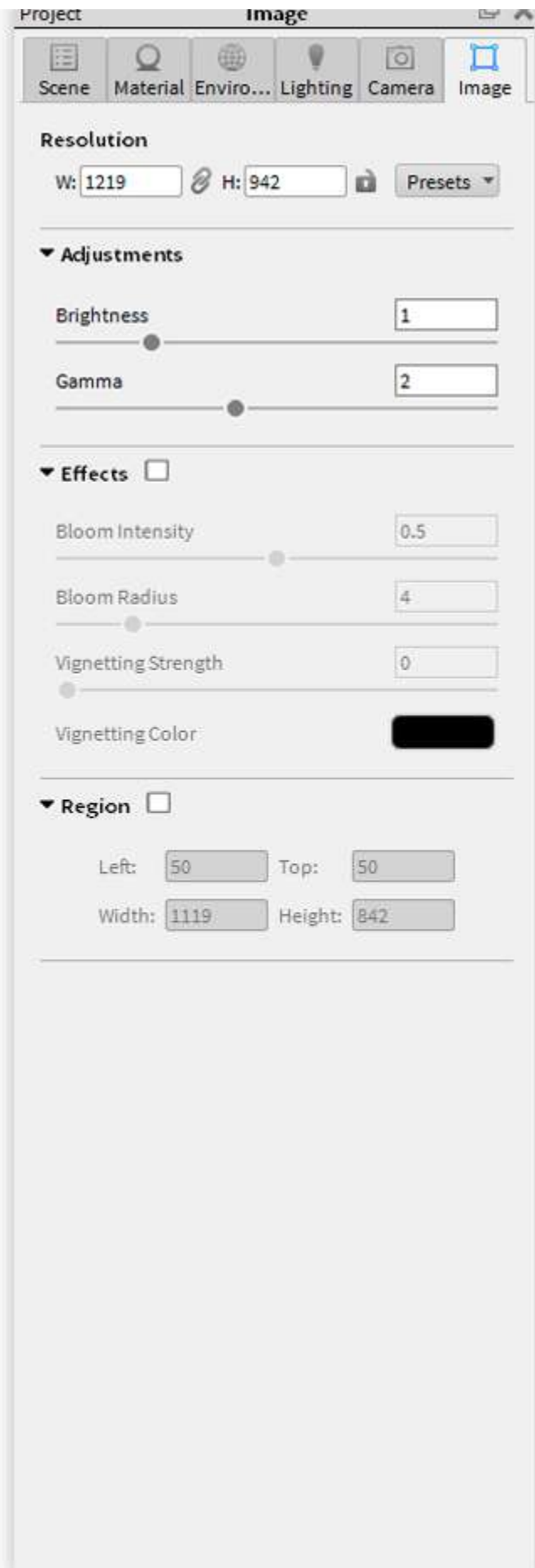




## Image Tab

By using the image tab you can set the resolution of your scene as well as change the brightness, gamma and other effects.





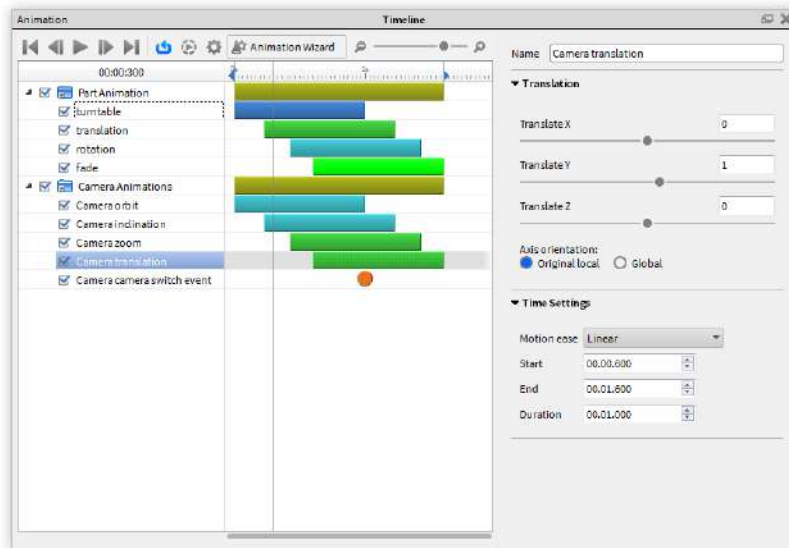
## Animation Timeline

### Timeline Overview

Animations are represented in the timeline and labeled according to the name set in the animation properties for translations, rotations and camera animations. When an animation node is clicked in the timeline, the properties will be displayed. Animations can be shifted in time and scaled interactively to control timing and duration. Groups of animations can be consolidated in a single folder for organization. These folders can also be scaled and shifted to control timing and duration.

#### On this page:

- [Timeline Overview](#)
- [Timeline Toolbar](#)
- [Animation Timeline Interface](#)
- [Managing Nodes](#)
- [Animation Properties](#)



### Timeline Toolbar



#### Animation Wizard

This opens the Animation Wizard.

#### FPS pull down

Select from common frame rates used in video production.

#### Real-time Preview Buttons

These buttons will allow you to quickly jump to the beginning or end of your animation, scrub through the animation one frame at a time, and play a real-time preview of your animation in the real-time render window. To see a more accurate portrayal of materials and motion, click the "preview" button on the animation toolbar.

#### Loop

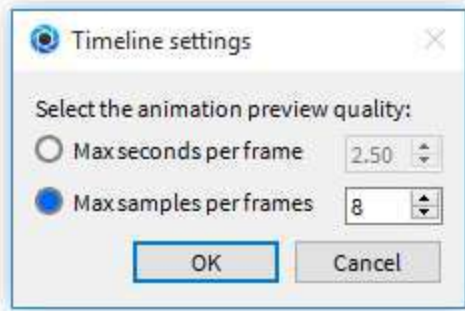
Enable this to loop the animation when playing in the real-time window.

#### Motion Blur

Enable this create motion blur in your rendered animation output.

#### Timeline Settings

Click the settings icon to open the settings panel where you can select from *Max seconds per frame* to limit the render time of the preview, or choose *Max samples per frames* to limit the quality of the preview.



### **Render Preview**

Click this button to begin rendering a small video file of your animation with more accurate results than the realtime preview.

### **Zoom Slider**

Use this to change the scale of the Animation Timeline.

## **Animation Timeline Interface**

### **Time Stamp**

This will show where the preview line currently is on the timeline.

### **Preview Line**

This line is the marker for the where in the timeline the real-time render window is rendering from. When you play a real-time preview, this line will move with in time with the animation. Click and drag the line to scrub to a point in the animation you would like to preview.

### **Start/End Markers**

Use this to designate the actual animation to be rendered. The space between these markers is called the "work area."

### **Timeline**

This shows the timeline in the units chosen (seconds or frames.)

### **Nodes**

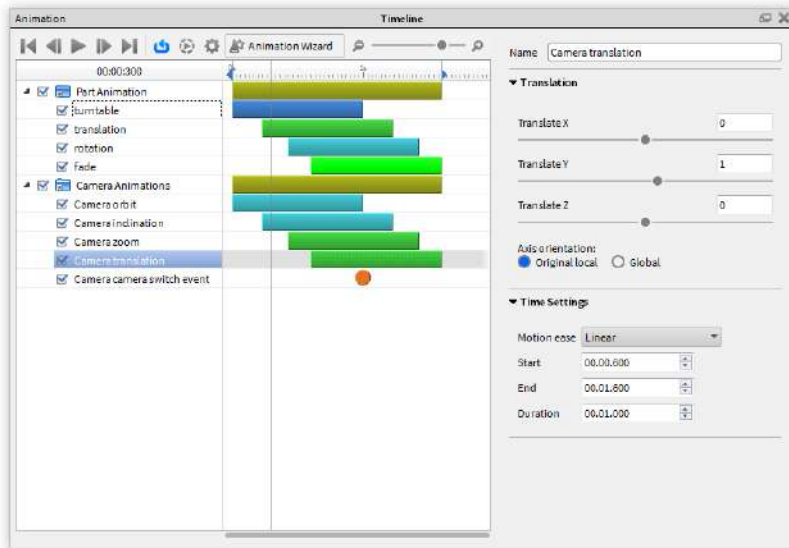
Each animation is represented in the timeline as a colored bar called a "Node." Most nodes can be selected at the ends and dragged to change the duration of the animation. Click on the body of the node to move along the timeline. Hold SHIFT while dragging to snap to another node.

### **Folder Nodes**

Yellow Nodes are "Folder Nodes." Changing the duration and location of a folder node affects all animation nodes contained within it.

### **Node List**

This lists all animation nodes and folders. Use the checkboxes to toggle the active state of the animation nodes.



## Managing Nodes

Node management utilities can be found by right clicking on nodes in the node list. To change the node order or to move a node into an existing folder, click and drag the node. To multi-select nodes, hold CTRL on a PC or Command on a Mac while selecting multiple nodes.

### Delete

Select this option to delete one or more animation nodes from the timeline.

### Add Folder

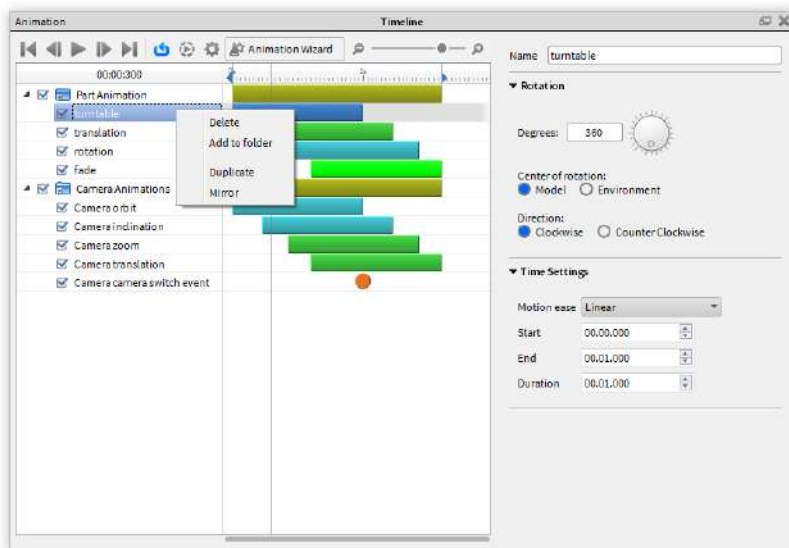
Right click on a blank area in the node list to display this option.

### Duplicate

To duplicate a node or nodes, right click on the node(s) you would like to copy and select this option.

### Mirror

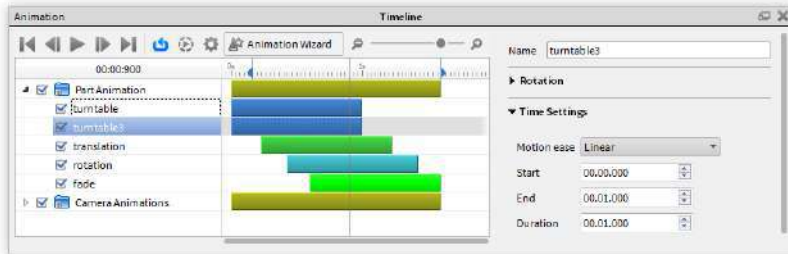
Right click on the node(s) you would like to have a reverse duplicate animation of. This is useful for exploded view animations and for situations where you need to have the animation end where it began, such as for a looping video.



## Animation Properties

Selecting a node will display its properties in the right side of the animation window. These parameters are the same ones used when creating an animation via the “Animation Wizard.” You can change all existing animation parameters as well as the name of the node in the animation properties.

If the animation window is docked, or if you are using the window with a short window, you can compress sections of the properties to see the parameters that are most useful to you at that time.



## Geometry View

### Geometry View Overview

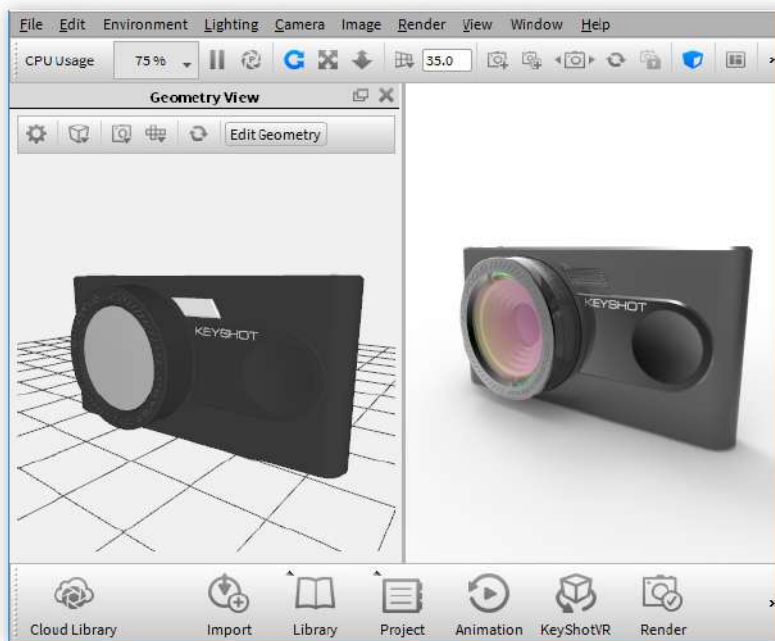
This highly responsive OpenGL secondary display complements the *Real-time View* to add more capabilities and a faster workflow for setting up your scene.

Some benefits of the *Geometry View* are:

- Animations can be played back at a true 1:1 speed.
- A secondary camera can be used to position physical lights easily in a scene.
- Scene transformations and composition setup are faster.
- All Camera Path Animations can be viewed and edited.

#### On this page:

- [Geometry View Overview](#)
- [Geometry View Settings](#)
- [Display Style](#)
- [Camera Type](#)
- [Standard Views](#)



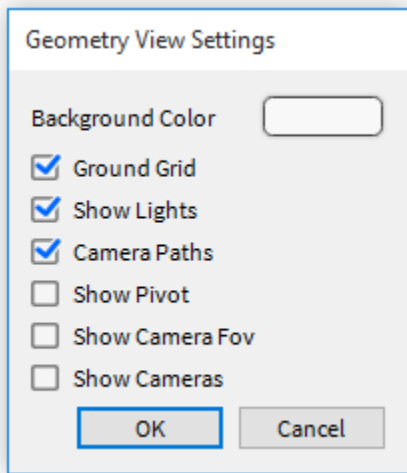
### Geometry View Settings

On the *Geometry View Ribbon*, click on the gear icon



to access the *Geometry View Settings* panel.

*Background Color* allows you change the color of the *Geometry View* background by selecting the color swatch. Click each checkbox to toggle the display of the different elements in the *Geometry View*.



## Display Style

On the *Geometry View Ribbon*, click on the *Display Style* dropdown



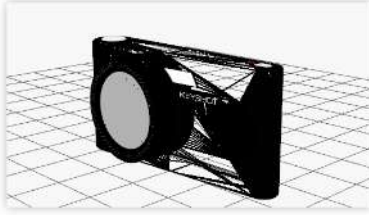
to change the *Display Style* of models in the *Geometry View*. The style choices are: *Shaded*, *Flat*, *Shaded Wireframe*, *Wireframe*, or *Bounding*.

<p><b>Shaded</b> The <i>Shaded Display State</i> displays the geometry with solid colors and shaded areas.</p>	
<p><b>Flat</b> The <i>Flat Display State</i> displays the geometry with solid colors and no shading.</p>	
<p><b>Shaded Wireframe</b> The <i>Shaded Wireframe Display State</i> displays the geometry with solid colors and shaded areas with the geometry wireframe on top.</p>	



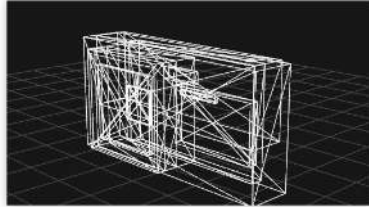
### Wireframe

The Wireframe Display State displays the geometry with only a representation of the wireframe.



### Bounding Box

The Bound Box Display State displays the geometry with wireframe box representations of the extents of the model and part geometry.



## Camera Type

From the *Camera Type* dropdown



choose a camera from these available options—*Active*, *Perspective*, or *Orthographic*.

Note: Selecting *Perspective* or *Orthographic* will unlink the real-time viewing mode from the *Geometry View* allowing you to control the two views independently of each other. However, you will still see the real-time movement and position of the active camera.

## Standard Views

From the *Standard Views* dropdown



, you can also select a display orientation of *Front*, *Back*, *Left*, *Right*, *Top*, *Bottom* or *Isometric*.

Note: Selecting a *Standard View* when the *Active Camera Type* is selected will also update the *Real-Time View*. Choose the *Perspective* or *Orthographic Camera Type* to unlink the real-time viewing mode from the *Geometry View* allowing you to control the two views independently of each other. However, you will still see the real-time movement and position of the active camera.

## Geometry Editor

Enjoy the freedom of splitting surfaces, calculating vertex normals, and closing open boundaries directly inside of the KeyShot OpenGL View.

Click *Edit Geometry* on the *Geometry View* ribbon and select a part from the part list. You can also right-click on a part in the Scene Tree or Real-time View and select *Edit Geometry* to launch the *Geometry View* and the *Geometry Editor* dialog.

### On this page:

- [Geometry Editor Mode](#)
  - [Split Object Surfaces](#)
  - [Split Separate Objects](#)
  - [Edit Normals](#)
  - [Close Mesh](#)

### Geometry Editor Mode

#### ***Split Object Surfaces***

Use the “Split Object Surfaces” option if you would like to split specific polygons from

a single part. This is useful if you would like to apply separate materials to a single part, or when parts are modeled together and you would like to work with the separately.

**Splitting Angle**

Use this to let KeyShot automatically determine where you would like to split the part based on the angle adjacent polygons. Any polygon that has a face at an angle that is less than the value entered will be highlighted. This is useful when the split is a clear crease or angle in the part.

**Polygons**

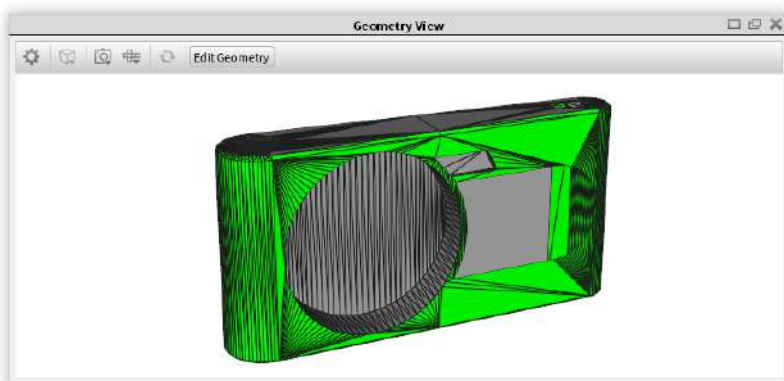
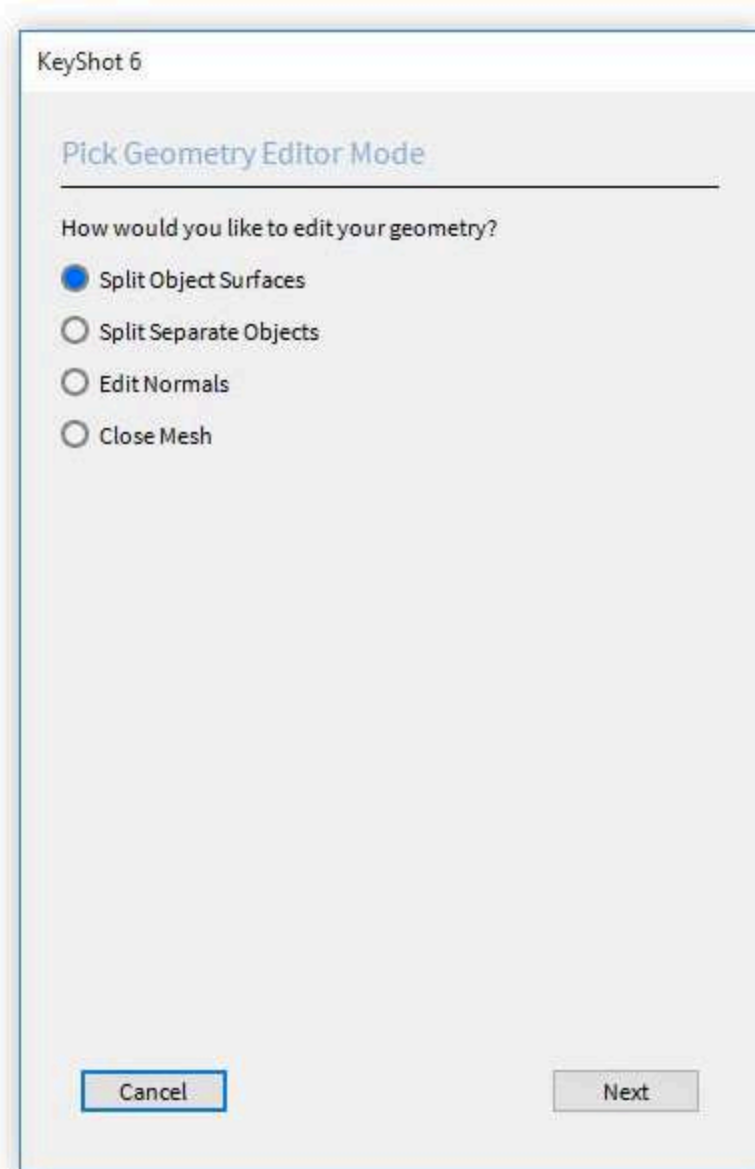
Use this to select individual polygons from the surface. Hold control while you click on the part to highlight the individual polygons.

**Show Wireframe**

Enable this to show the wireframe of the part.

**Split All / Split Object / Merge Selection**

Once the polygons you want split are selected, click "Split All" to create a part for each individual polygon selected, or click "Split Object" to group the selected polygons into a single part. If you would like to merge certain split parts back, hold shift and select the parts you would like to merge and click "Merge Selection." To finalize the split, click done to create the new parts in the scene tree.



### ***Split Separate Objects***

Use "Split Object" when a your model has separate objects grouped into a single part.

KeyShot 6

### Split Separate Objects

Select an object in the list or Geometry View.

Show Wireframe

Name	Triangles	Locked	Visible
Default	24	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Split All

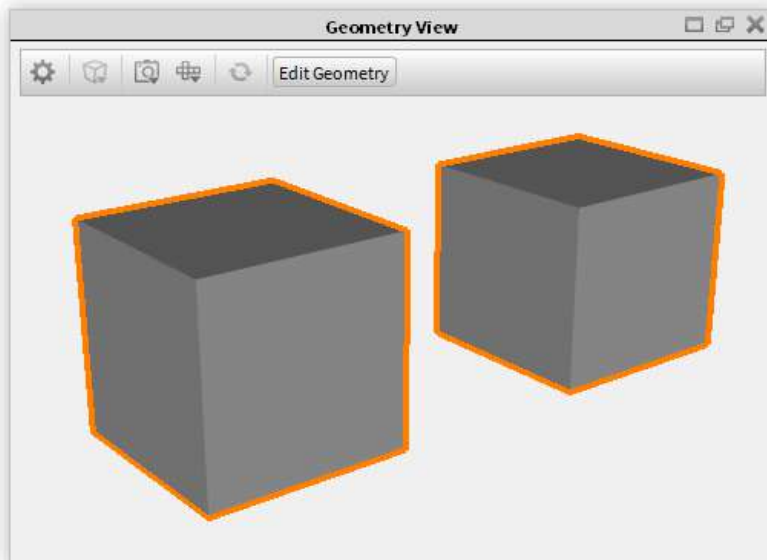
Split Object

Merge Selection

Cancel

Back

Done

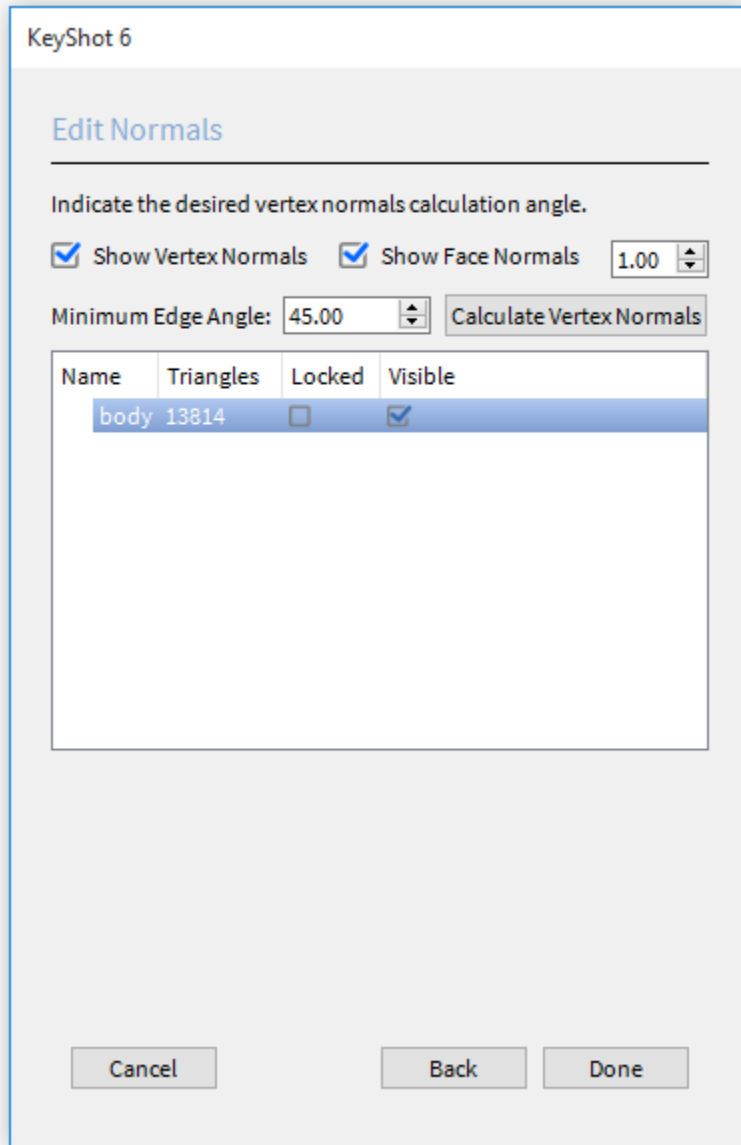


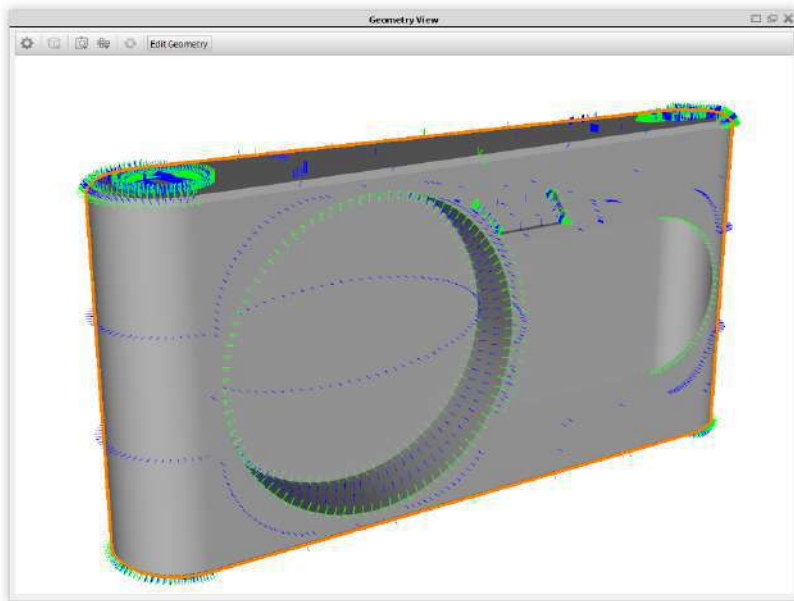
## Edit Normals

A normal is the direction that is perpendicular to a mesh surface. In a 3D model, the directions of your normals should all be facing the same direction, other wise holes might appear. Also if your vertex normals are not aligned, flat spots might appear on what you thought would be a curved surface.

If your model appears to have a hole or flat areas, try to unify the normals by using the "Edit Normals" tool. Select the faulty part, and enable the "Show Vertex Normals" and "Show Face Normals". If you see the normal of the missing polygon pointing in the opposite direction or if the vertex normals from adjacent polygons are not aligned, use the "Calculate Vertex Normals".

"Adjust the "Minimum Edge Angle" to ensure that edges that do have a crease are not aligned as well.

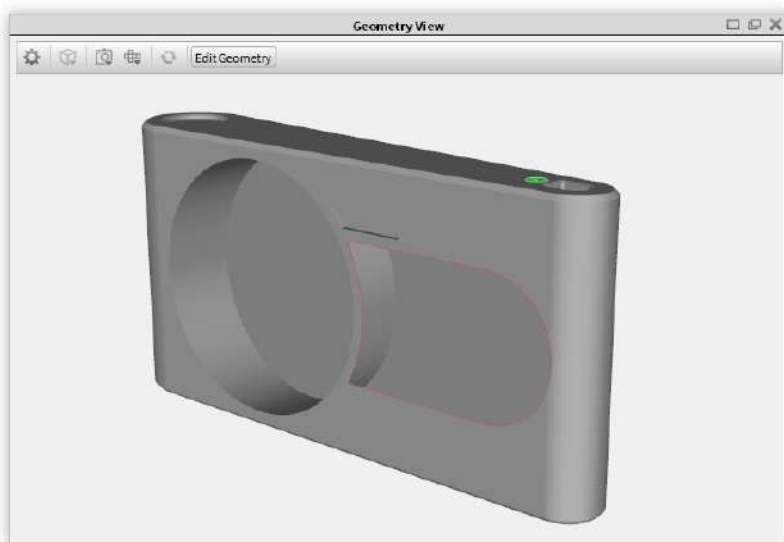


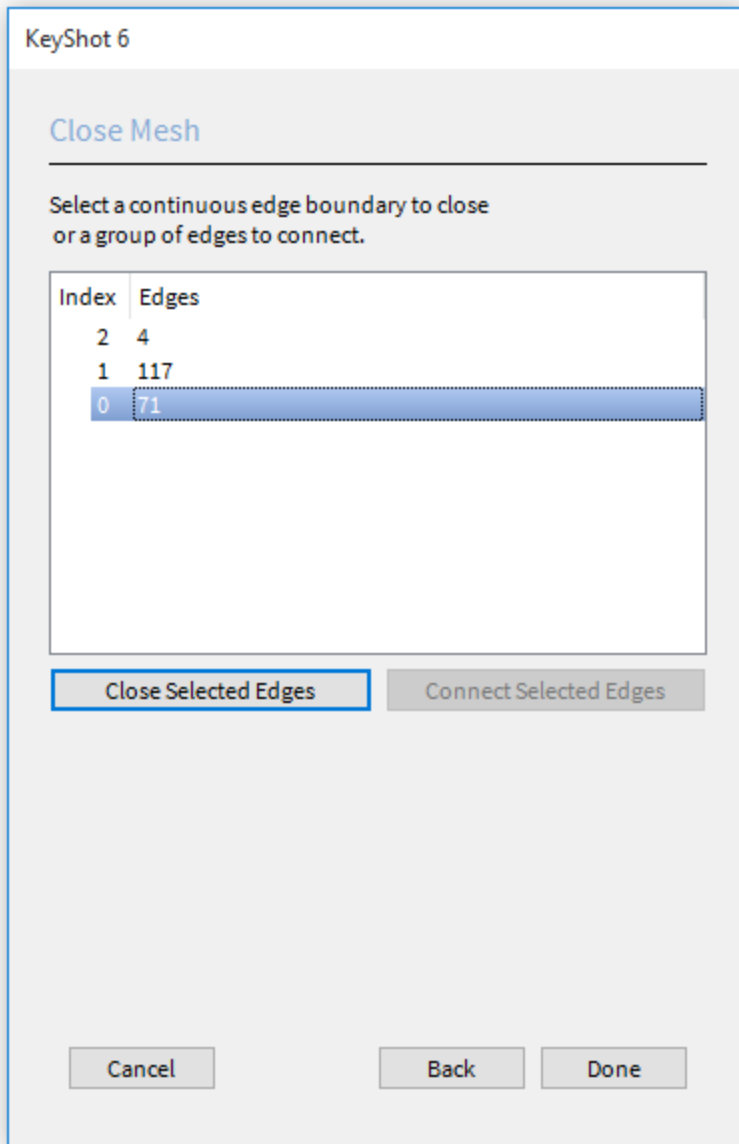


### ***Close Mesh***

If you have an open polygon with a hole, Use "Close Mesh" to fill in missing polygons.

In the "Close Mesh" window, KeyShot will list the open edges of the part you selected. You can select individual continuous holes and click "Close Selected Edges" and KeyShot will create the polygons to fill in the hole. If you have 2 holes in a part and want to create a solid connection between those two holes like a donut, select the 2 holes and click "Join Selected Edges."





## Material Templates

Material templates automate the material application process. Materials from the KeyShot library are applied to parts based on the name of each part's original materials. The material template menu is found in the *Window* menu bar.

### Create/Delete Templates

Create a new template by clicking on the add icon. Two methods can be used in creating a material template, "Automatic" and "Manual".

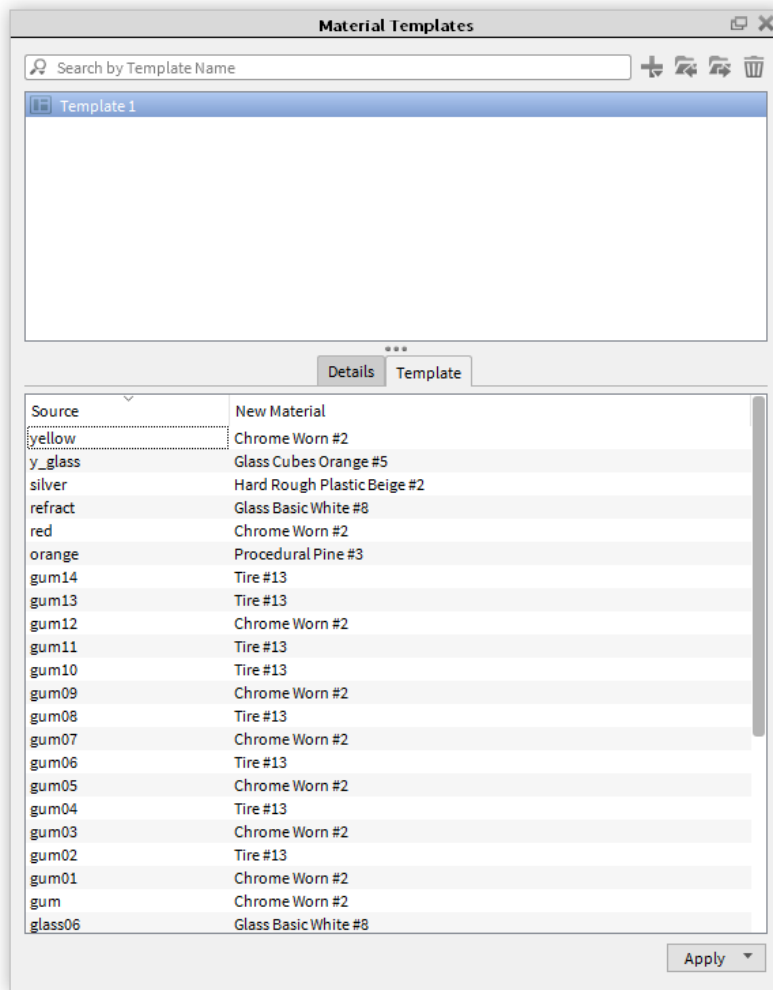
**Automatic** – If a model is in KeyShot when you create a new template, the source and material names are automatically populated based on the material applications in the current scene.

**Manual** – An empty template is created and you can add template items manually.

Each new template is added to the template list, which can be accessed with any scene opened in KeyShot.

#### On this page:

- [Create/Delete Templates](#)
- [Template Items](#)
- [Applying Templates](#)
- [Wild-Card Assignment](#)



## Template Items

A template item consists of a source name and material name.

Use the "+" button to create a new item.

Click an item to select the item from list and edit its source and destination name. You may also change the source type.

### Source Type

The source type can be "Part" or "Material." The part type considers the part names in the scene. The material type considers the material names in the scene.

### Source Name

Depending on the source type, the source name is the name of the part or the name given to the default material applied to parts of your models. The naming of your default materials is controlled in the modeling software.

### Destination Name

The destination name is the name of the material from the KeyShot library that is to be applied to all parts that match the source name. When editing the destination name, you can type the name or drag and drop a material from the library into the templates menu.

## Applying Templates

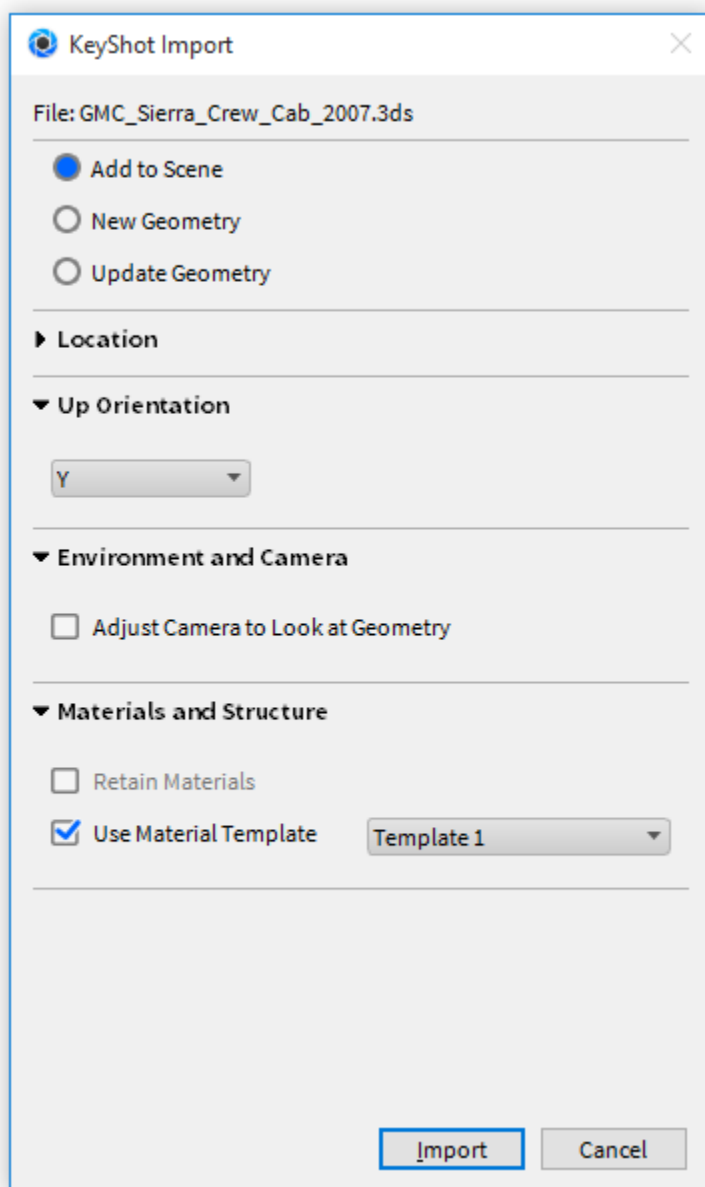
Applying templates can be done through the "Material Templates" window or the import window.



- **Material Template Dialog**  
Templates can be applied using the “Apply” button. This will give you two options: “To Scene” or “To Selection.”
- **To Scene**  
Apply the current template to the selected model or part.
- **To Selection**  
Apply the current template to the selected model or part.
- **Import Dialog**  
Expand the “Materials and Structure” section to reveal the “Use material template” checkbox. Enable this setting and select the desired template from the list. Click “Import” to complete the import.

## Wild-Card Assignment

The wild card refers to the practice of applying a material to several parts using the source name. This can be activated by inserting asterisks (\*) to the source name (e.g. \*Inner\*) this will apply the material in the destination to all the parts containing “inner” when the material template is applied.



# Preferences

Find the KeyShot Preferences (options/settings) in the Main Menu under *Edit, Preferences...*

## General

### Show News Window at Application Start Up

Display "News" window at start up.

### Adjust aspect ratio to backplate

Automatically resize the realtime window to the same aspect ratio of any backplate image that is loaded into the realtime window.

### Auto Update

Prompt the user to download and run the update installer when a newer version becomes available.

### Pause Realtime Render After

Select an amount of time from the menu to automatically pause the rendering and stop the usage of your CPU.

## Screenshots

### Ask where to save each screenshot

KeyShot will prompt the user to specify a location when saving a screenshot from the realtime window. You can also select file format and quality each screenshot is saved.

### Save a camera/viewset with each screenshot

When checked, KeyShot will save a camera view for every screenshot that is saved out. These views can be accessed from the camera tab in the project window.

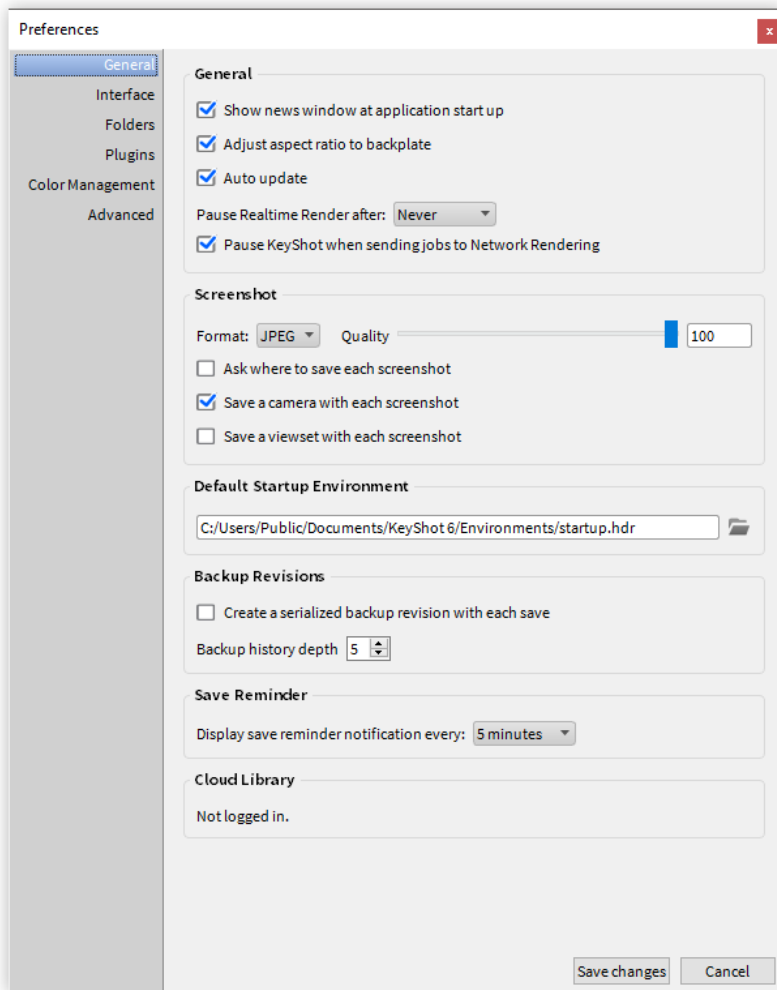
## Save Reminder

### Display save reminder notification every:

KeyShot will prompt the user to select an interval of time in which they want a notification to appear reminding them to save their project. These times include every 5, 10, 15, 30 and 60 minutes. Select "Never" if you do not want a Save Reminder to appear. For more information regarding the Save Reminder function see the video below.

### On this page:

- General
  - Screenshots
  - Save Reminder
- Interface
- Folders
- Plugins
- Color Management
- Advanced



## Interface

### Language

Select the desired language in the menu.

### Theme

Select desired color for the KeyShot UI.

### Background Brightness

Change the background of the realtime view.

### Selection Outlines

Displays an orange outline around selected parts.

### Use CPU for Selection Outlines

Enable this if selection outlines are unstable on GPU.

### Include Camera Movements in Undo Stack

This will include all camera movements in the undo stack.

### Reverse Camera Distance Scrolling

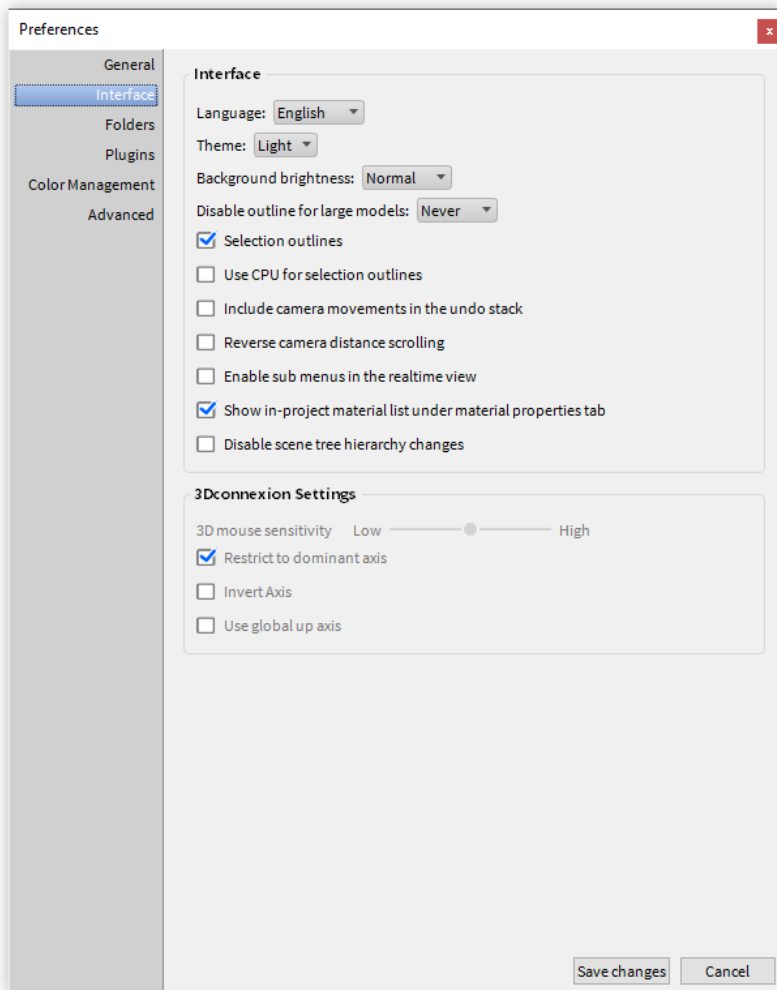
Reverse the scrolling on the camera when dollying the camera.

### Enable Flyouts in Right Click Menu

Additional options will be available in right click menus.

### Show in-project material list under Material properties tab

All in-project materials will be displayed.



## Folders

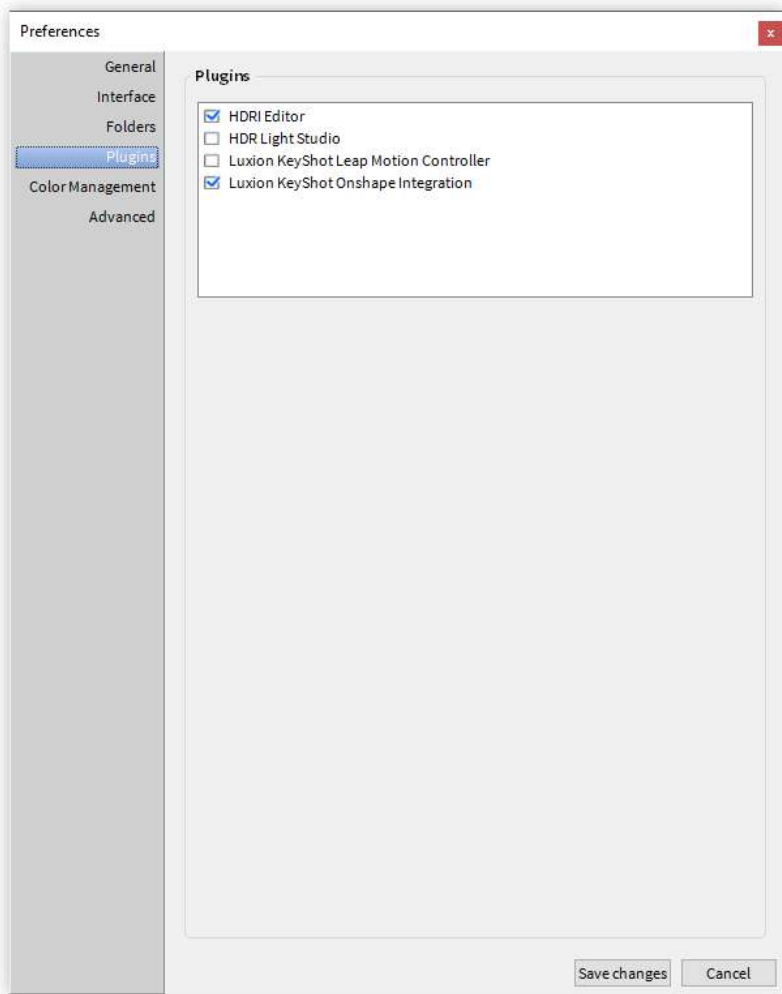
The folders tab will allow you to specify your KeyShot resources as well as setup shared folders.

Shared folders will allow you to point KeyShot to folder that is shared on a server or local computer to access the files. To use shared folders you will need to select "customize each folder" and click the folder icon on the right. The Configure Folders dialog will open as seen. From there you can select the ( + ) button to add a new folder path. Selecting a folder and clicking 'Edit' will allow you to edit that folder and change the path or changing to a default folder. You will need one default folder at all times.

All shared folders will show inside of the KeyShot library.

## Plugins

All plugins that are installed for KeyShot to use will be displayed here.



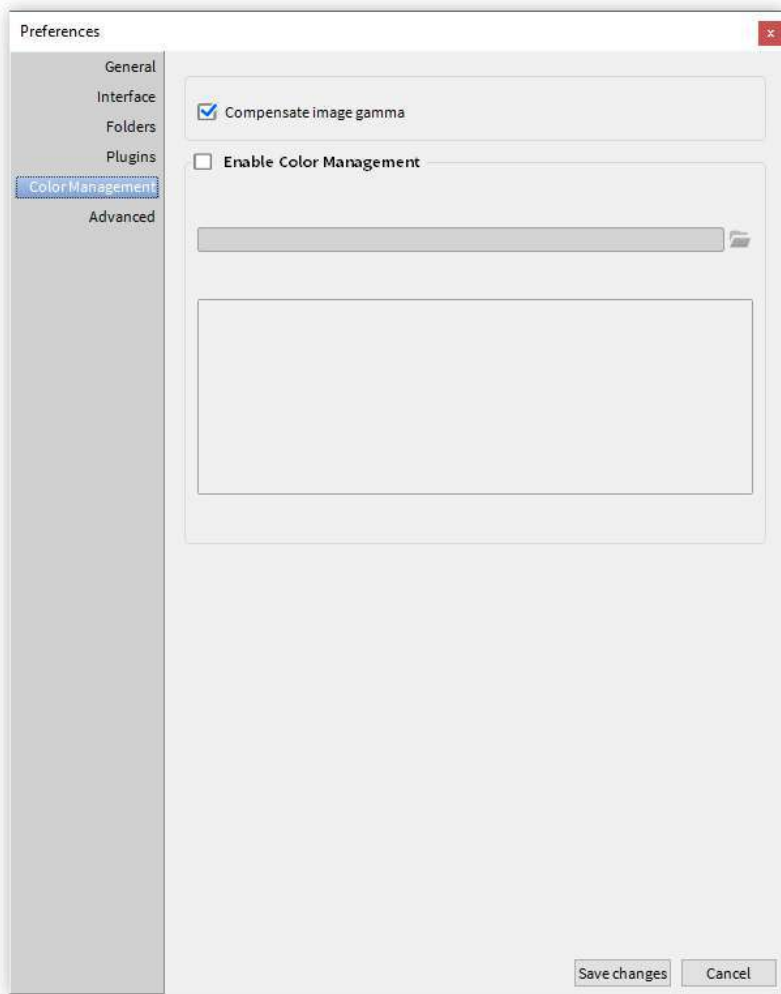
## Color Management

### Compensate Image Gamma

Gamma corrects color values when selecting them manually in the color picker.

### Enable Color Management

Enable this to use color profile files in KeyShot.



## Advanced

### Fast Realtime Updates

Enable smooth camera moves while navigating your scene.

### Graphics Effects

Allow access the "Bloom" and "Vignetting" effects.

### Use Gloss Instead of Roughness for Materials

This will change all parameters for roughness to gloss. Restarting KeyShot is required for this to take effect.

### Use UV Mapping as Default

Enable to always apply UV mapping to applied texture maps if available.

### Link Materials of Duplicate Parts

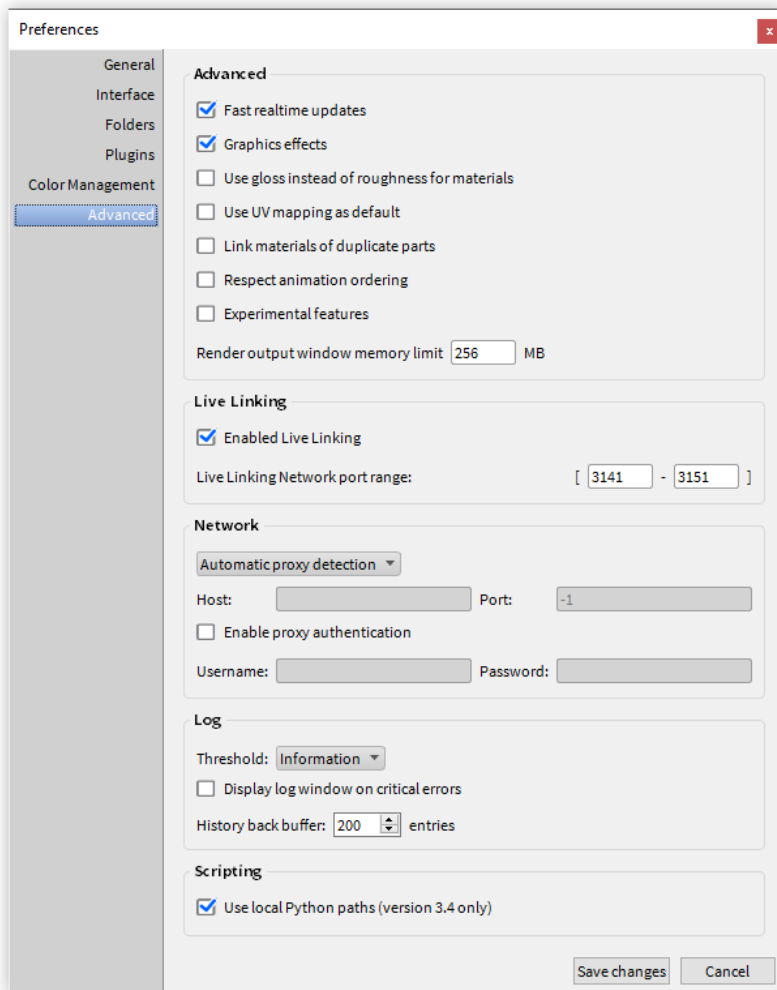
When enabled, parts that are duplicated will have materials linked.

### Respect Animation Ordering

When enabled, the next animation origin will follow the previous animation origin.

### Render Output Window Memory Limit

This controls the amount of memory reserved for the image buffer in the output window. If the rendered image takes up more memory than this limit, it will be downscaled until it is below the limit. This is useful if you are rendering gigapixel images and your scene takes up a lot of memory as well. It does not affect the output image itself (as specified in the render settings), but does affect images saved directly from the output window.



## Render Options

After a scene in KeyShot has been set up, the next step is to output either an image or an animation. There are multiple methods of accomplishing this. In addition, there are different render settings that come into play depending on what is being rendered. If these values are set too high, they can increase render time without any added gain. Understanding what the settings are and how to tune them will save time when rendering scenes. This section will cover these topics.

### Output

The Output section contains all setting for the file format, resolution, render type and what is included with the file output. There are three available output options:

#### Still Image

A static image and the default rendering output.

#### Animation

An animation with video and optional static frames. Note: This option is only available if there are animations in the scene.

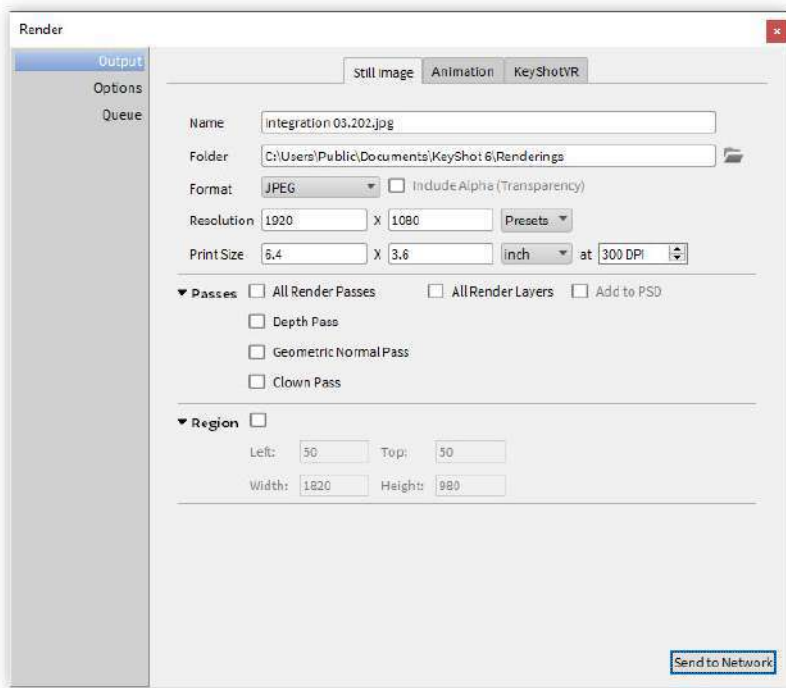
#### KeyShotVR

An interactive KeyShotVR with all code and images. Note: This option is only available if there is a KeyShotVR in the scene.

### Still Image

#### On this page:

- Output
  - Still Image
  - Animation
  - KeyShotVR
- Render Passes
- Region Render
- Options
  - Maximum Samples
  - Maximum Time
  - Advanced Control
- Queue



### Name

Set the file name of the render in the text field. If one is not entered, the default name will be the scene name with an incremental suffix.

### Folder

Choose where the render will be saved. Unless a specific folder is chosen, it will be saved in your KeyShot 6 renders folder.

### Format

Choose from JPG, TIF, EXR, TIF 32 Bit, PNG, PSD, and PSD 32 bit. All formats other than JPG can include an alpha channel. The PSD format will output a single layer PSD file.

### Resolution

Set the resolution of the render. Type it in or select from the presets.

### Print Size

If final output is for print quality, enter in the dimensions of the print size as well as the desired DPI. After size has been set, the resolution will update with the correct dimensions.

### Passes

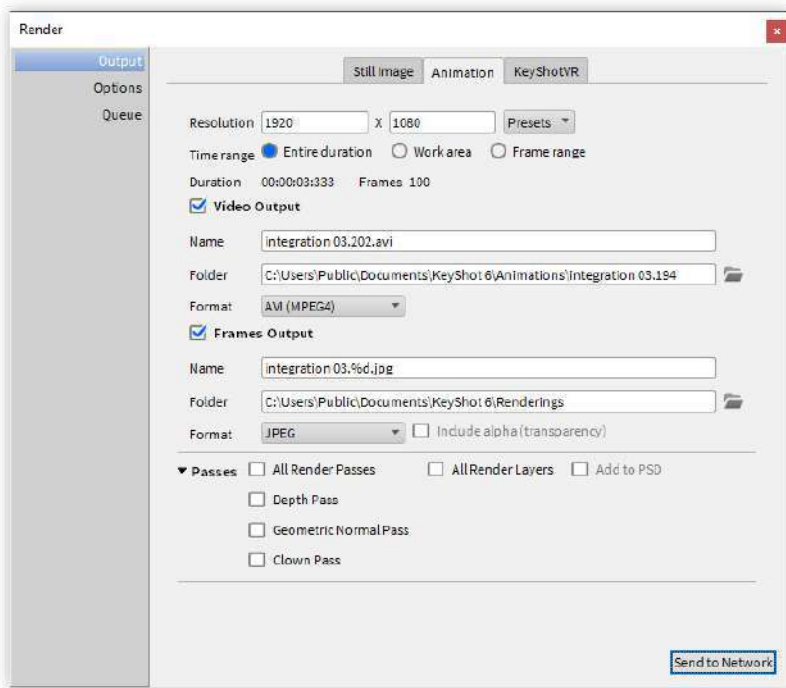
See [Render Passes](#) for settings.

### Region

See [Region Render](#) for settings.

### Animation





### Resolution

Set the resolution for the animation being rendered. Choose from the preset pulldown, or enter in your own custom dimensions.

### Time Range

Specify the range of the animation to be rendered. Default is "Entire Duration." You can also set the designated work area to be rendered, as well as a specific frame range. The "duration" and "frames" auto updates when time range is changed.

### Video Output

Set the name and Folder location where the animation will be saved. Choose a file format with the pulldown.

### Frame Output

Enable to output every frame used to create the animation. Designate the file name and folder where the frames will be saved. See Settings for Still Image output for settings.

### Passes

See [Render Passes](#) for settings.

### Region

See [Region Render](#) for settings.

## KeyShotVR

See [KeyShotVR Render Output](#).

## Render Passes

KeyShot supports different render passes. To enable a pass, click the box next to the pass you would like to enable. Doing so will render the selected pass, along with the original image format specified on the output tab. Choose "PSD format" from the pull down above to enable the "Add to PSD" checkbox This will compile all your passes into the saved PSD file.

### Depth Pass

Depth pass creates a depth map, which is an image that contains information relating to the distance of surfaces to the camera. Depth maps are used in other applications like Adobe Photoshop & Adobe After effects to simulate effects like depth of field Geometric Normal Pass Create a normal map image of your scene.

## Clown Pass

Clown pass creates an image where individual parts are rendered with flat colors. This is an easy way to create and save selections in Photoshop for post-rendering work. To use a clown pass, import it to the actual image in Photoshop. This creates another layer. Use the color range tool to select each of the colors in the clown pass and create a mask for each group.

## Render Layers

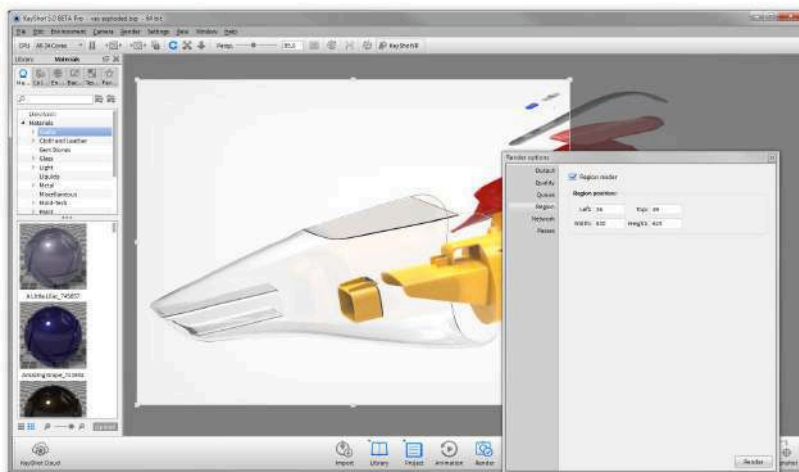
This option is only available if you have assigned parts and models to a render layer. NOTE: Enabling render layers will render all render layers created.

## Region Render

The region render option allows you to render a smaller portion of your overall image. This is useful when only a small change to one part of a scene is needed. Rendering the smaller region saves rendering time.

## Enable Region Render

Click the icon to enable, then drag to size the region box in the Real-time view window or enter specific dimensions and location.



## Options

The Options section contains all settings for Render Mode and CPU Usage, as well as Render Quality.

## Maximum Samples

The *Maximum Samples* option for render quality controls how many times the image or animation frame will be calculated and refined. Each additional sample will further smooth out noise/grain in the image.

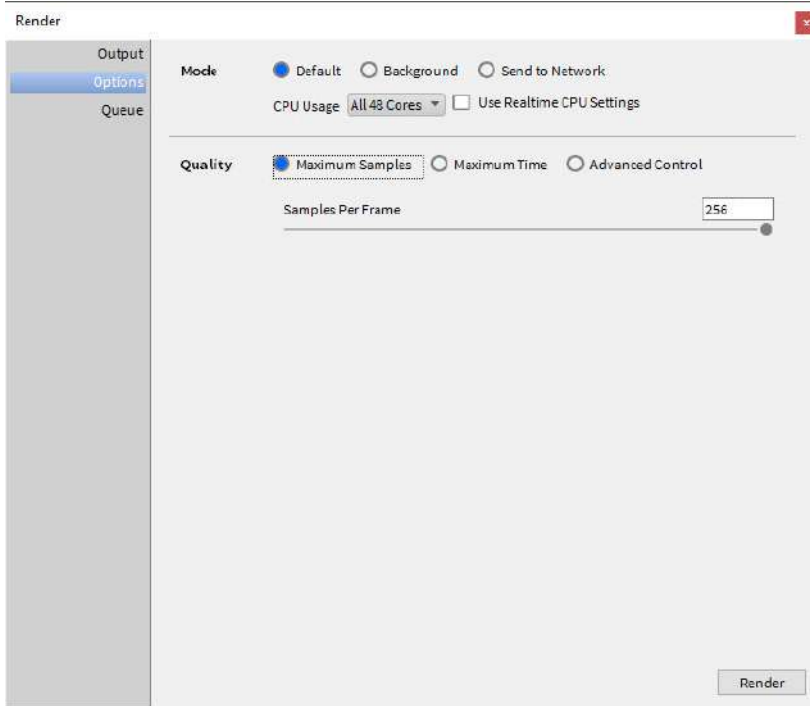
This option uses the same rendering technique as what you see in the Real-time view. This technique is also used in *Maximum Time* option, but differs from the method used in *Advanced Control* option.

## Samples

This controls how many times each of the pixels in the image being rendered will be calculated for further accuracy. Too low of a value here will result in an image that has excessive noise. However, be careful with increasing this setting too high as there will be a point where you will not perceive further benefit, but the image will take far longer to render.

## Samples Per Frame

The *Maximum Samples* option will read *Samples Per Frame* when the *Animation* tab is selected under the *Output* section. This option is ideal for animation output as it guarantees that each frame will be rendered at the same quality. Therefore, as the animation plays through the frames you will not see changes/flickering in shadows or noise patterns on materials.



#### Tip: Samples and Resolution

A sample calculates the color of a pixel. There is a point of diminishing returns where you can increase samples past the point of added quality, and are just increasing the render time.

Something important to be aware of is that as you increase the resolution of your image or animation, each pixel covers relatively less area of the image. This means that you can use a lower samples setting when rendering at higher resolutions. Note that this does not apply to rendering with area lights, caustics or interior mode as increasing samples while using those features will still increase the quality.

The image below shows two models rendered with the same samples setting. On the right rendering, the resolution was twice that of the left. Notice the reduced noise on the right model.

This method is typically preferred over the time-based output for animations, as some frames may require substantially more time to reach the same quality level as levels of detail and complexity change through the course of your animation. Using the time-based output will lead to more noise in the more complicated frames.

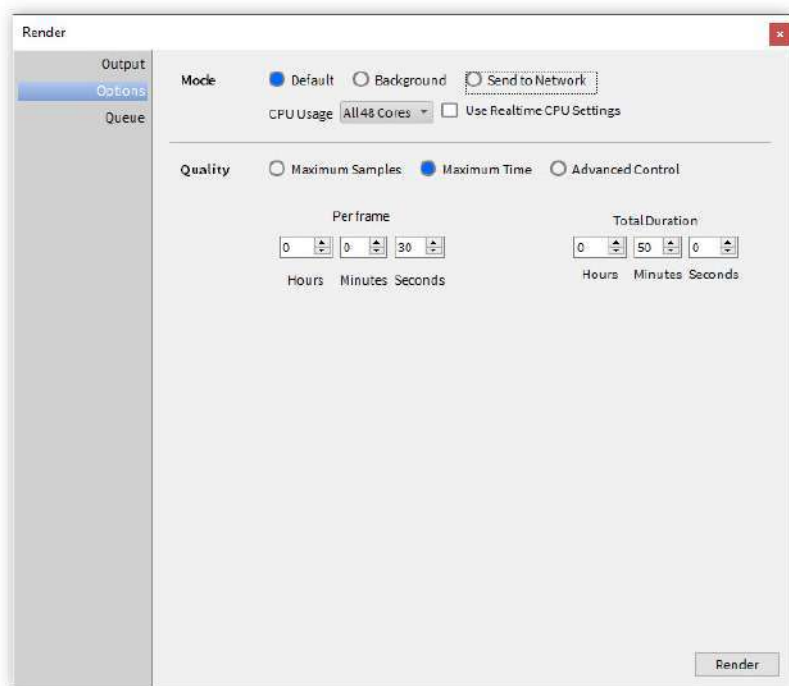


Maximum Time

The *Maximum Time* option for render quality will progressively refine the render for the amount of time set.

This option uses the same rendering technique as what you see in the Real-time Viewer. This technique is also used in Maximum Samples option, but differs from the method used in *Advanced Control* option.

When rendering an animation, you may set the maximum time for each frame to render, or set a total duration for the entire animation.



## Advanced Control

The *Advanced Control* option allows control over all quality settings available in KeyShot.

### Samples

This will control the amount of rays per pixel that will be sent into the environment to gather information to determine that pixel's final shade. It is best to control this setting per material and set a value between 8 and 16 in the render settings. For information on samples and setting samples per material, please see the section on roughness and glossy samples.

### Ray Bounces

Ray bounces are the number of times rays of light are calculated as they bounce around a scene. For a detailed explanation and examples please see the section that covers ray bounces in the Real-time settings.

### Anti Aliasing

Anti aliasing is a method for smoothing out jagged edges that are created by pixels. Since pixels are made up of squares, they can produce a jagged look where edges meet. Anti aliasing smooths out these edges. In most cases, the default value of 1 is sufficient.

### Shadow Quality

Shadow quality will control the shadow quality for ground shadows. This can be tuned in real-time to determine what value is necessary. Please see the section on shadow quality found in the real-time settings.

### Global Illumination Quality

This will control the quality of all indirect light. Increasing this value can dramatically increase render time. It is rarely necessary to set a value above the default value of 1.

If Global Illumination is turned off, this parameter will be grayed out. For more information and please see the section on detailed indirect illumination in real-time settings.

### Pixel Blur

This will apply a slight blur to the image to reduce the overly sharp look that computer generated images can have. Higher values will have more blur. This does not increase render time.

### DOF (Depth of Field)

This will control the quality of depth of field if it is enabled in the camera tab. Increasing this value will have an effect on render time. For production quality a value between 3 – 5 is recommended. If Depth of Field is not activated, this parameter will be grayed out. Please see the section on cameras for more information on depth of field.

### Caustics

Increasing this value will improve the samples and quality of the caustics. If caustics are not enabled, this parameter will be grayed out. Please see the section on caustics for more information.

### Sharp Shadows

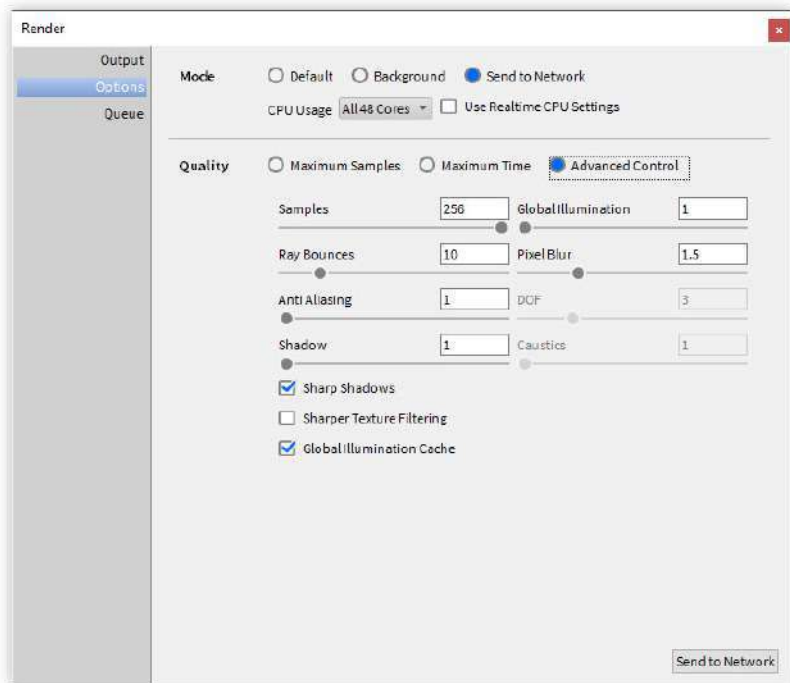
This will allow sharp shadows to be cast across 3D geometry when the lighting scenario would create a sharp shadow. It is more accurate to have this checked and it is enabled by default. It is generally recommended to leave this on.

### Sharper Texture Filtering

This will attempt to preserve detail in textures when viewed at grazing angles. For example, imagine being eye level with a wood table and seeing the wood grain compress together. Detail can get lost in the compressed areas. This setting reduces the loss of detail. This feature can increase render time so enable only when using textures with glancing angles.

### Global Illumination Cache

Disabling GI Cache replaces the potential dirty shadows and black spots with noise. Increasing GI quality will reduce the noise. Increasing the samples will also help in reducing the noise.



## Queue

The *Queue* section contains setting for the render queue used in batch processing your still image and animation renderings.

### Add/Delete Job

Use these buttons to add and remove jobs from the queue list. When a job is added, you are recording the exact state of your scene. This includes all render settings. Each job can have unique settings.

### Add Camera

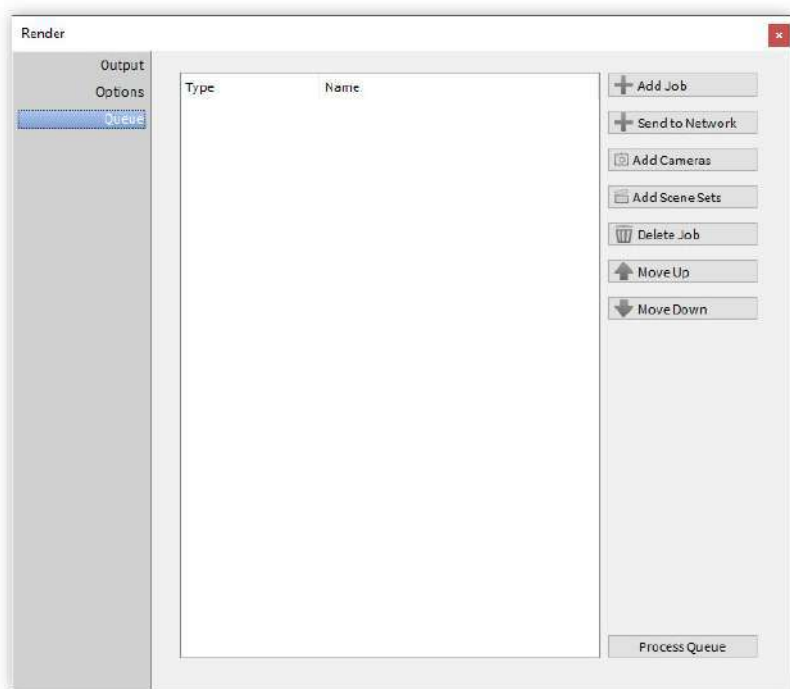
Send saved cameras and Viewsets to the Render Queue. Click on the "Add Cameras" button to open the camera queue window and check the Cameras/Viewsets you want to add to the queue.

### Move Up/Down

You can select a job in the list and click "Move Up" or "Move Down" to change the order of the list. Jobs at the top render first. You can use the check box next to the job to turn off that job. The job will then be skipped during processing of the queue. When you are ready to start the queue, click the "Process Queue" button.

### Send to Network

If you have KeyShot Network Rendering installed, the option to send to the network will become available.



## Image Editor

The Image Editor is a post-process utility that allows you to make tweaks to your render while it is rendering. Click the pencil icon to open the image editor in the render output window.

### Close Render

Click this to close the render output window. CAUTION: all unsaved adjustments made in the image editor will be lost. Be sure to save your render after making adjustments before closing the render output window.

### Save

Saves the current state of the render. Be sure to save after completing adjustments in the image editor in order to keep changes.

### Gamma

Gamma compensates the way colors are displayed for optimal color range for human vision. Lower values will increase contrast and higher values will decrease contrast.

### Brightness

Control the brightness on the rendered image.

### Saturation

On this page:

Increase or decrease the color intensity in the render.

### Hue

Shift the colors in the render. This can be a quick way to create multiple color studies from a single render.

### Bloom Intensity

Bloom will add glow around emissive materials and add an overall softening to the image. Increase the slider to create a brighter glow.

### Bloom Radius

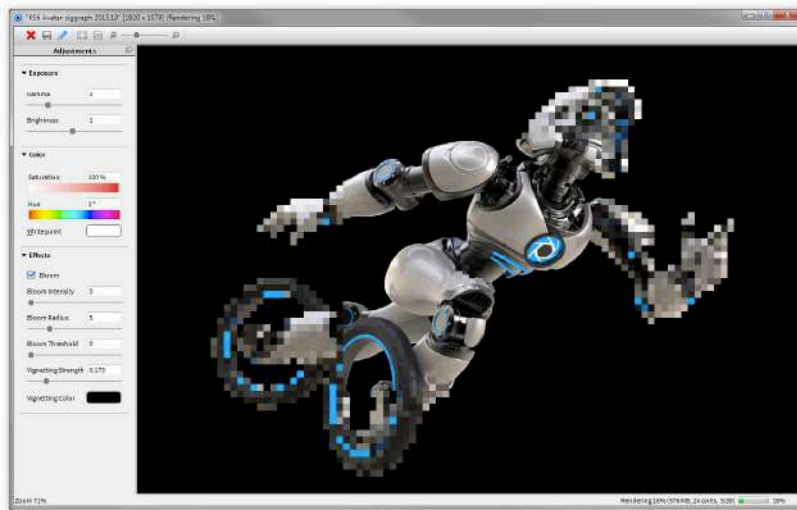
Affects how far a bloom extends from the edges.

### Vignetting Strength

Darken the corners and edges of your frame.

### Vignetting Color

Choose the color of your vignette with the color picker window.



Learn how to perform lightning fast color studies by clicking below.

## Welcome Window

The KeyShot Welcome Window will appear after you launch KeyShot. The Welcome Window will display:

- Recently opened scenes
- Latest KeyShot News
- Latest KeyShot Tips

Click on a recently open scene to open it immediately or select *Import Model* or *Open Scene* to load another model or scene.

To disable the Welcome Window on startup, uncheck *Show at Startup* in the lower left hand corner. To display the window again at startup, go to *Edit, Preferences* and in the *General* section, select *Show news window at application start up*.

## Hotkeys

### Hotkeys

Learning and using the hotkeys will speed up the process of working inside KeyShot. You can access the list of hotkeys and their functionality by pressing the "K" key on PC or Mac. A downloadable version of hotkeys for Mac and PC is available [here](#).





Open Hotkey list: **K** Windows

### Camera

Tumble	LMB Drag	Pan	MMB Drag
Dolly	<b>Alt</b> +RMB Drag	Focal Length	<b>Alt</b> + Wheel
Perspective	<b>Shift</b> <b>Alt</b> +RMB	Pick "Look At"	<b>Ctrl</b> <b>Alt</b> +RMB
Twist	<b>Ctrl</b> <b>Alt</b> +Wheel	Next Cam/viewset	<b>Shift</b> + N
Standard Views	<b>Ctrl</b> <b>Alt</b> +1-7	Toggle DOF	D

### Environment

Brightness:		Open Enviro.	<b>Ctrl</b> + E
Large Change	<b>↑</b> / <b>↓</b>	Open Backplate	<b>Ctrl</b> + B
Small Change	<b>←</b> / <b>→</b>	Rotate	<b>Ctrl</b> + LMB Drag
Show Enviro.	E	Reset Position	<b>Ctrl</b> + R
Show Backplate	B	Flatten Ground	G
Show Color	C		

### File

Discard Changes	<b>Ctrl</b> + D	New Project	<b>Ctrl</b> + N
Open Project	<b>Ctrl</b> + O	Save	<b>Ctrl</b> + S
Quit	<b>Ctrl</b> + Q	Save As	<b>Ctrl</b> <b>Alt</b> + S
Import	<b>Ctrl</b> + I		

### General

Undo	<b>Ctrl</b> + Z	Redo	<b>Ctrl</b> + Y
Screenshot	P	Render	<b>Ctrl</b> + P
Toggle Pause	<b>Shift</b> + P	Add to Queue	<b>Ctrl</b> + U

### Interface

Toggle Project	<b>Spacebar</b>	Toggle Library	M
Toggle Toolbar	T	Toggle Ribbon	R
KeyShotVR	V	Heads Up Display	H
Full Screen	F	PresentationMode	<b>Shift</b> + F
Next Scene Set	<b>Shift</b> + M	Marque Select	<b>Shift</b> + LMB Drag
Coordinate legend	Z	ShowLightSources	L
Geometry View	O	ShowOnly	<b>Alt</b> + LMB

### Materials

Edit Material	Double Click LMB	Select Material	<b>Shift</b> + LMB
Apply Selected	<b>Shift</b> + RMB	Apply Copy	<b>Shift</b> <b>Ctrl</b> +RMB

### Realtime

Performance Mode	<b>Alt</b> + P	Toggle Pause	<b>Shift</b> + P
Self Shadows	S	Global Illumination	I
Selection Outlines	<b>Alt</b> + S	Toggle NURBS	N

### Animation

Toggle Playback	<b>Shift</b> <b>Spacebar</b>	Toggle Timeline	A
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Want to Learn more?  
Go to [KeyShot.com/learning](http://KeyShot.com/learning) for tutorials, quicktips, and more!  
Or search "KeyShot" in iTunes to subscribe to our video podcasts.



Open Hotkey list: **K** Mac

### Camera

Tumble	LMB Drag	Pan	MMB Drag
Dolly	<b>Alt</b> +RMB Drag	Focal Length	<b>Alt</b> + Wheel
Perspective	<b>Shift</b> <b>Alt</b> +RMB	Pick "Look At"	<b>⌘</b> <b>Alt</b> +RMB
Twist	<b>⌘</b> <b>Alt</b> +Wheel	Next Cam/viewset	<b>Shift</b> + N
Standard Views	<b>⌘</b> <b>Alt</b> +1-7	Toggle DOF	D

### Environment

Brightness:		Open Enviro.	<b>⌘</b> + E
Large Change	<b>↑</b> / <b>↓</b>	Open Backplate	<b>⌘</b> + B
Small Change	<b>←</b> / <b>→</b>	Rotate	<b>⌘</b> + LMB Drag
Show Enviro.	E	Reset Position	<b>⌘</b> + R
Show Backplate	B	Flatten Ground	G
Show Color	C		

### File

Discard Changes	<b>⌘</b> + D	New Project	<b>⌘</b> + N
Open Project	<b>⌘</b> + O	Save	<b>⌘</b> + S
Quit	<b>⌘</b> + Q	Save As	<b>⌘</b> <b>Alt</b> + S
Import	<b>⌘</b> + I		

### General

Undo	<b>⌘</b> + Z	Redo	<b>⌘</b> + Y
Screenshot	P	Render	<b>⌘</b> + P
Toggle Pause	<b>Shift</b> + P	Add to Queue	<b>⌘</b> + U

### Interface

Toggle Project	<b>Spacebar</b>	Toggle Library	M
Toggle Toolbar	T	Toggle Ribbon	R
KeyShotVR	V	Heads Up Display	H
Full Screen	F	PresentationMode	<b>Shift</b> + F
Next Scene Set	<b>Shift</b> + M	Marque Select	<b>Shift</b> + LMB Drag
Coordinate legend	Z	ShowLightSources	L
Geometry View	O	ShowOnly	<b>Alt</b> + LMB

### Materials

Edit Material	Double Click LMB	Select Material	<b>Shift</b> + LMB
Apply Selected	<b>Shift</b> + RMB	Apply Copy	<b>Shift</b> <b>⌘</b> +RMB

### Realtime

Performance Mode	<b>Alt</b> + P	Toggle Pause	<b>Shift</b> + P
Self Shadows	S	Global Illumination	I
Selection Outlines	<b>Alt</b> + S	Toggle NURBS	N

### Animation

Toggle Playback	<b>Shift</b> <b>Spacebar</b>	Toggle Timeline	A
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Want to Learn more?  
Go to [KeyShot.com/learning](http://KeyShot.com/learning) for tutorials, quicktips, and more!  
Or search "KeyShot" in iTunes to subscribe to our video podcasts.

## Multi-touch

KeyShot supports multi-touch input for touch-enabled screens and tablets. The following gestures can be used on the touch screen when running KeyShot:

- **1 Finger** – Tumble camera
- **2 Finger Pinch** – Zoom
- **3 Finger Drag** – Pan
- **5 Finger Touch** – Reset camera



- **Tap and Hold** – Access right mouse button menu
- **Single Finger Drag and Drop** – Access Library assets

## Working With Data

### Overview

This section goes over importing and working with 3D data. With KeyShot, you can use import all major 3D file formats, plus KeyShot has many free plugins for 3D modeling software. On import, KeyShot will automatically recognize your model's up orientation and match it. Other import options allow you to quickly adjust the location and import quality.

KeyShot allows you to control the model units, show/hide parts, group, duplicate parts/assemblies and create patterns of your imported data. We'll start with bringing your model in, then go over navigation and manipulating the models in your scene.

#### On this page:

- [Overview](#)

## Supported File Formats

KeyShot supports the following 3D file formats on both Mac and PC.

- ALIAS 2016 and prior (needs to be installed)
- AutoCAD (DWG/DXF)
- CATIA v5/6
- Cinema 4D R17 (.c4d) and prior
- Creo3 and prior
- Inventor 2016 and prior
- Maya 2016 and prior (needs to be licensed)
- NX 10 and prior
- Pro/ENGINEER Wildfire 2-5
- Rhinoceros 5 and prior
- SketchUp 2016 and prior
- Solid Edge ST8 and prior
- SolidWorks 2016 and prior
- IGES
- JT
- STEP AP203/214
- OBJ
- Parasolid
- FBX including part and camera animation
- 3DXML
- 3DS
- Collada
- Alembic

## KeyShot Plugins

KeyShot offers free plugins to make your workflow from CAD to KeyShot as seamless and effortless as possible. By installing a plugin for your chosen CAD package, you can export your active geometry from within the CAD application directly into KeyShot. To download a plugin and to find the most up to date information of the plugins we offer, please visit the [KeyShot Plugins page](#).

#### On this page:

- [LiveLinking](#)
- [KeyShot Plugins](#)
- [Third-Party Plugins](#)

### LiveLinking

Plugins developed by Luxion (and some third-party plugins) include Luxion's LiveLinking technology. LiveLinking connects your modeling application with KeyShot, and allows you to update the model inside KeyShot without losing any material assignments, animations, lighting, and camera settings.

### KeyShot Plugins

- 3DS Max 2014-2017
- Cinema 4D 17 and prior
- Creo 3.0 and prior
- Fusion 360
- Maya 2014-2016
- NX 10 and prior
- Pro/ENGINEER Wildfire 4-5
- Rhinoceros 5 and prior
- SketchUp 2016 and prior
- SolidWorks 2016 and prior

*Note: All KeyShot plugins include LiveLinking*

## Third-Party Plugins

- Geomagic Control
- Geomagic Design
- Geomagic Design X
- Geomagic Freeform
- Geomagic Freeform Plus
- Geomagic Sculpt
- Geomagic Studio
- Geomagic Wrap
- IronCAD
- JewelCAD
- Siemens Solid Edge\*
- SolidThinking Evolve
- SpaceClaim
- Pixologic ZBrush 4.7\*
- ZWSOFT ZW3D

*\*Include LiveLinking*

## KeyShot Import

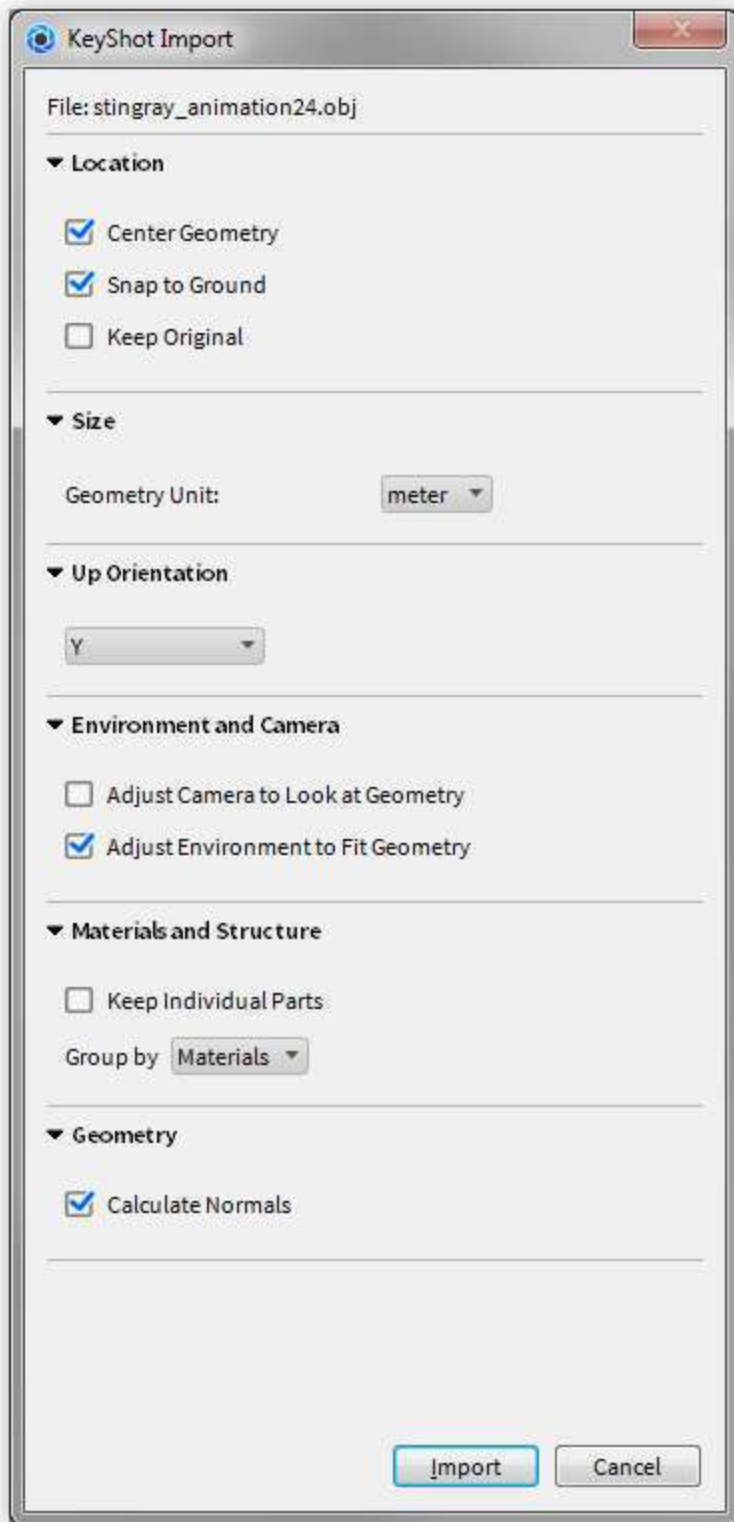
Supported file types can be imported into the KeyShot interface by pressing *Import* on the Toolbar.

Files can also be imported by dragging and dropping them into the Real-time View, or by selecting *File, Import...* from the main menu. When a file is designated for import, the *KeyShot Import* window will be displayed on the screen.

### KeyShot Import

#### On this page:

- KeyShot Import
  - Location
  - Size
  - Up Orientation
  - Environment and Camera
  - Materials and Structure
  - Geometry
- Importing a Second Model
- Importing a KeyShot BIP File
  - KeyShot BIP Import
  - Environment and Camera



The KeyShot Import dialogue will appear after a file is selected for import. The following options are available.

#### Location

---

##### **Center Geometry**

When checked, "Center Geometry" will import the model and place it in the very

center of the environment. Any original 3D coordinates for the model are removed when center geometry is selected. If this option is not selected, the model will be placed in the same position in 3D space where it was originally created.

#### **Snap to Ground**

When checked, "Snap to Ground" will import the model and position it directly on the ground plane. This will also remove any original 3d coordinate information.

#### **Keep Original**

When Checked, "Keep Original" will import the model and retain the location of the model in relation to the original origin point.

### **Size**

---

#### **Geometry Unit**

Use this dropdown menu to choose the correct units the geometry was modeled in. Available only for .obj, .wire, and .stl file formats.

### **Up Orientation**

---

Not all modeling applications define the up-axis in the same manner. Depending on your application, you may need to set a different orientation other than the default "Y Up" setting. Although KeyShot will recognize the up orientation of the 3D modeling software, your model may have been built in a different orientation. If your model comes in on its side, try setting a different orientation.

### **Environment and Camera**

---

#### **Adjust Camera to Look at Geometry**

When checked, the camera will center to fit the imported geometry in the scene upon import.

#### **Adjust Environment to Fit Geometry**

When checked, the environment will size to fit the imported geometry in the scene upon import.

### **Materials and Structure**

---

#### **Group by**

Use this dropdown box to group the Scene Tree by Object (name) or Material (type).

#### **Separate Materials by Part**

This option will split up materials and organize them by the

#### **Retain Materials**

This option ensures that all materials/colors are brought over from the 3D modeling software.

### **Geometry**

---

#### **Tessellation Quality**

Use this slider or input box to input the tessellation quality of the geometry. Lower values will import faster and higher values will import slower.

#### **Accurate Tessellation**

This option will optimize tessellation for accuracy.

#### **Import NURBS Data (Pro)**

This option will bring in NURBS geometry that ensures no faceting on the model for completely smooth curves.

### Cached Geometry

This option ensure cached geometry is also imported.

## Importing a Second Model

The import dialogue parameters change slightly when a model is already loaded in a scene and another model is selected for import or dragged and dropped onto the Real-time View. You will see three available options:

### Add to Scene

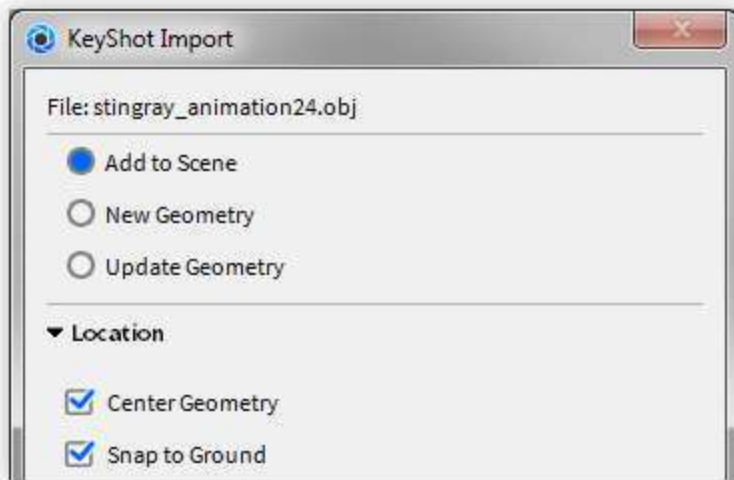
When checked, this will add your model to the existing scene.

### New Geometry

When checked, this will replace the geometry with the new imported geometry.

### Update Geometry

With this checked, the newly added geometry will update the existing geometry, if part names match, replacing the old geometry.



## Importing a KeyShot BIP File

A KeyShot BIP file may also be imported. In addition to the options above, you will see new keyshot BIP options.

### KeyShot BIP Import

#### Open File

Select this if you want to open the scene in its original scene.

#### Import File

Select this option if you want to import the scene into the currently open scene.

### Environment and Camera

#### Import Cameras

Since a BIP file is a KeyShot scene, you also have the option to import any saved cameras within the scene. Select this option if you want to import cameras in the KeyShot BIP.

## Model Units

The scale of models, the distance between models, the intensity of local lights, and the mapping scale of textured materials are all relative to the unit of measure: millimeters, centimeters, meters, inches, feet, etc. In KeyShot, these units of measure are introduced as the model units of the scene. Model units are listed under the scene information window.

### Changing the Scene Units

To change the model units, go to *Edit, Set Scene Units* and make your selection. Note that changing the scene units will NOT re-size the models in the scene. Instead, changing the model units via the "Edit" menu affects the scale of the environment and ground plane and in turn affects the physical lights and the mapping scale of certain textured materials.



#### On this page:

- [Changing the Scene Units](#)

## Navigating Your Scene

The following explains how to use your mouse to change the view of your camera. It's important to realize that the mouse is moving the camera and not the model, unlike a 3D modeling application. In other words, when you use Left Mouse Button (LMB) to rotate, the camera is rotating around the model. To change the position of the models, see [Moving Models and Parts](#).

### Mouse Controls

The mouse is the main method for controlling the position and orientation of the camera. With it, you can rotate, pan and change distance

#### Camera Tumble (Rotate)

To tumble your camera, press and hold LMB while moving the mouse. This changes both the azimuth and inclination of the camera.

#### Camera Pan

To pan your camera press and hold the MMB while moving the mouse. This changes the position of the camera.

#### Camera Dolly (Distance)

To dolly your camera, roll the scroll wheel forward to increase distance or back to decrease distance.

#### On this page:

- [Mouse Controls](#)
- [Keyboard Controls](#)
- [Multi-touch Controls](#)

## Keyboard Controls

KeyShot also provides additional ways to navigate your scene and control your camera using the keyboard.

### Camera Dolly (Distance)

To dolly your camera, press Alt + RMB (Windows/Mac) while moving the mouse. This changes the distance of your camera.

### Camera Perspective

To change camera perspective, press Shift, Alt + RMB (Windows/Mac). This will adjust perspective and field of view.

### Camera Twist

To twist the camera, press Ctrl, Alt + Wheel (Windows) or , Alt + Wheel (Mac).

### Standard Views

To cycle through the standard view (front, back, left, right, top, bottom, isometric) select Ctrl, Alt + 1-7 (Windows) or , Alt + 1-7 (Mac)

### Focal Length

To change Focal Length press Alt + Wheel (Windows/Mac).

### Select "Look At" Point

To quickly center the camera on an area, select Ctrl, Alt + RMB (Windows) or , Alt + RMB (Mac).

### Next Camera/Viewset

To toggle through cameras and viewsets, press Shift + N.

### Toggle DOF

To toggle Depth of Field (DOF) press D.

All KeyShot hotkeys can be seen [here](#).

## Multi-touch Controls

Basic touch controls allow you to orient the camera on touch-enabled devices.

- **1 Finger** – Tumble camera
- **2 Finger Pinch** – Zoom
- **3 Finger Drag** – Pan
- **5 Finger Touch** – Reset camera

Learn more about multi-touch input [here](#).

## Hiding And Showing Parts

In some cases, materials may need to be assigned to parts that are enclosed in or hidden behind other pieces of geometry.

### Hiding Parts

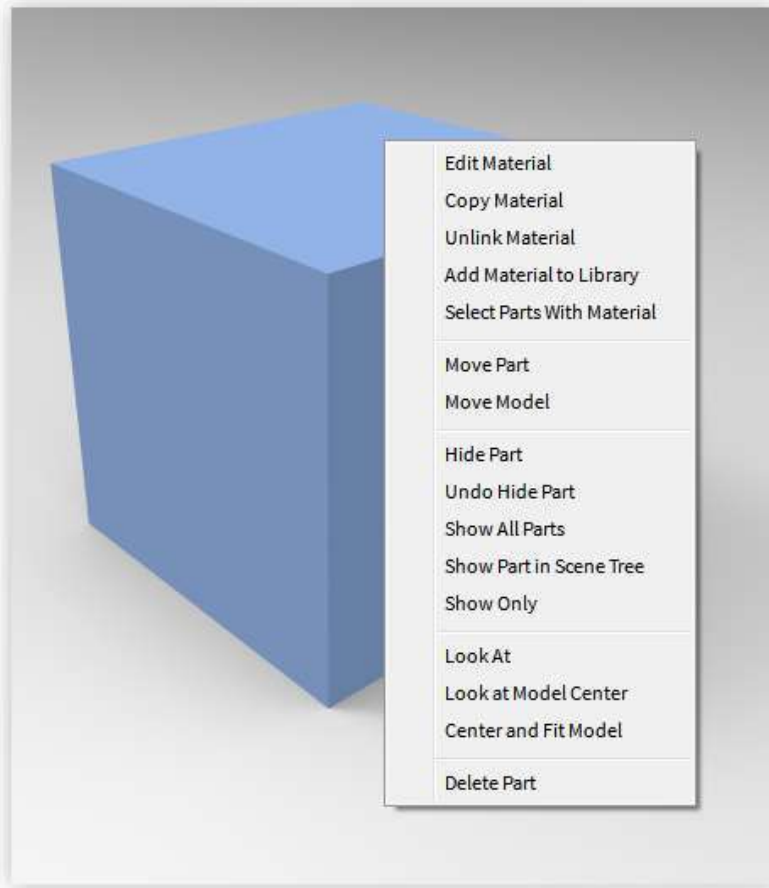
To hide parts, right click on the part and select *Hide Part*. A single part of a model can be shown when you right click on a part and select *Show Only This Part*. Parts can also be hidden through the Scene Tree.

### Showing Parts

To display a hidden part, right click in the interface and select *Undo Hide Part*. To bring back all previously hidden parts select *Show All Parts*. Parts can also be shown through the Scene Tree.

#### On this page:

- [Hiding Parts](#)
- [Showing Parts](#)

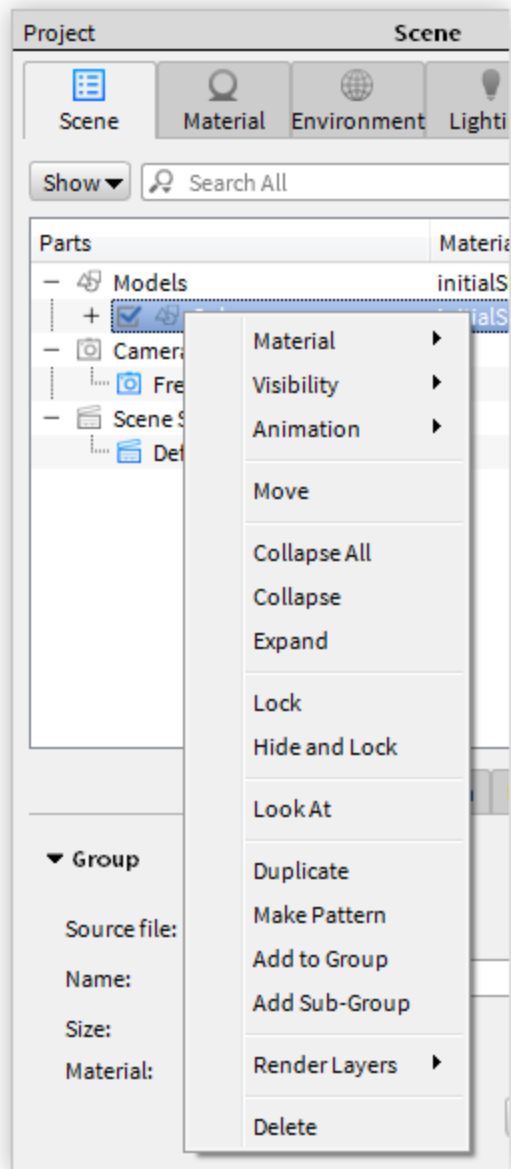


## Regrouping Parts

Regrouping gives you the ability to organize the scene tree. Adding a group is done by right-clicking on the top level and selecting *Add to Group* or *Add Sub-Group*. Parts and sub-assemblies can be dragged and dropped into new groups in the Scene Tree.

**Important:** Reordering parts and sub-assemblies will disable LiveLinking and Update Geometry.

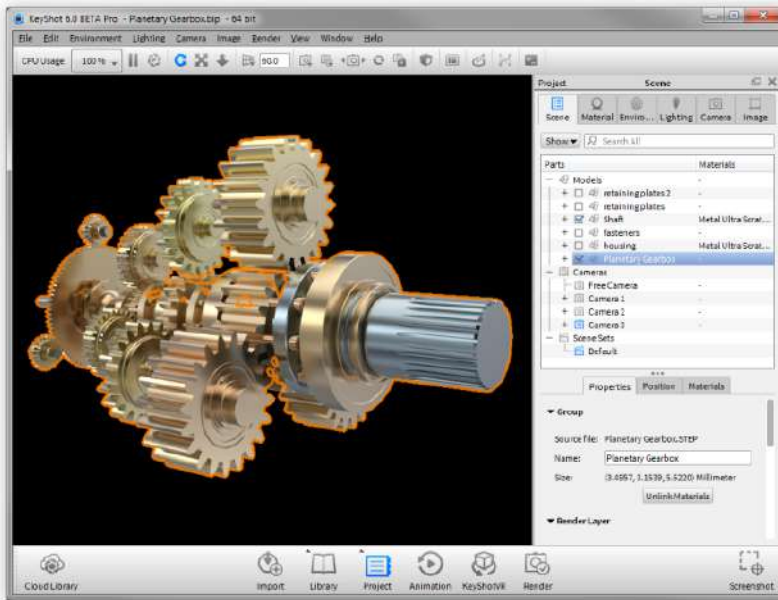




## Scene Tree

The scene tree displays models and their hierarchies along with any cameras that exist in a scene. Animations are also represented in the scene tree in versions of the software that include the animation add-on. Models and parts can be hidden and shown using the check box next to the name. The check box displayed next to animations can be used to disable and re-enable animations that are applied.

Collapsing the scene tree hierarchy can be very useful if your model has a lot of parts. This can be achieved by right-clicking the section you would like to collapse and select "Collapse." The full hierarchy can be collapsed when you select "Collapse All."

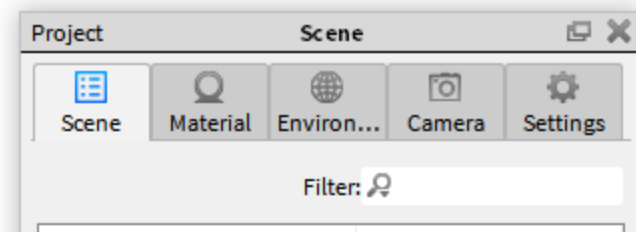


## Multi-Selection

Multi-select multiple objects in the Real-time View using box-selection. Hold down Shift + LMB and drag the mouse cursor across the parts to select them. Objects will only be highlighted when the *Project* window, *Scene* tab is open. *Object Highlight* is enabled in *Preferences* by default.



Multi-selecting parts can also be achieved by holding Shift and selecting the items in the *Scene* tab.



Parts	Materials
- Models	
- DEWALT	-
- Part1.2	Mold-Tech-14052
- Part1.1	Mold-Tech-14052
- Part1.3	Mold-Tech-14052
- Part1.4	Mold-Tech-10783 #1
- Part1.5	Mold-Tech-14052
- Part1.6	Mold-Tech-10783 #2
- Part1.6	Mold-Tech-10783 #2
- Part1.6	Mold-Tech-10783 #2
- Part1.7	mold test 2 unblur #2
- Part1.8	mold test 2 unblur #2
- Part1.9	mold test 2 unblur #2
- Part1.10	Mold-Tech-10783 #1
+ Part1.11	Mold-Tech-10783 #1
- Part1.12	Aluminum polished #1
- Part1.13	Aluminum polished #1
- Part1.14	Aluminum polished #1
- Part1.15	Mold-Tech-10783 #3
- Part1.16	Mold-Tech-10783 #1
- Product1	Aluminum polished #1
- ISO 7047 SC...	Aluminum polished #1
- ISO 7047 SC...	Aluminum polished #1
- ISO 7047 SC...	Aluminum polished #1
- ISO 7047 SC...	Aluminum polished #1
- ISO 7047 SC...	Aluminum polished #1
- ISO 7047 SC...	Aluminum polished #1
+ Cameras	
+ Scene Sets	

Properties    Position    **Materials**

**Objects**

Name:

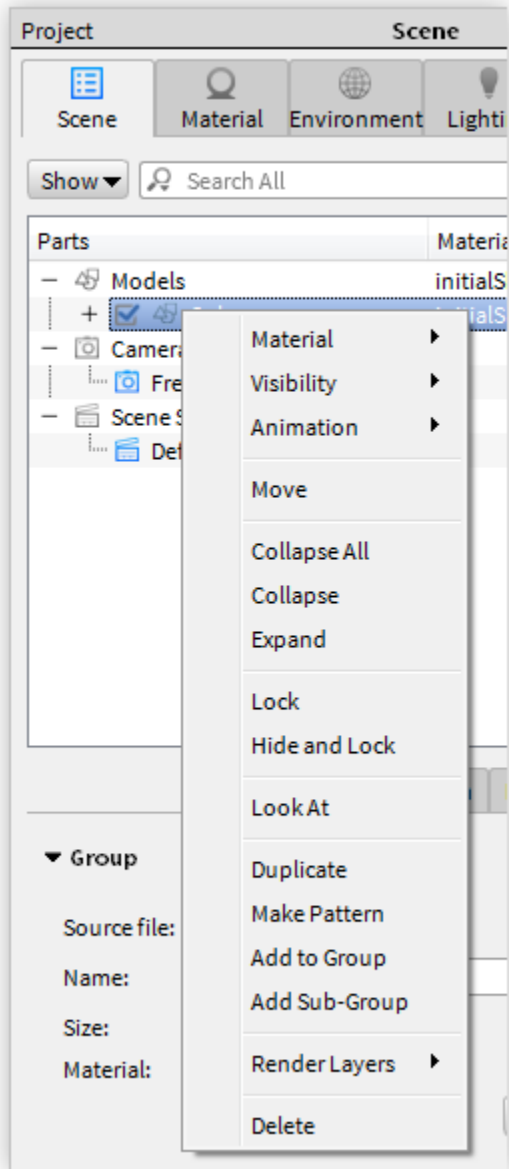
**Render Layer**

None

## Duplicating Models

Models and parts can be duplicated by right clicking on them in the scene tree and selecting 'Duplicate'. This action duplicates the model along with any assigned materials and animations.

On this page:



## Pattern Tool

Right click a model on the scene tree, and select *Make Pattern* to open the *Pattern Tool* dialog. The *Pattern Tool* allows you to create instances of models instead of duplicates, which increases speed and decreases file size.

On this page:

- [Pattern Tool Settings](#)



## Pattern Tool Settings

### **Linear/Circular**

Create patterns in a linear or circular formation.

### **Instances (Linear)**

This allows you to set how many instances are created along the X, Y, and Z axes.

### **Count (Circular)**

This allows you to set how many instances are arrayed around an axis.

### **Spacing (Linear)**

This allows you to set the spacing of the instances for X, Y, and Z.

### **Radius (Circular)**

This allows you to set the distance from the instances to center or pattern axis.

### **Fill Angle (Circular)**

The angle at which to array the instances. 360 is a full circle.

### **Rotate Objects**

Instances can be rotated along the Y of each local access to dynamically position them in the scene. Use this field to choose how far instances will be rotated along the Y axis.

### **Scattering**

Use this to randomly place patterned objects. useful for scenes where a

more random distribution of objects is desired.

#### Displacement

This controls the amount of deviation occurs from the original pattern matrix.

#### Y Rotation

This changes the amount an object is randomly rotated by in the Y axis.

#### Center

Centers the pattern to the scene.

#### Resize Environment

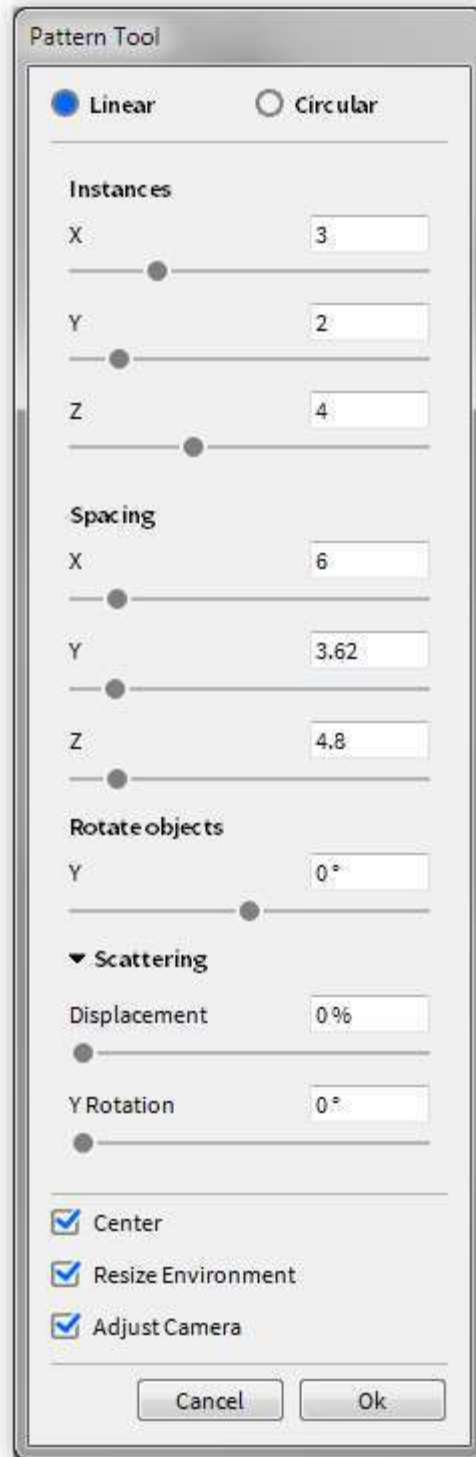
Automatically increase the environment size to accommodate all instances.

#### Adjust Camera

Enable this to have the camera automatically shift to include all instance within the field of view.

#### Editing Patterns

In the scene tree, right click on patterned object and select "edit pattern" to open the Pattern window to make changes.



## Moving Models and Parts

Models and parts can be moved by right-clicking on the model or part and selecting *Move Object*. This will display the move widget. Highlight the different handles, then click and drag to translate, rotate, and scale in the X, Y, and Z directions. Click on the check boxes that enable/disable the Translate, Rotate, and Scale options.

#### Snap to Pivot

The *Snap to Pivot* option allows you to set a pivot point for rotation; simply click *Pick t*

o launch the Pivot Selection dialog.

Once you have chosen a pivot, you can use Snap to Pivot to align the object to the pivot point selected.

Choose an axis from which to reference your transformations. "Local" uses the axis inherent in the part or model, while "Global" uses the XYZ coordinates from the KeyShot scene.

Select the desired part then select *Done* to update the position of the Move widget.

### Snap to Lower Object

The *Snap to Lower Object* option will automatically move the bottom edge of the object's bounding box to the top edge of the bounding box of the part located below.

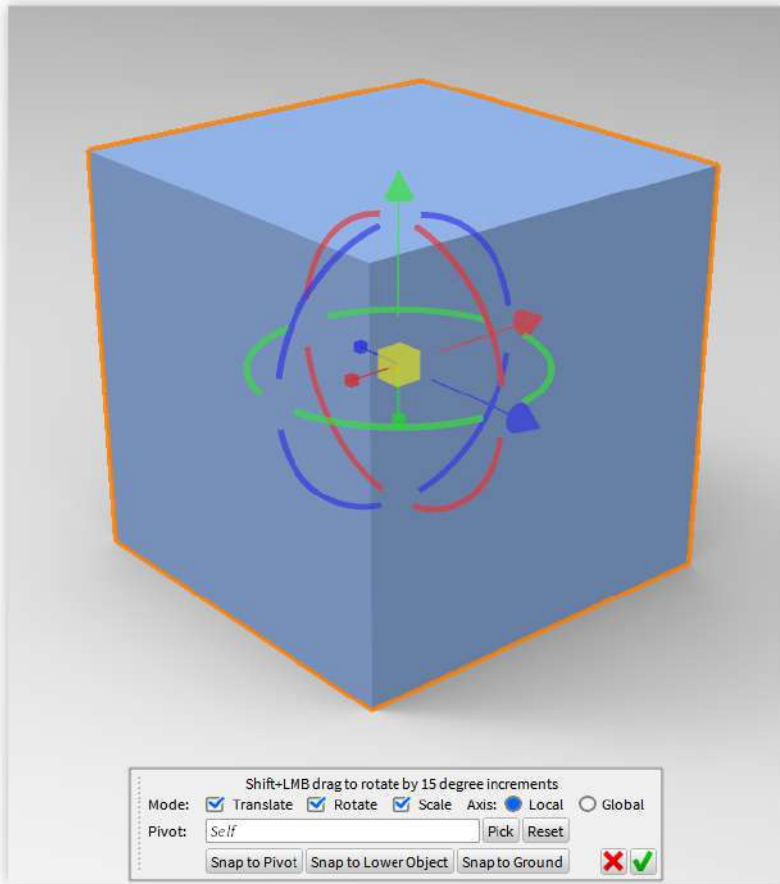
### Snap to Ground

The *Snap to Ground* quickly moves the model in the Y-direction (up-down) to snap the lowest point on the model tangent to the ground plane. This is useful when the model has been moved and is no longer touching the ground plane.

### Snap Increments

To snap in 15 degree increments, hold *Shift* as you drag a rotate handle.

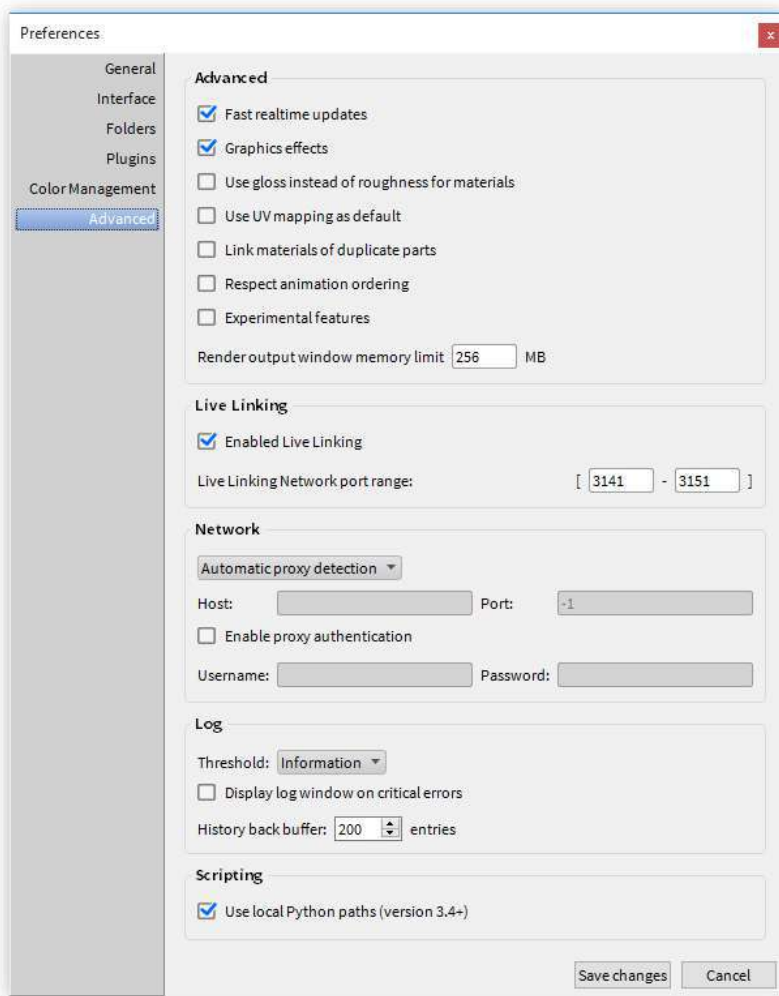
To save your transforms, click the *green check*. To undo all transformations, click the *red X* and the model will revert to the state before starting the move tool.



## LiveLinking

Luxion's LiveLinking technology allows seamless model updates between the 3D software and KeyShot, without having to reassign materials or update settings. You will need to download a compatible LiveLinking plugin from the [KeyShot website](#).

Enable LiveLinking by going to *Preferences, Advanced* and selecting *Enable LiveLinking*.



## Working with Materials

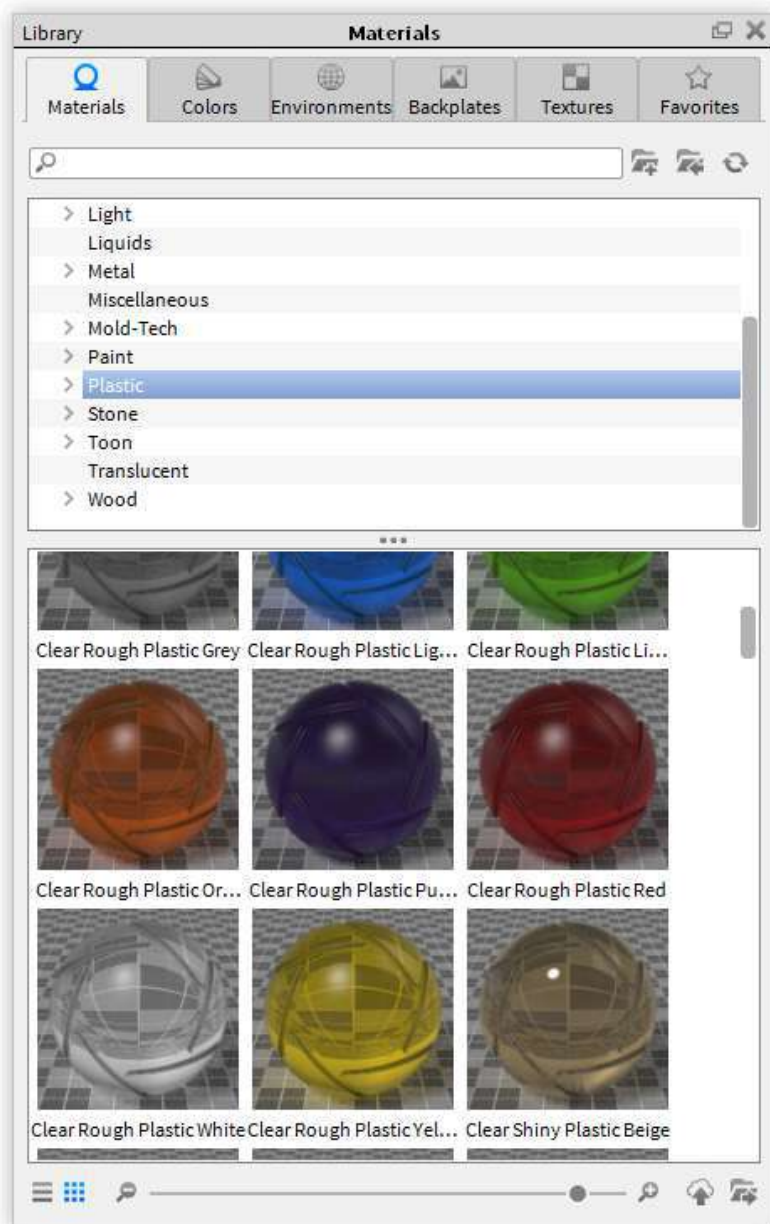
This section describes working with materials in a KeyShot scene.

### Accessing the Library

Access the Library by clicking the “Library” button in the main toolbar or hot key ‘M’. That will pull up the library window shown. From there, any material, color, environment, backplate and texture available in the KeyShot resources folders will be loaded. This is also where your favorites are stored under the “Favorites” tab.

**On this page:**





## Assigning Materials

To assign materials to models, drag and drop them from the library onto a part in the realtime window. This will show a preview of what parts that material will be assigned to. The material will not be assigned until the user lets go of the left mouse button.

Once the material has been loaded from the library, a copy will be placed into the "In-Project Library." Any additional materials assigned to the model will also be added to the "In-Project Library." If the same material already exists in the "In-Project Library", a copy will be created and a number will be appended to that material.

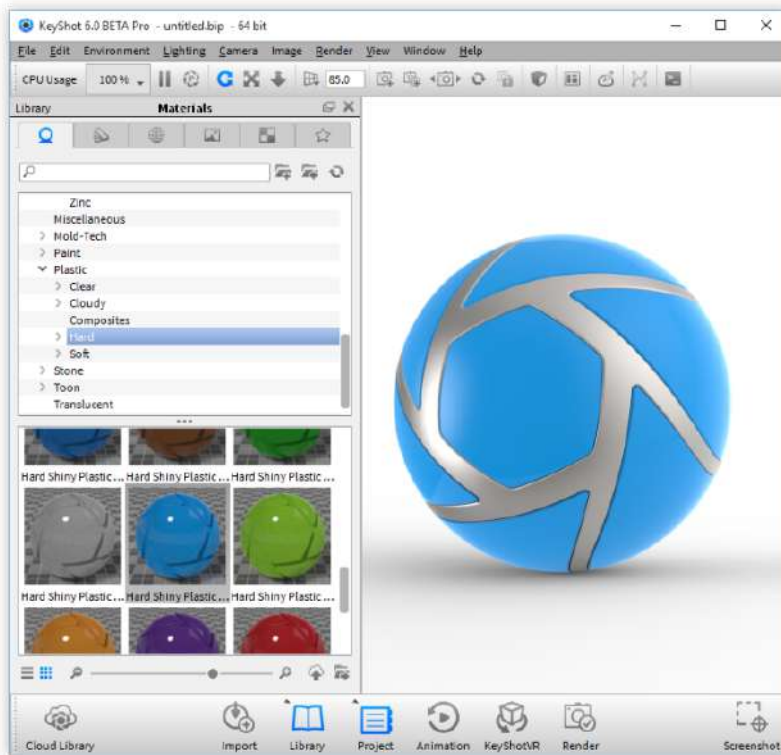
In some cases a user may want to have one material assigned to multiple parts to be able to make changes to that material, and to have the changes affect all parts. To do this, assign the same material from the "In-Project Library" to those multiple parts. Since it is the same material from the "In-Project Library", any edits made to that material will affect all parts that it is assigned to. Another method of accomplishing this is to copy and paste the material from one part to another.

### On this page:

- [Retaining Textures and Labels](#)

## Retaining Textures and Labels

If you are dragging a material onto a part that has an existing texture or label, you can retain them and apply them to the new material by holding "ALT" for textures, or "CTRL" for labels.

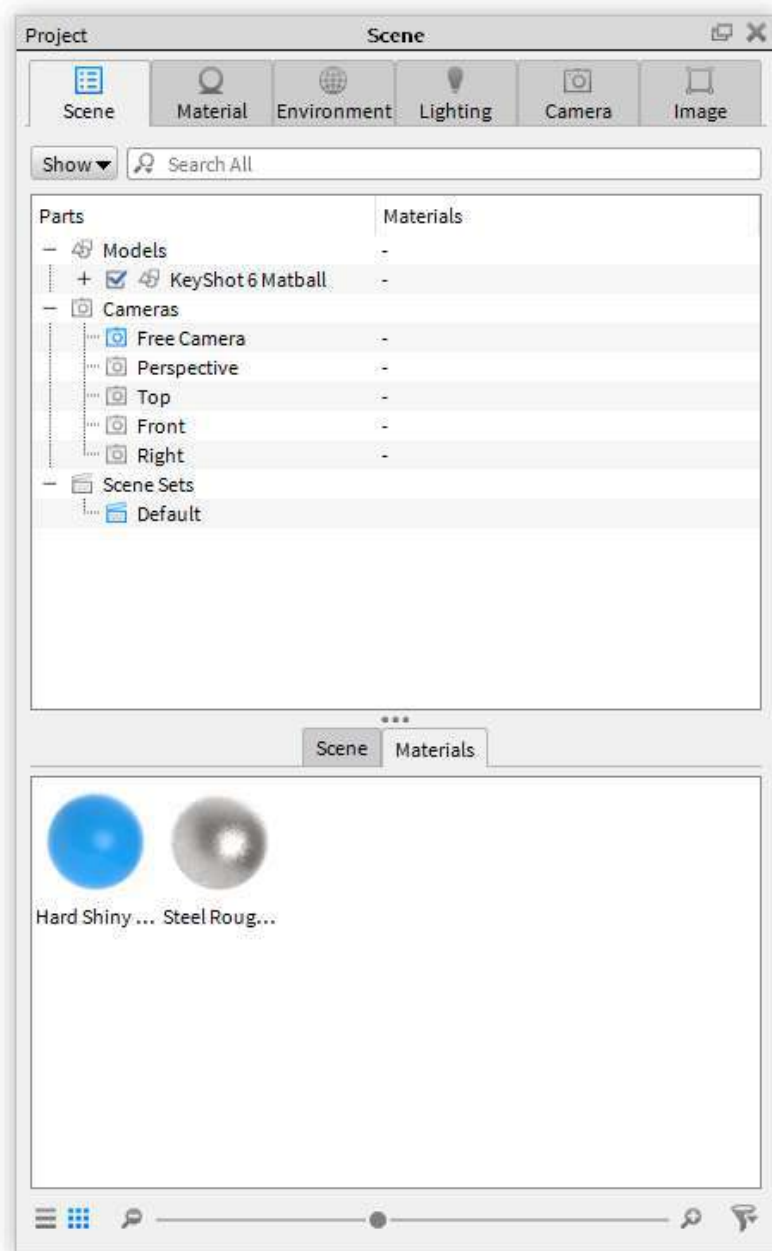


## In-Project Library

The "In-Project Library" is found in the lower half of the scene tab under materials. When a material is pulled from the material library and assigned to a model, a copy of that material is placed in the "In-Project Library." All materials will be represented in the form of material ball thumbnails or in a list view.

This window will show all materials that are active within a scene. If a material is no longer being used in the scene, it will be automatically removed from the "In-Project Library." For example, if a material is assigned to only one part and a new material is assigned to that part, the previous material will be removed from the "In-Project Library" since it is no longer used in the scene.

On this page:



## Copying Materials

There are two methods of copying and pasting materials. The most important concept to understand when copying and pasting is that when a material is copied from one part to another, any future edits to that material will affect both parts.

The first method is to press “Shift + Left Click” on a material assigned to a model. That will copy the material. Next, to paste the material, press “Shift + Right Click” on another part. That will copy the same material from the “In-Project Library” and paste it to another part. Now, any edits made to that material will affect both parts.

The second method is to drag and drop a material from the “In-Project Library” onto a part that does not already have that material assigned.

**Shift + Left Click** – Copy Material

**Shift + Right Click** – Paste Material

On this page:

## Editing Material

There are multiple methods of navigating to the material properties to make changes, but all editing is done through the materials tab found in the project window.

The first method of accessing the material properties is to double click a part on a model in the real-time view. That will pull up the material properties for the material assigned to that part.

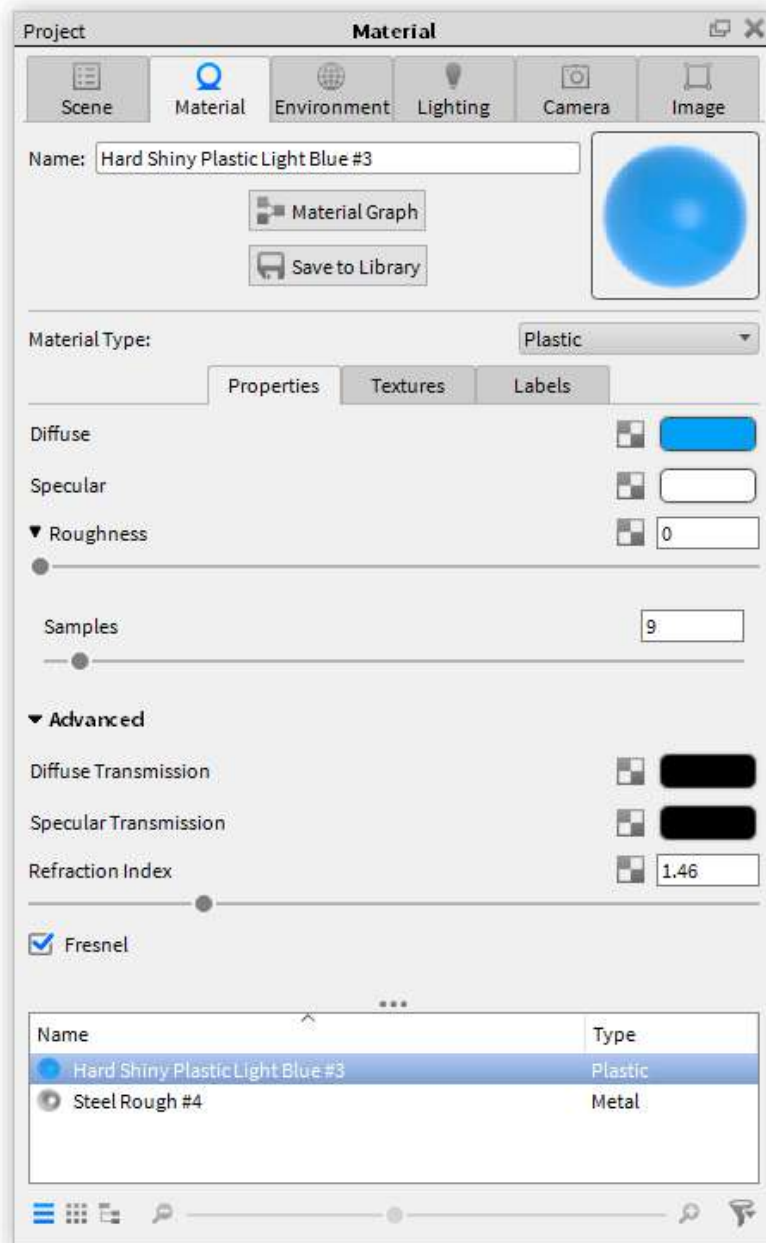
The second method of accessing material properties is to double click the material thumbnail in the "In-Project Library."

The third method of accessing material properties is to right click a part in the scene tree and select "Edit Material."

The fourth method of accessing material properties is to select the part in the scene tree, and then in the second pane select "Edit Material."

All material edits made will update interactively in the real-time view. For more detailed information on material settings and types please see the Material Types.

On this page:



## Saving Materials

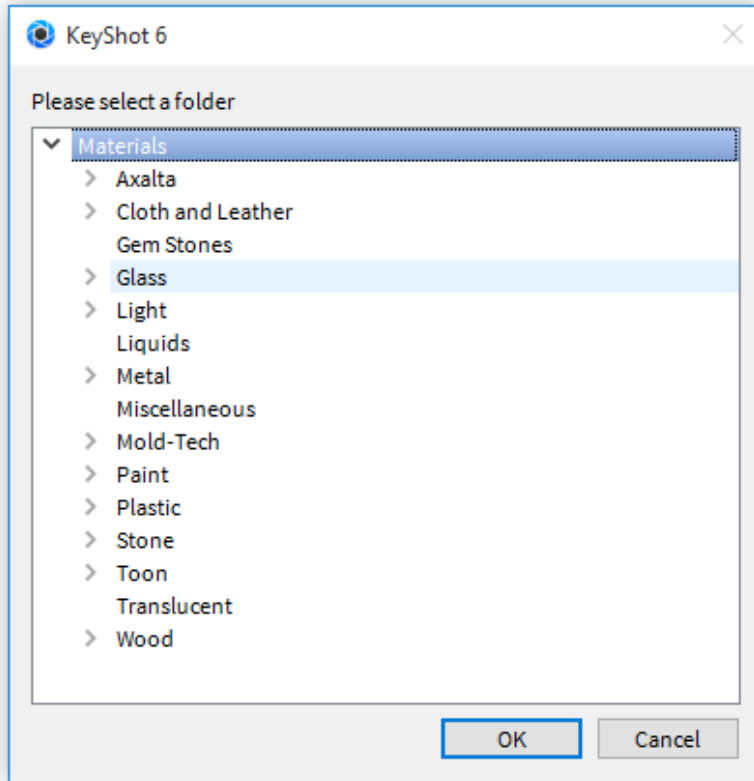
There are two methods of saving materials.

The first method of saving is to right click a material on the model and select “Add Material to Library.”

The second method of saving is to click the “Save to Library” in the material properties.

Once you have gone through either step, a dialogue will prompt you to designate a destination folder in the library. After the folder location has been selected, the new material will be saved to the library.

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## Color Library

The KeyShot Color Library lets you drag and drop predefined colors onto any part or object inside the realtime window.

PANTONE® and RAL® color libraries are included for use.

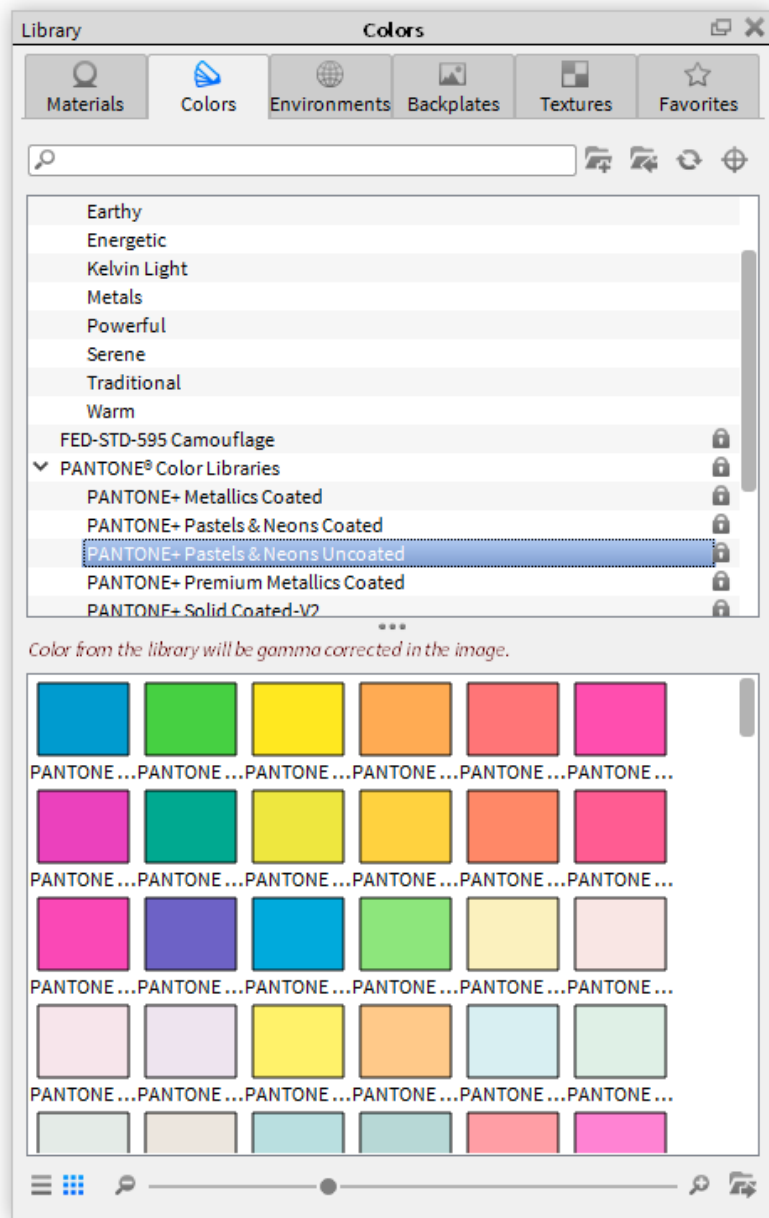
Searching for colors can be done by clicking in the search box in the top right and typing the name of the color. This allows you to search the entire selected folder for the specific color.

Searching can also be achieved by selecting the crosshair in the top right area of the dialog. This will open a window with a color picker that allows you to select the color you are looking for.

Color libraries can also be imported from a CSV file by using the import button and browsing to the file.

You can create colors manually within KeyShot by right-clicking inside the color library and selecting “Add Color.”

On this page:



## Color Picker

The color picker can be accessed anytime a color box is clicked as well as through the eyedropper tool in the color library. The color picker gives you the ability to test and view your colors visually, or by numerically entering in specific values. The color picker supports rectangular and triangular color map representations.

The color picker supports the following color formats:

- RGB
- CMYK
- HSV
- Grayscale
- CIE-L\*a\*b
- Kelvin

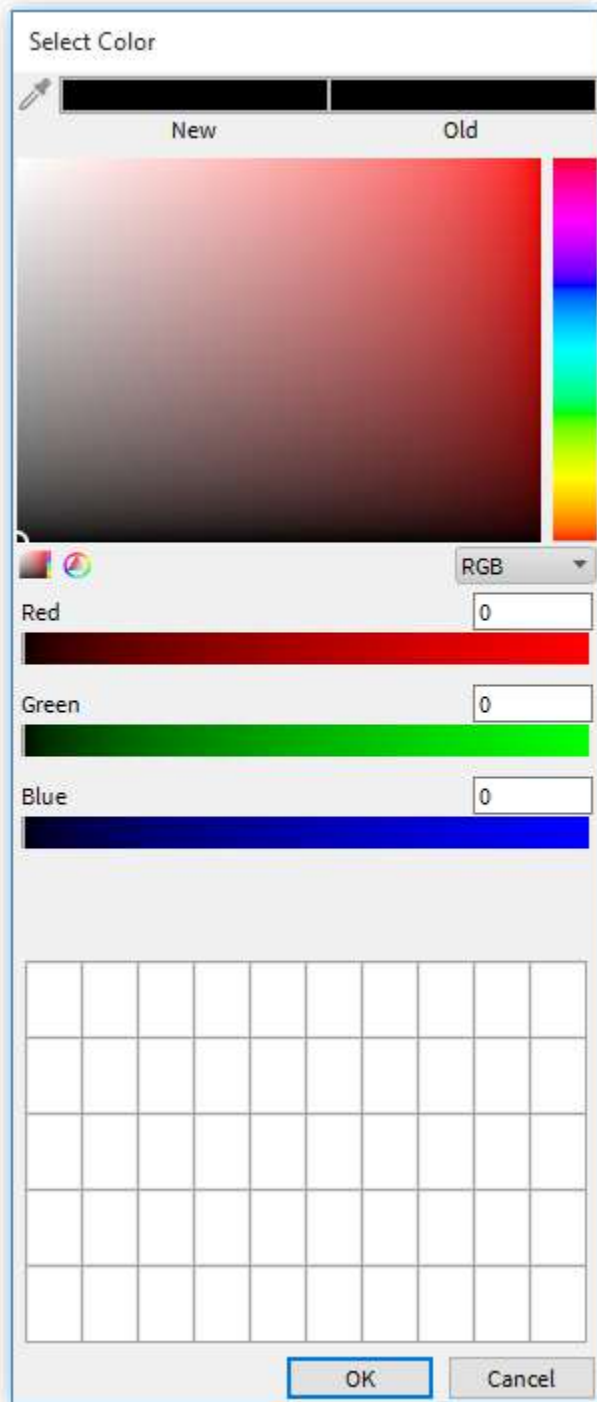
Swatch colors (both new and old) can be dragged and dropped from the top color bars, to the bottom squares. This will set the color in the square. Swatches can be overwritten by simply dragging and dropping new colors onto existing ones.

The eye dropper button gives you the ability to select any color on your display, and

On this page:

the color picker will update with the selected color from the eye dropper.

To save colors to your library, click the save icon. This will prompt you to pick a folder where you would like to save your chosen color.



## Materials

The material presets you see in the KeyShot library are created using one of KeyShot's *Material Types*. Each material type has been designed to be easy to use with as few parameters as possible. For example, the *Metal* material type will only display the parameters needed to create metals, and the *Plastic* material type will

have only the parameters necessary to create plastics. The following sections will cover all of the Material Types and their parameters.

The first four sections cover some common parameters that are found throughout several Material Types. Since KeyShot is designed for the user to be able to create realistic visuals with little to no experience, an understanding of these concepts is not necessary, but can help you gain a deeper understanding of how rendering and material creation work.



## General Parameters

There are four general parameters to understand about KeyShot Materials.

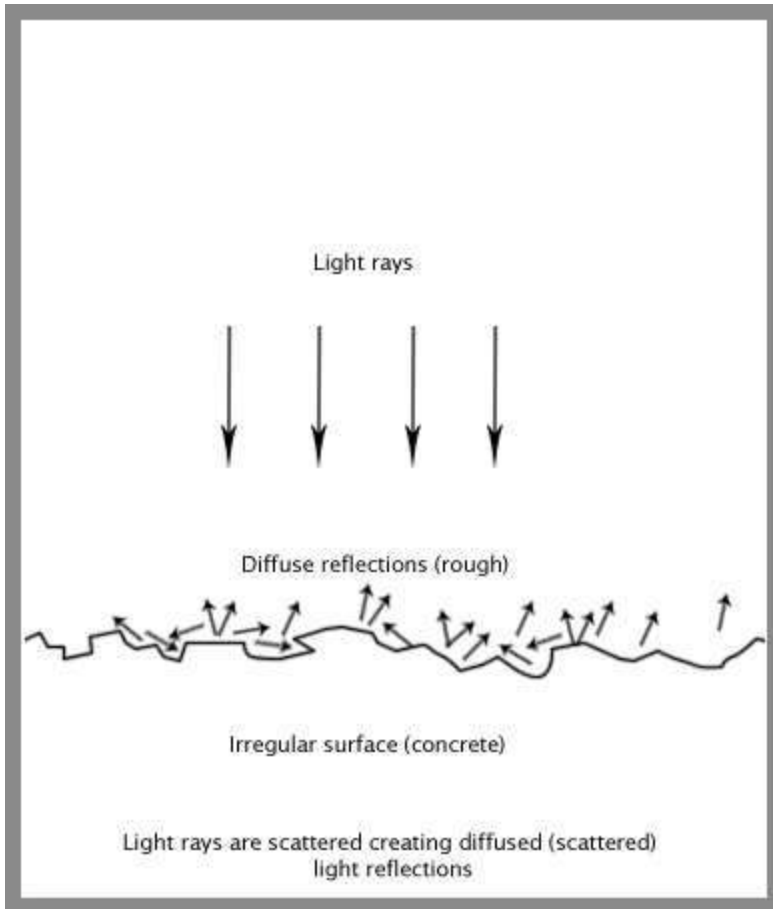
- Diffuse Parameter
- Specular Parameter
- Refraction Index
- Roughness Parameter

### Diffuse Parameter

The *Diffuse* parameter will be found throughout many of the material types. The most basic way to think of diffuse when working in KeyShot is a material's overall color. However, there is a more technical explanation of what this is that can help when creating materials "scattered" or "spread out." Diffuse in the rendering world refers to how light reflects off of materials. Depending on the surface of a material, light rays will behave differently when they hit the surface. If a surface has few or no imperfections, like a polished surface, light rays will bounce straight off. This will produce a shiny or reflective surface. If the surface has many imperfections, like concrete, light rays will be scattered across the surface creating a matte look. This is why concrete is not reflective or shiny.

The diffuse slider on many materials will control the color of the diffuse rays (left diagram) on a material.

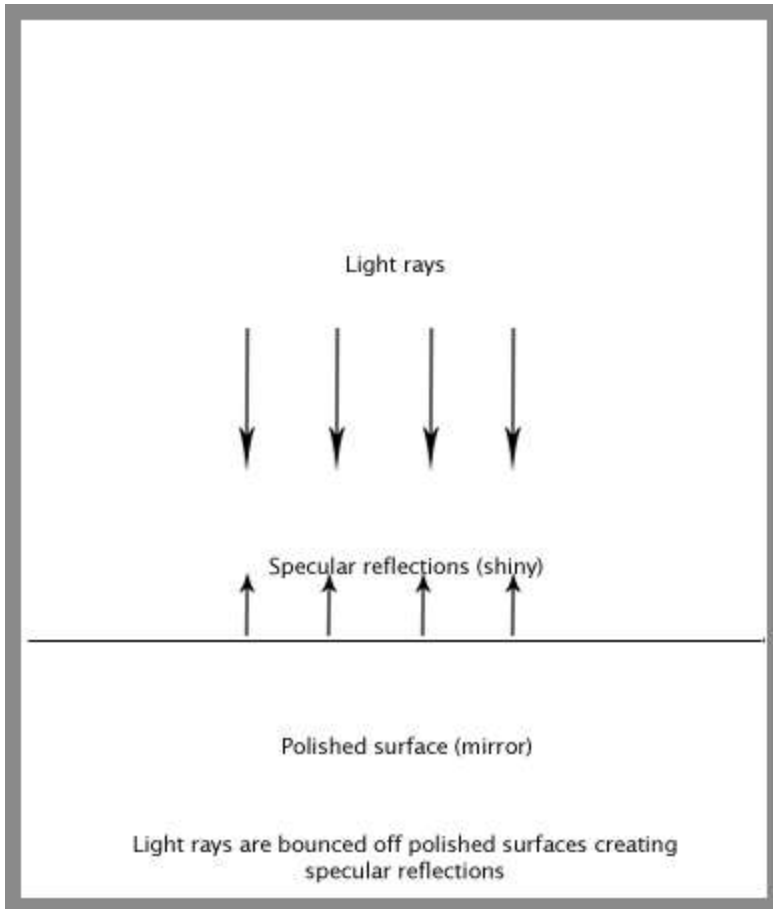




## Specular Parameter

The *Specular* parameter is another parameter that will be found with many material types. Specular reflections are reflections that are bounced off a material surface without scattering. Materials appear reflective or shiny when a surface is polished and has few to no imperfections. When the specular color is set to black, a material will have no specular reflections and will not appear reflective or shiny. Specular color set to white will give 100% reflectivity for that material. Metals do not have diffuse color so any color will be derived entirely from the specular color. The specular color of plastics should be set to a grayscale value.

The specular parameter will control the color and intensity of the specular light reflections on a material.

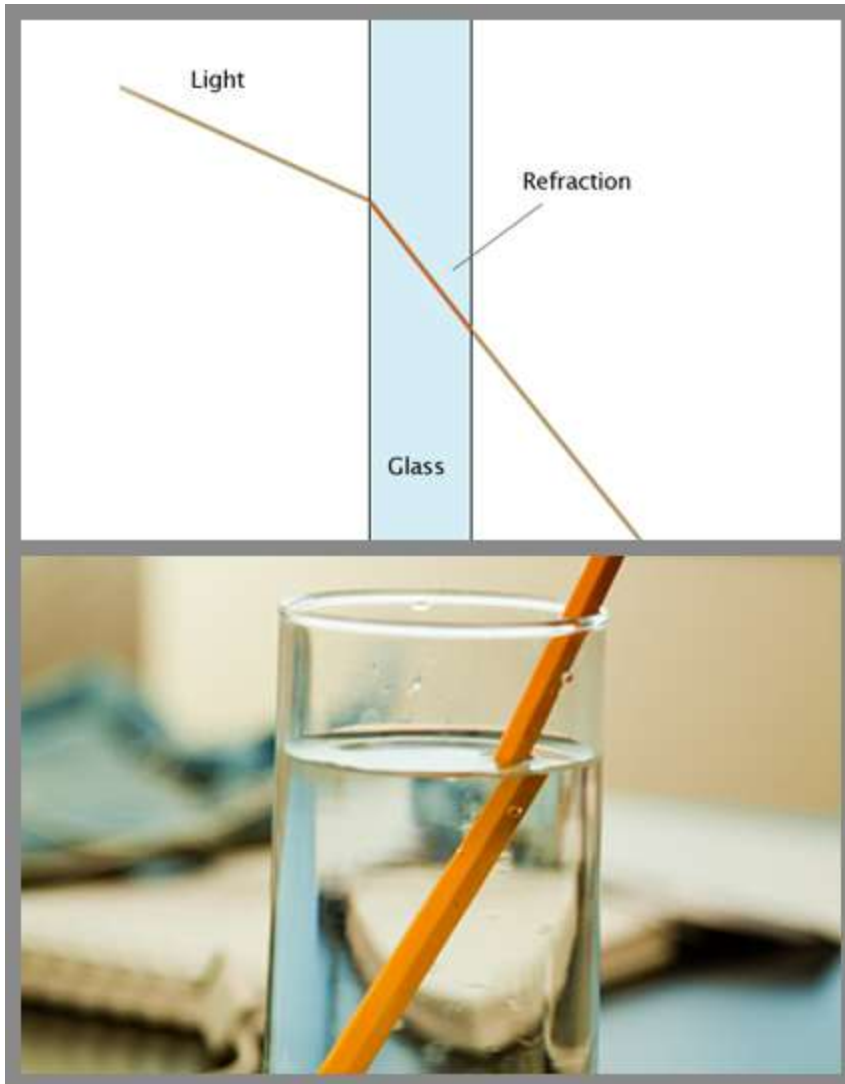


## Refraction Index

*Refraction Index* is another material parameter that will be found with multiple KeyShot material types. The term might not be familiar, but refraction is something that is seen every day. A good example is when a person sticks their hand in a pool. The light is bent, or "refracted" and the arm looks broken.

Refraction occurs because light travels through different media at different speeds. This reduction in speed is referred to as a material's refraction index and is represented by a number. For example, water has an index of refraction of 1.33, glass has an index of refraction of 1.5 and diamonds have an index of refraction of 2.4. This means that light travels through water 1.33 times slower than it does through a vacuum. Light travels through glass 1.5 times slower, through diamonds 2.4 times slower and so on. The slower light travels, the more it is bent and distorted.

Refraction indices for different materials can be easily found online. Once the value is found, it can be entered into the refraction index property of a material, and it will be accurately represented in KeyShot.



## Roughness Parameter

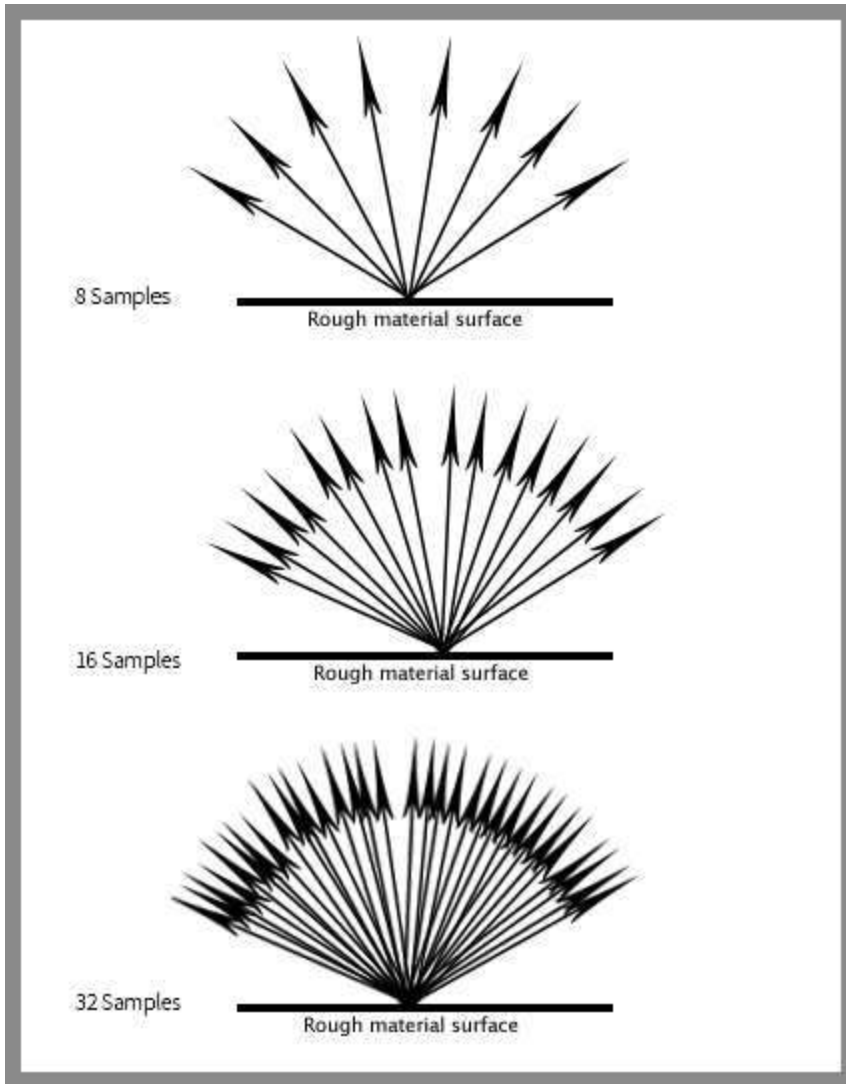
The *Roughness* parameter is another setting that will be found on multiple material types in KeyShot. This is a slider that will add microscopic levels of imperfections to surfaces to create rough materials. The diagram that explains the *Diffuse parameter* can also help explain why materials appear rough. When roughness is added, light rays are scattered across the surface which causes specular reflections to break up. Due to the additional light scattering, rough materials are more challenging and take more processing power to render than perfectly reflective surfaces.

### Samples

Since glossy materials with some roughness are more complex to render, KeyShot has a setting built in that can improve the accuracy of these rough materials. This setting is called *Samples*. This allows you to set how many rays are emitted from a pixel in a rendered image. Each ray collects information from its surrounding environment and returns this information back to the pixel to determine the final appearance. You will see the *Samples* slider when you click the expand arrow next to the *Roughness* slider.

#### On this page:

- [Samples](#)
- [Roughness Texture](#)



## Roughness Texture

If the Roughness parameter has a checkered box



next to it, this means a texture can be applied to control the glossy appearance of the surface. When a texture is applied, dark areas of the texture will have a glossy appearance and white areas of the texture will have a matte appearance. Read more on the difference between Roughness Textures and Bump Maps [here](#).

## Material Types

Material Types bring the power to quickly apply real world, physically accurate material properties to your parts. Each Material Type comes preset with settings to quickly apply or change material with the option to adjust each setting as desired. There are five categories of KeyShot Material Types:

Basic	Advanced	Light Sources	Special	Other
<ul style="list-style-type: none"> <li>• Diffuse</li> <li>• Flat</li> <li>• Glass</li> <li>• Glass (Solid)</li> <li>• Liquid</li> <li>• Metal</li> <li>• Paint</li> <li>• Plastic</li> <li>• Thin Film</li> <li>• Translucent</li> </ul>	<ul style="list-style-type: none"> <li>• Advanced</li> <li>• Anisotropic</li> <li>• Dielectric</li> <li>• Gem</li> <li>• Metallic Paint</li> <li>• Plastic (Transparent)</li> <li>• Translucent (Advanced)</li> <li>• Velvet</li> </ul>	<ul style="list-style-type: none"> <li>• Area Light Diffuse</li> <li>• Point Light Diffuse</li> <li>• Point Light IES Profile</li> </ul>	<ul style="list-style-type: none"> <li>• Emissive</li> <li>• Ground</li> <li>• Toon</li> <li>• Wireframe</li> <li>• Xray</li> </ul>	<ul style="list-style-type: none"> <li>• Axalta Paint</li> </ul>

## Diffuse

The Diffuse material has only one parameter, the diffuse color. The Diffuse material is useful for easily creating any kind of matte or non-reflective material. Since it is an entirely diffuse material, specular maps are not available.

### Diffuse

This parameter will control the color of the diffuse material.

## Flat

The Flat material is a very simple material type that produces an unshaded, perfectly even color over the entire part to which it is applied. This material is often used as a black-out material behind car grills or other meshes. It is also useful for creating a “Clown Pass” image, which has uniquely colored flat materials applied to the different parts of a model so that these solid colors can be used to easily create selections in an image editing software.

### Color

Click the color thumbnail to launch the color picker, which allows you to select the color of the material. The flat material has no shading or other surface properties. It will show the solid color you have selected over the entire part that the material is applied to.

## Glass

This is a simplified material type for creating glass materials.

Compared to the solid glass material, you will notice this material type lacks the roughness and color density settings. However, it adds the two sided option which is very useful when you have a part that is just a single surface (no thickness) and you want to make it reflective and transparent, but not refractive. This is a commonly used for car windshields.

### Color

This sets the overall color of the glass material. Click the color thumbnail to open the color picker then select your desired color.

### Refractive Index

This controls how much light will bend or “refract” as it passes through parts that have this type of material. The default of 1.5 is accurate for simulating most types of glass, but you can increase the value to create a more dramatic refraction within the surface.

### Two-Sided

This can enable or disable the refractive property of the material. When enabled, the material will appear refractive. When it is disabled, the material will not be refractive. You will see reflections on the surface and the surface will be transparent, but light will not bend as it passes through the surface. Disabling this option is very useful when you want to see things that lay behind a surface without the distorted effect that results from refraction.

## **Glass (Solid)**

The *Glass (Solid)* material type provides a physically accurate glass material. Unlike the simpler glass material type, you will find that solid glass simulates the effect color in the glass accurately as it takes into account the thickness of your model.

### **Color**

This controls the overall color of this material type. When light enters the surface, it will take on the color set here. The amount of color that you see in this material is highly dependent on the transparency setting as well. If you have set a color, but it looks too faint, skip down to the transparency section.

### **Color Density**

This setting controls how much of the color set in the transmission property you will see depending on the thickness of the part to which the material is applied. This physically accurate parameter simulates the effect you can observe by looking at the color of the shallow water at a beach versus the deep blue of a deep ocean. Without color density, you would see through to the bottom of the deepest ocean as easily as to the bottom of a swimming pool.

After setting a color in the transmission setting, use the color density setting to make that color more or less saturated and prominent. A lower setting will show the color more in thin areas of the model, and a high setting will make the color faint in the thin areas.

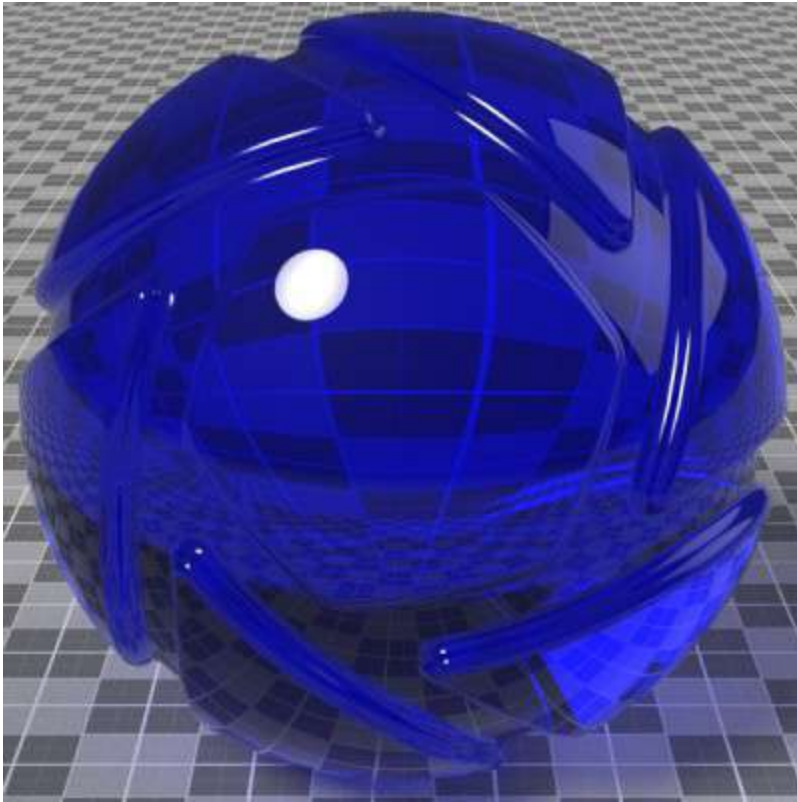
### **Refraction Index**

This controls how much light will bend or “refract” as it passes through parts on your model that have this type of material. The default of 1.5 is accurate for simulating most types of glass, but you can increase the value to create a more dramatic refraction within the surface.

### **Roughness**

Roughness on this type of material will spread out highlights on the surface similar to what you see on other, non-transparent, materials. However, it also spreads out the light that is transmitted through the material. This is used to create a frosted glass look.

Expand this parameter and you will see a samples setting. This can be set to a low value to produce a more imperfect/noisy result or to a higher value to smooth out the noise/grain for a smoother frosted look.

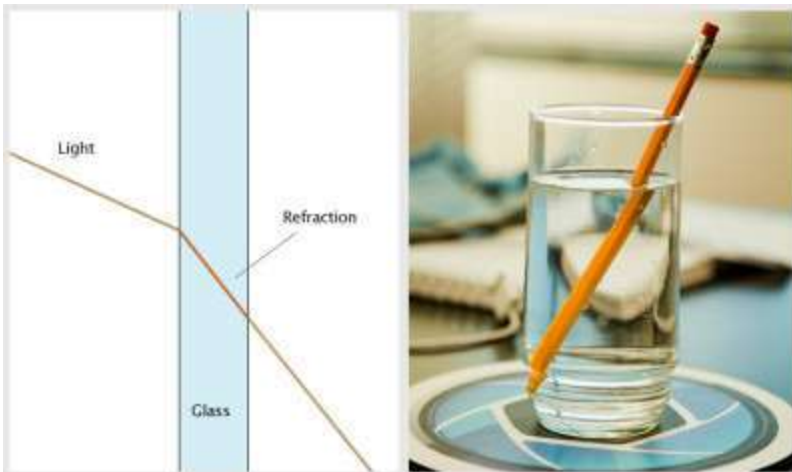


Color

Color Density

Refraction Index

▶ Roughness





## Liquid

The *Liquid* material type is a variant of the solid glass material that has the added ability to set the outside refractive index. This allows you to accurately create surfaces that represent the interface between, for example, a glass container and water.

### Color

This controls the overall color of this material type. When light enters the surface, it will take on the color set here. The amount of color that you see in this material is highly dependent on the transparency setting as well.

### Refractive Index

This controls how much light will bend or “refract” as it passes through parts that have this type of material.

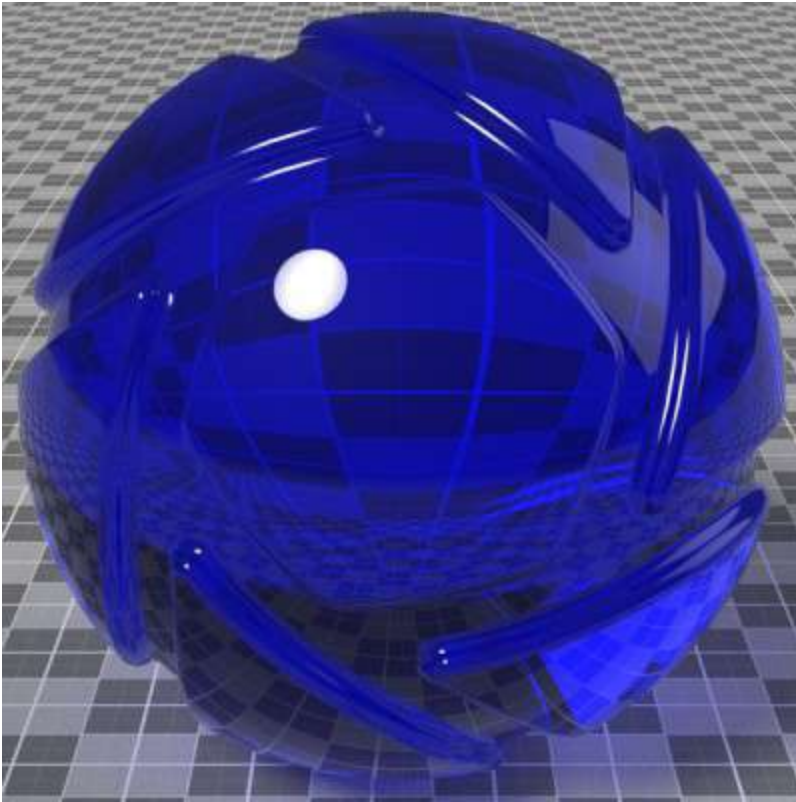
### Transparency

This setting controls how much of the color set in the transmission property you will see, depending on the thickness of the part to which the material is applied. After setting a color in the transmission setting, use the transparency setting to make that color more or less saturated and prominent. A low setting will show the color more in thin areas of the model, and a high setting will make the color faint in the thin areas.

### Refractive Index Outside

This is an advanced but powerful, setting that allows you to accurately simulate the interface between two different refracting materials. The most common use for this is when you are working on a container with liquid inside, like a water glass. In such a scene you will need a single surface to represent where the glass and water meet. On this surface, you have the liquid on the “inside” and therefore, you should set the refractive index to 1.33. On the “outside,” you have the glass, and you should set the refractive index outside to 1.5.





Color

Refraction Index

Transparency

▼ **Advanced**

Refraction Index Outside

Transmission Out



## **Metal**

The *Metal* material type is a simple way to create polished or rough looking metal materials. It has very simple settings, which are limited to color and roughness.

### **Color**

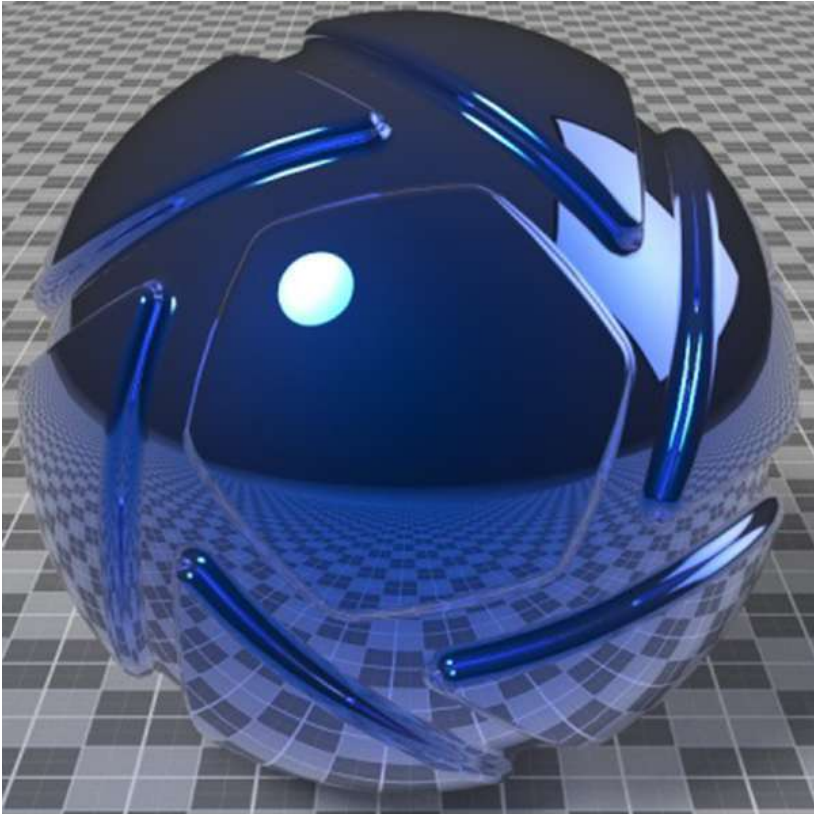
This controls the color of reflected light on the metal surface.

### **Roughness**

This adds microscopic levels of imperfections to the surface of the material when the values are increased. When this is set to 0, a material will appear perfectly smooth and polished. When the value is increased, the material will appear more rough as light is diffused across the surface.

### **Samples**

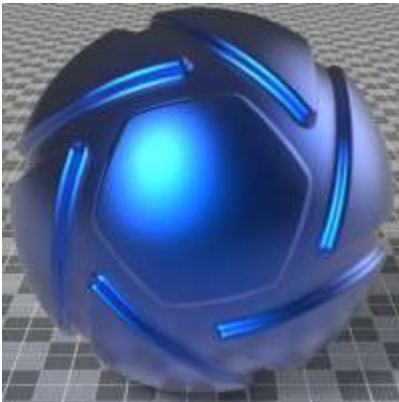
A low samples setting (8 or lower) will tend to make the surface look more noisy, which will give a more imperfect and rough look. As you increase the value, the noise will even out more and provide a more evenly distributed roughness.

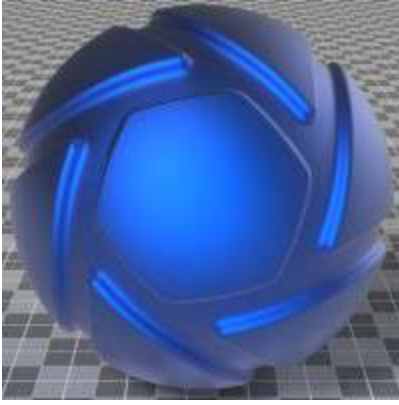


Color



▶ Roughness





## Paint

The *Paint* material is used when a metallic effect is not desired, but rather when a simple gloss paint is called for. It provides a quick way to set a base color, and then control the clear coat on top.

### Color

Color is your base layer of paint and the overall color of the material. Click the color thumbnail to open the color picker, then select your desired color.

### Roughness

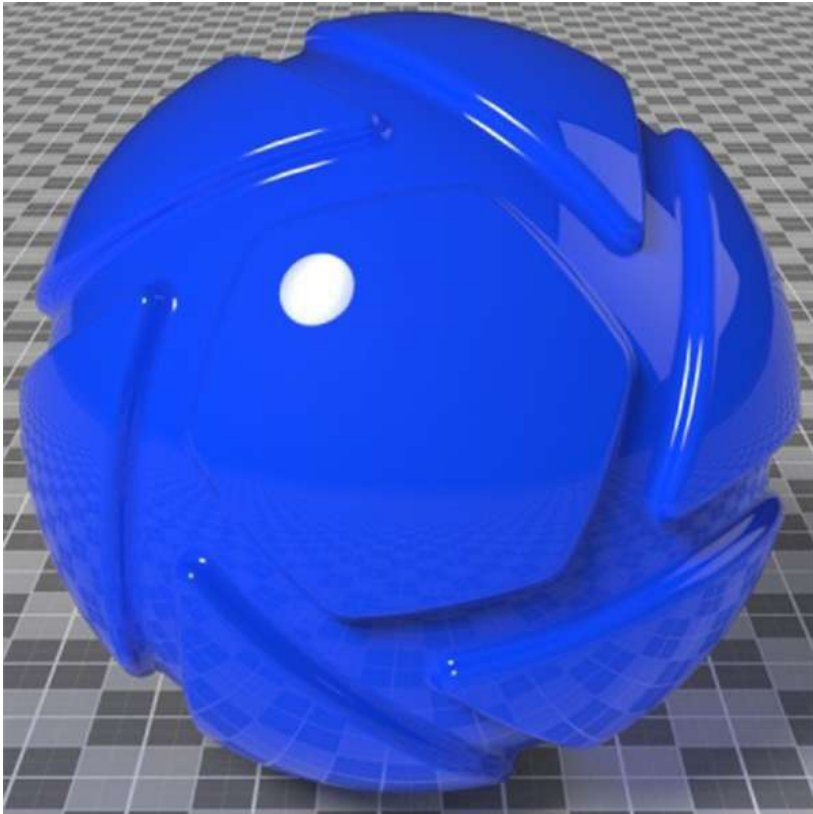
This will add microscopic levels of imperfections to the surface of the material when the values are increased. When this is set to 0, a material will appear perfectly smooth and polished. When the value is increased, the material will appear more rough as light is diffused across the surface.

### Samples

A low samples setting (8 or lower) will tend to make the surface look more noisy, which will give a more imperfect and rough look. As you increase the value, the noise will smooth out and provide a more evenly distributed roughness.

### Refraction Index

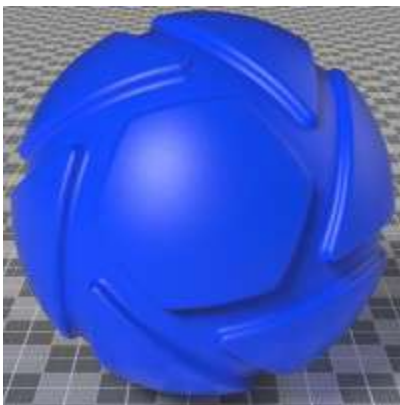
This controls the intensity of the clear coat. 1.5 is a good general starting point. If a more shiny paint is desired, increase the value. Bringing the value down closer to 1 reduces the clear coat effect. This can be useful for making a matte finish.

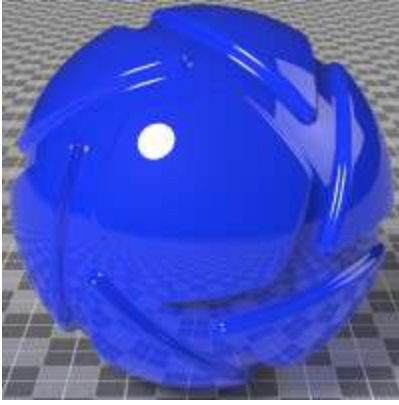


Color

▶ Roughness

Refraction Index





## Plastic

The *Plastic* material provides the basic settings needed to create simple plastic materials. Set the diffuse (overall color) and add some specular (reflections), then adjust the roughness. This is a very versatile material type that is used for anything from concrete to woods.

### Diffuse

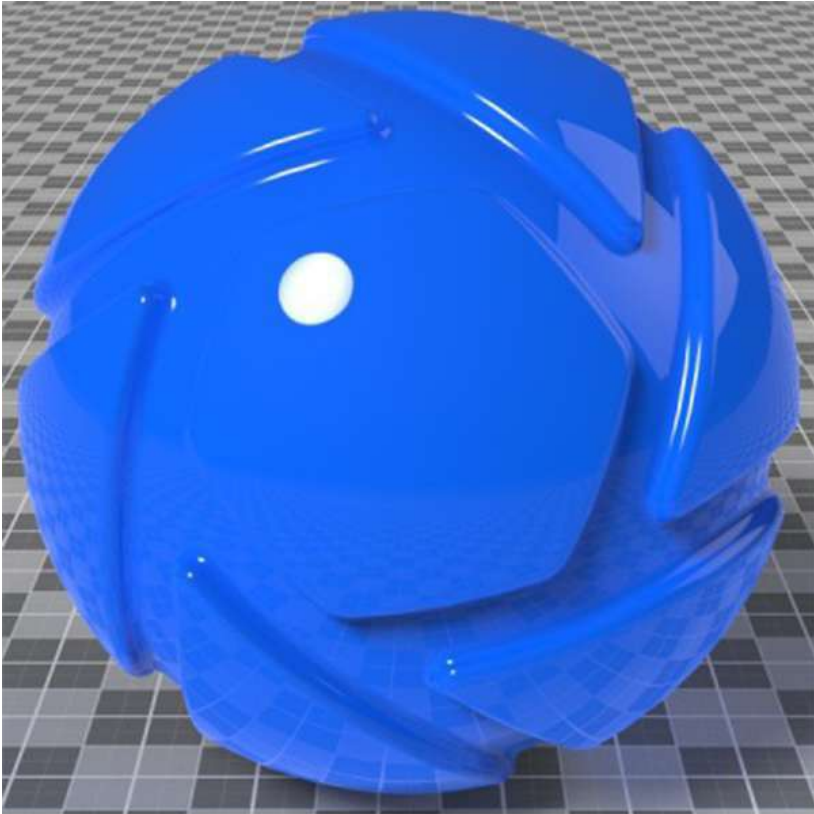
This can be thought of as the overall color of the material. Transparent materials will have little or no diffuse color applied.

### Specular

This is the color and intensity of the reflection of light sources within the scene. Black will completely turn off reflections, while white will provide a very shiny plastic look. Realistic plastic does not have color in the specular value, so generally you should use some level of gray or white. However, adding color can give the plastic material a metallic effect.

### Roughness

This will add microscopic levels of imperfections to the surface of the material when the values are increased. When set to 0, a material will appear perfectly smooth and polished. When the value is increased, the material will appear more rough as light is diffused across the surface. Within the roughness parameter, you will find a samples setting. A low samples setting (8 or lower) will tend to make the surface look more noisy, which will give a more imperfect and rough look. As you increase the value, the noise will smooth out and provide a more evenly distributed roughness.



Diffuse



Specular



▶ Roughness



0

▼ **Advanced**

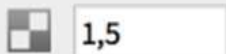
Diffuse Transmission



Specular Transmission



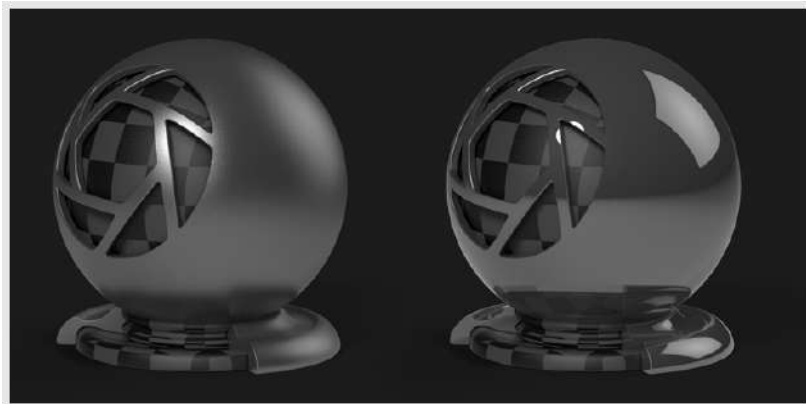
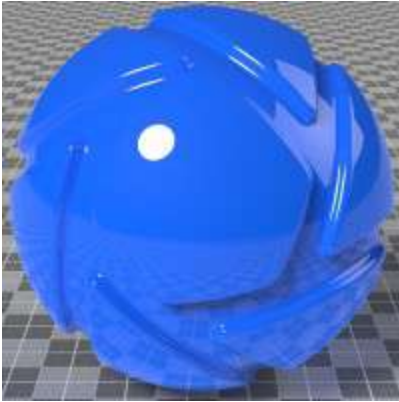
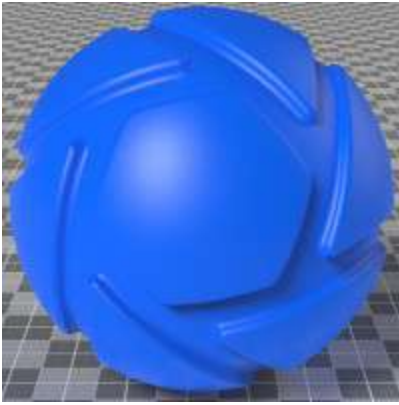
Refraction Index



1,5

Fresnel





## Thin Film

### Thin Film

The *Thin Film* material produces an iridescent effect similar to a soap bubble.

### Refraction Index

The refraction index setting for this material provides more or less reflection on the surface. Increase the value to get more reflection intensity.

The actual colors you see in the thin film will also be affected by the refraction index. However, you can shift the colors with the next setting, so typically you will focus only on finding the desired amount of reflection with the refraction index setting.

### Thickness

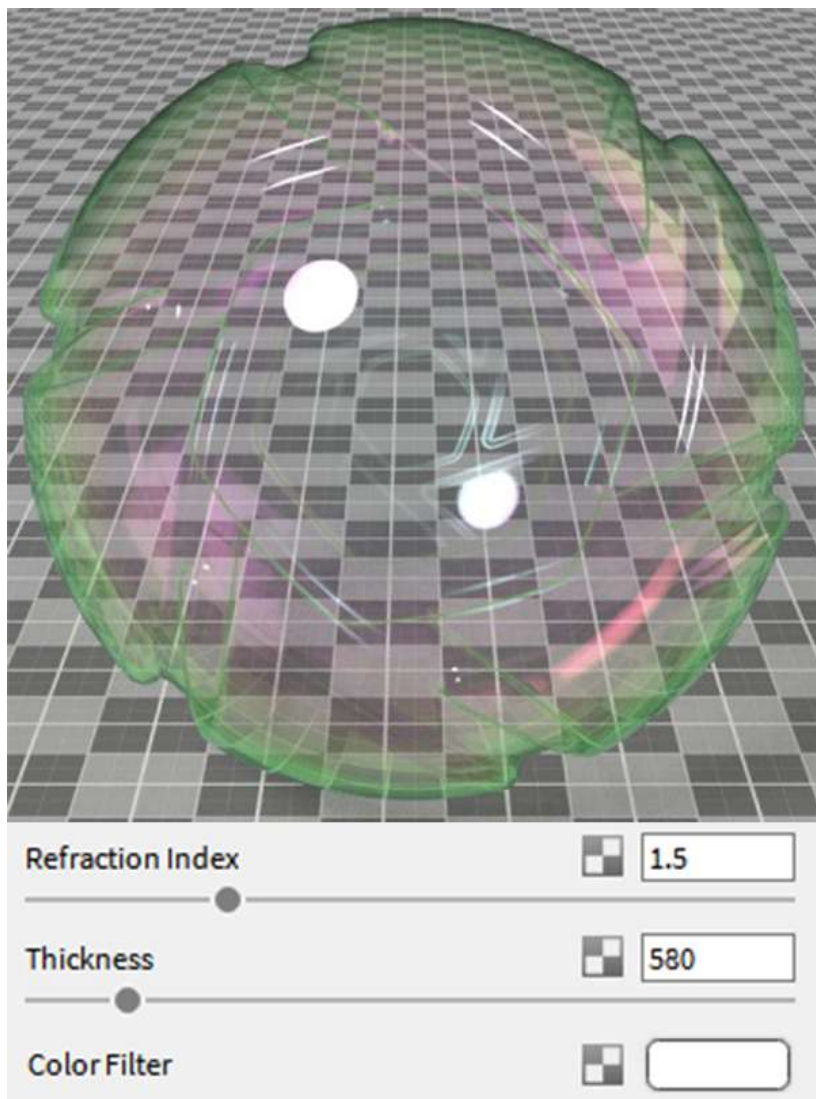
Changing the thickness setting will shift the colors that you see on the surface using the thin film material. Increasing the setting to a very high value will result in the effect of layers of colored rings on the surface. It is generally a good idea to stay within a range of 100-1000.

### Color Filter

The Color Filter parameter acts as a color multiplier for the Thin Film material. When



the Color Filter is set to white the color of the material will be determined by the Thickness parameter. Less saturated colors can be used to add subtle hue shifts while fully saturated colors have a greater influence. The Color Filter parameter can be textured with color maps to create material breakups such as those seen on solar cells or to add surface imperfections to an optical lens or automotive headlight.



## Translucent

The *Translucent* material type provides control over subsurface scattering properties that are found in many plastics and other materials.

### Surface Color

This controls the diffused color of the outer surface of the material. Consider this the overall color of the material. Something to be aware of with this unique material type is that you will not see the translucent effect of the subsurface color if the surface color is completely black.

### Subsurface Color

This setting controls the color that light will take on as it passes through the material. Your own skin is a great example of the subsurface effect. When a bright light shines through the thin parts of an ear or the thin skin between fingers, the light is colored by what lies beneath the surface and comes back more red.

While the light is passing through the surface, it is bounced around in many random directions. This creates the soft translucent effect rather than the direction refraction effect of glass and similar materials.

For plastic materials, you will often set this color to something very similar to the

surface color, but perhaps a bit brighter.

**Translucency**

This controls how deeply light will penetrate into and through the surface. The higher your translucency value, the more of the subsurface color you will see coming through the surface.

Higher translucency values will also create a softer looking material.

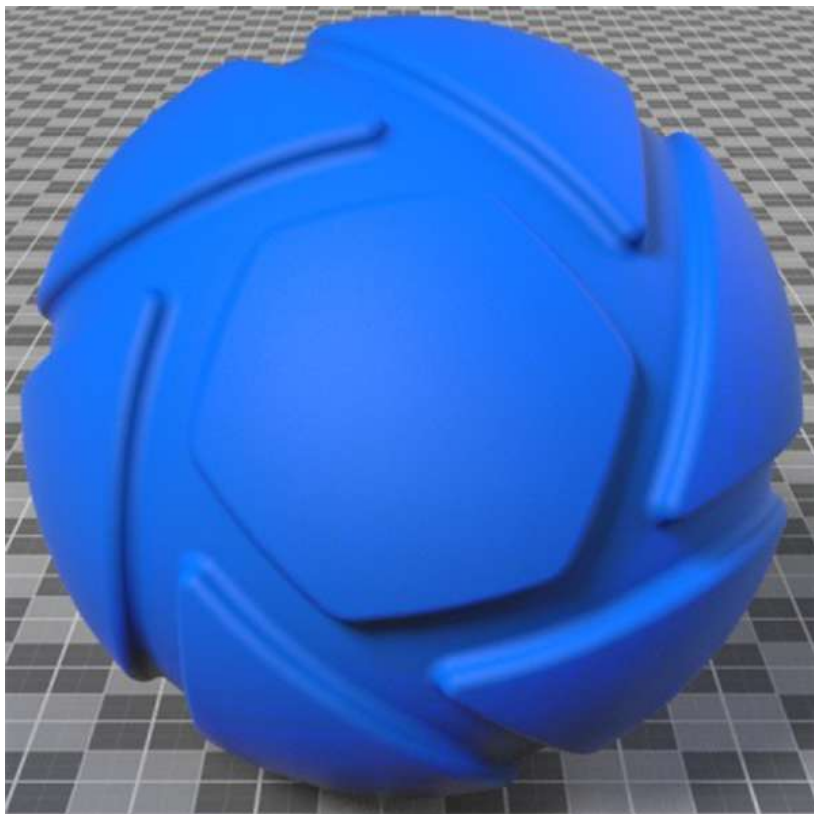
**Roughness**

Increasing roughness will spread and distribute reflections over the surface and create a more matte surface.

**Specularity**

This controls the intensity of the reflections on the surface.

Under the advanced category in this material type, you will also find a refraction index setting. This can be used to further increase or decrease the strength of the reflections on the surface.



Surface Color

Subsurface Color

Translucency

Specularity

Texture Color

Specular Color

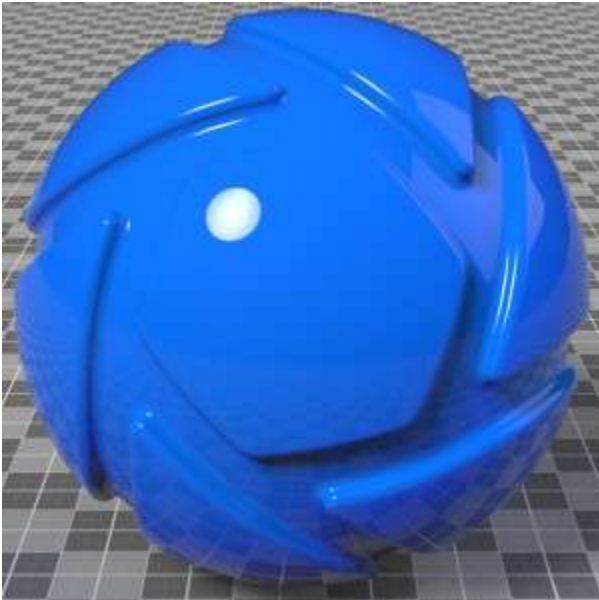
Roughness

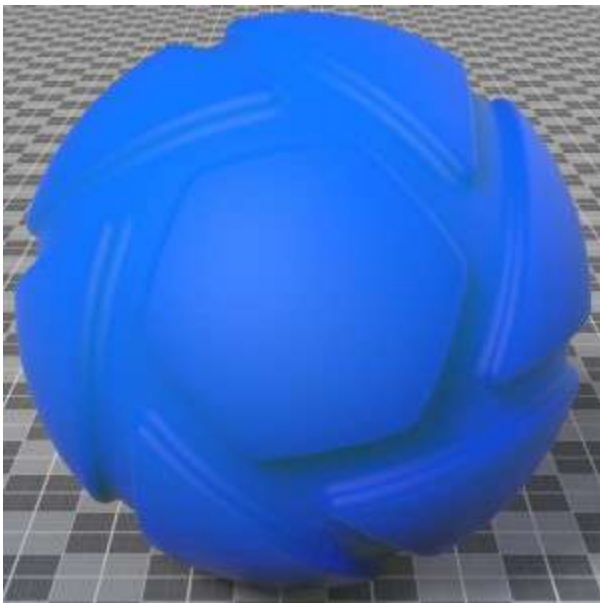
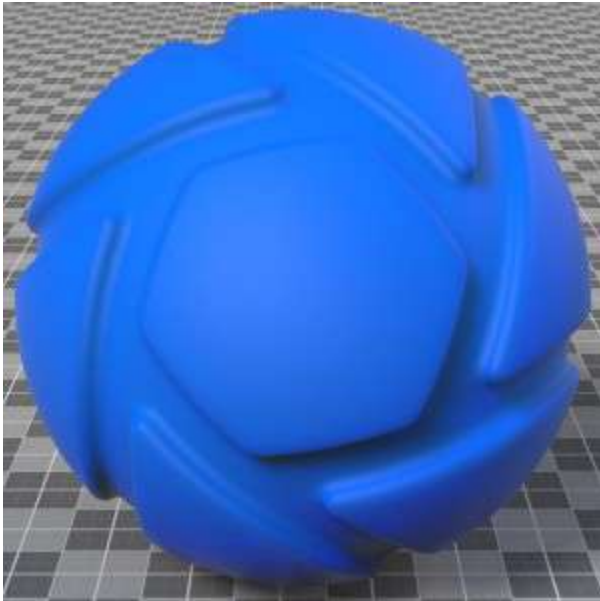
▼ **Advanced**

Refraction Index

Samples

Global Illumination





## Advanced

The *Advanced* material is the most versatile of all KeyShot material types. There are more parameters in this material than in any other. With this variety of parameters, materials such as metals, plastics, transparent or cloudy plastics, glass, leathers and diffuse materials can all be created from this single material type. Material types that cannot be created are translucent materials and metallic paints.

### Diffuse

This can be thought of as the overall color of the material. Transparent materials will have little or no diffuse. Metals will have no diffuse with all t

### Specular

This is the color and intensity of the reflection of light sources within the scene. Black will be 0% intensity and the material will not be reflective. V

### Specular Transmission

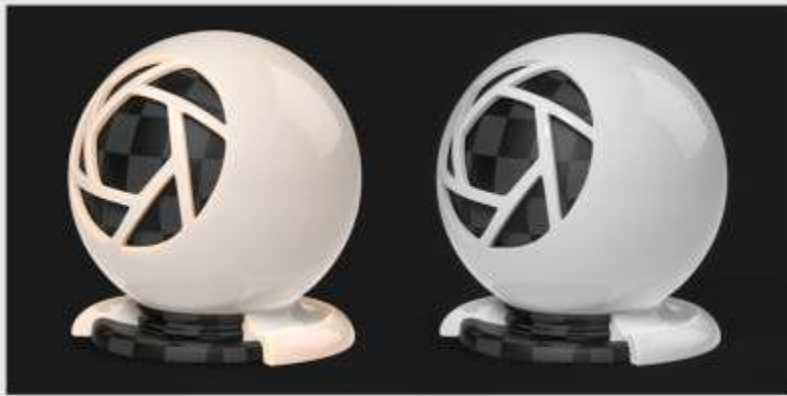
This can be thought of as the transparency of the material. Black will be 100% opaque and white will be 100% transparent.

If a transparent glass or plastic is being created, the diffuse should be black with all the color derived from this parameter. Transparent glasses o

### Diffuse Transmission

Diffuse

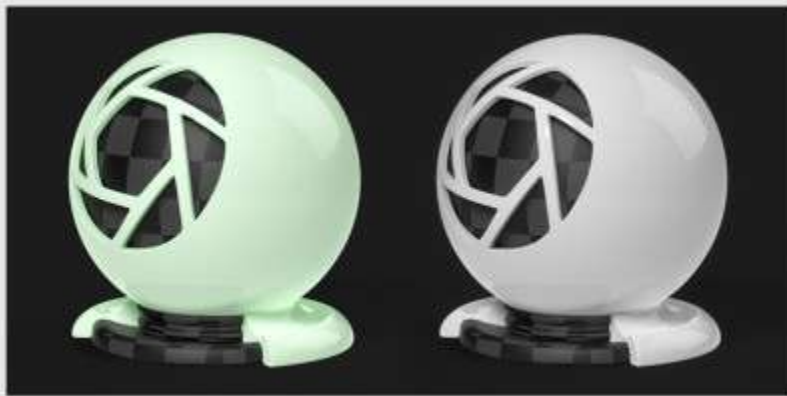
This will cause additional light to be scattered across the surface of the material, which can simulate a translucent effect. It will increase render ti



### Ambient

Color

This will control the color of self shadowing on the material in areas that are not receiving direct light. It can produce unrealistic looks, so it is rec



### Roughness Samples

9

This will add microscopic levels of imperfections to the surface of the material when the values are increased. When set to 0, a material will appe



### Roughness Transmission

This will control the roughness of the refractions. The main difference between this parameter and roughness is that the roughness is on the internal portion of the material. This can be used to create a frosted look while still maintaining a shiny surface. The material needs to have some transparency through the specular transmission for the effect to show.



### Refraction Index

This will control the level of refraction on the material.



### Fresnel (pronounced frah-nel)

This will control the intensity of the reflections that are perpendicular to the camera. In the real world, materials are more reflective around the edges of objects than they are on areas of objects that are directly facing the viewer or camera. This is enabled by default. Different materials have different



### Glossy Samples

This will control the accuracy of glossy (rough) reflections by increasing the samples that are used.

### Anisotropic

The *Anisotropic* material type gives you advanced control over the highlights on the



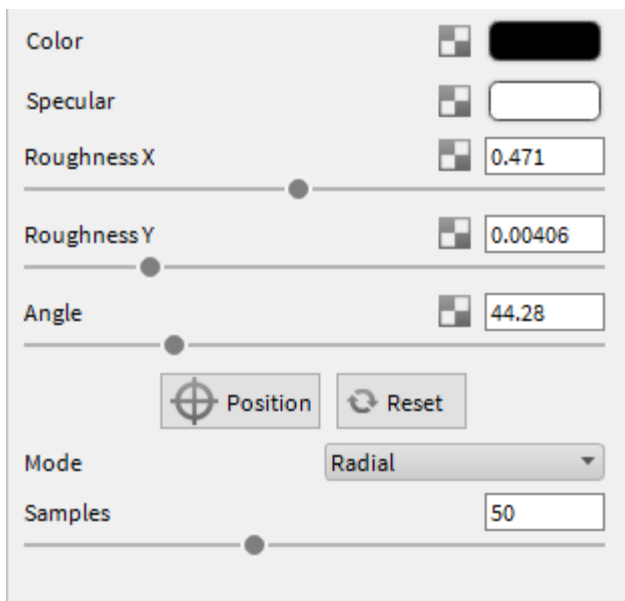
material surface. On other material types that have a single “Roughness” slider, increasing this value causes the highlights on the surface spread out evenly in all directions. Anisotropic gives you control over the highlight shape by controlling the roughness in two directions with two independent sliders. This material type is often used to simulate a finely brushed metal surface.

### Color

When trying to create a metal, the diffuse should be set to black. When set to anything other than pure black, this material type will take on more a plastic look.

### Specular

This is the color and intensity of the reflection of light sources within the scene. Black will be 0 intensity and the material will not be reflective. White will be 100% intensity and will be completely reflective.



If a metal material is being created, this is where the color is set.

### Roughness X and Y

These sliders control the spread of the highlights on the surface. The X and Y roughness sliders control the highlight spread in independent directions. As you offset the values, the highlights on the surface will stretch out and give a finely brushed effect.

Setting both sliders to the same value will yield reflections that are spread evenly in all directions. In the image, the ball on the left has offset values and the right has equal values.



### Angle

This rotates the stretched highlights that are produced when the roughness x and y values are offset. The value is in degrees and goes from 0 to 360.



### Mode

This advanced setting controls how the highlights are stretched. There are three unique modes. The default mode is Linear, which will stretch highlights in a linear way, and is independent of any UV coordinate mapping you may have on the model. Radial mode is an anisotropic method which simulates the effect you might observe on the play side of a CD. Enabling this mode allows you to choose the center point of the radial roughness. UV mode is dependent on your UV coordinates. You can use this to manipulate the anisotropic highlights based on the mapping from your modeling software.

### Samples

A low samples setting (8 or lower) will tend to make the surface look more noisy which will give a more imperfect and rough look. As you increase the value the noise will even out more and provide a more evenly distributed roughness.



## Dielectric

The *Dielectric* material type is a more advanced way to create glass materials. Compared to the solid glass material type, you will find additional settings for dispersion (Abbe number) and it can also be used to create an accurate interface between glass and liquid.

### Transmission

This option controls the overall color of this material type. When light enters the surface it will take on the color set here. The amount of color that

### Refractive Index

This slider controls how much light will bend or refract as it passes through parts on your model that have this type of material. The default of 1.5

### Transmission Out

This option controls the color of the light on the outside of the material. It is an advanced and complex setting, but it is needed when rendering cc

### Refractive Index Outside

This slider is an advanced but powerful setting that allows you to accurately simulate the interface between two different refracting materials. The





### Color Density

This slider controls how much of the color set in the transmission property you will see, depending on the thickness of the part to which the material is applied. This physically accurate parameter simulates the effect you can observe by looking at the color of the shallow water at a beach versus the deep. After setting a color in the transmission setting, use the color density setting to make that color more or less saturated and prominent. A lower setting will produce a more subtle effect, while a higher setting will produce a more saturated and prominent effect.



### Roughness

Roughness on this type of material will spread out highlights on the surface similar to what you see on non-transparent materials. However, it also affects the material's color. A low setting will produce a more perfect/smooth result, while a high setting will produce a more imperfect/noisy result.



### Abbe Number (Dispersion)

The Abbe number slider controls dispersion of light as it is transmitted through the surface and produces a prismatic effect.

This prismatic color effect can be used to create the "fire" effect often desired when rendering gem stones.

A value of zero will disable the dispersion effect entirely. A low value will show heavy dispersion, and as you increase the value, the effect will become more subtle. A high value will show very little dispersion.

setting around 35-55 is a good starting point if a subtle dispersion effect is desired.

Expand this parameter and you will see a samples setting. This can be used with a low setting to produce a more imperfect/noisy result or a higher value to smooth out the noise/grain for a smoother look.



### Gem

The *Gem* material is related to the solid glass, dielectric, and liquid material types. The settings have been optimized to be relevant to rendering gem stones. The Abbe number (dispersion) control is especially important for gem stone rendering as it produces the “fire” effect that is often desired. The internal culling setting is another specialty of this material type.

**Color**

This controls the overall color of this material type. When light enters the surface it will take on the color set here.

**Refraction Index**

The amount of color that you see in this material is highly dependent on the transparency setting as well.

**Refractive Index**

This controls how much light will bend or “refract” as it passes through parts on your model that have this type of material.

The default of 1.5 is accurate for simulating most types of glass, but you can increase the value to create a more dramatic refraction within the si

**Transparency**

This setting controls how much of the color set in the transmission property you will see, depending on the thickness of the part to which the mat

**Roughness**

After setting a color in the transmission setting, use the transparency setting to make that color more or less saturated and prominent. A lower se



**Internal Culling**

Roughness on this type of material will spread out highlights on the surface similar to what you see on other, non-transparent, materials. However, expand this parameter and you will see a samples slider. This can be used with a low setting to produce a more imperfect/noisy result or a high :

### Abbe Number (Dispersion)

The Abbe number controls dispersion of light as it is transmitted through the surface and produces a prismatic effect. This prismatic color effect can be used to create the “fire” effect often desired when rendering gem stones.

A value of zero will disable the dispersion effect entirely. A low value will show heavy dispersion, and as you increase the value, the effect will become more subtle. A setting around 35-55 is a good starting point if a subtle dispersion effect is desired.

Expand this parameter and you will see a samples slider. This can be used with a low setting to produce a more imperfect/noisy result or a higher value to smooth out the noise/grain for a smoother look.



## Measured

The *Measured* material type (experimental) supports the import of Radiance BSDF format and the X-Rite Appearance exchange Format (AxF). These formats contain digital material representations

- Importing a Measured Material Format

### Importing a Measured Material Format

When editing a material and select *Measured* from the *Material Type* dropdown, the part will appear black and a *File* location field will appear in the *Properties* tab. Select the folder icon to select a Measured BSDF file format. The .axf or .xml file formats are supported.

Note: Currently, using this material type may produce results with noise and increase the render time. For feedback on this material, please email [beta@luxion.com](mailto:beta@luxion.com).

## Metallic Paint

The *Metallic Paint* material type simulates a three layer paint job. You start with a base layer, then on the next layer, you can control how much metal “flake” you want, and on top of it all is a clear-coat that provides a clean reflection over the entire material.

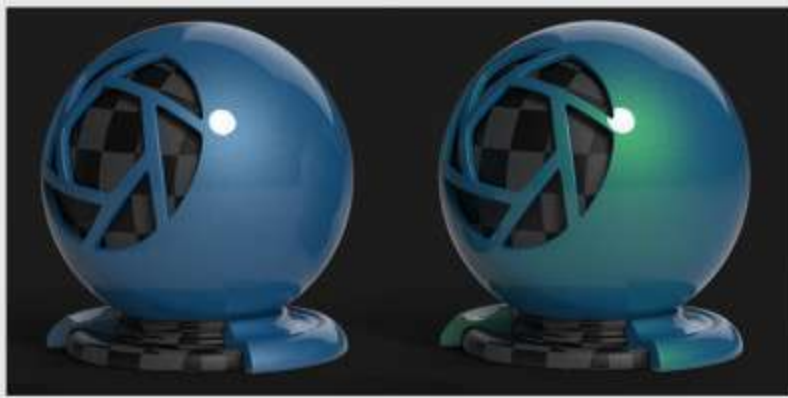
### Base Color

This is the overall color of the material and can be considered the base coat of paint.

### Metal Color

This can be thought of as a coat of metal “flakes” sprayed over the base coat. You can choose a color that is similar to base color to get a subtle

The metal color in the material will show more in the directly lit or brightly highlighted areas of the surface while the base color will show more in



### Metal Coverage

This controls the ratio of base color to metal color. When it is set to 0, you will see only the base color. When it is set to 1, the surface will be almost entirely metallic. For most metallic paint materials, you will want this value set close to 0. A setting of 0.2 is a good starting point.

### Metal Roughness

This controls the spread of the metal color over the surface. When it is set to a low value, you will see the metal color only in small areas around the base color. 0.1 is a good starting point. Within the metal roughness parameter, you will find a samples setting. This will control how imperfect or refined the metal effect is.

### Clear Coat Roughness

The top "layer" of the metallic paint material is a clear coat that, by default, provides perfectly clean reflections. However, if a satin or matte paint is desired, the clear coat roughness can be adjusted.

### Clear Coat Refraction Index

This parameter controls the intensity of the clear coat. 1.5 is a good general starting point. If a more shiny paint is desired, increase the value. Bringing it to 1.0 will make the clear coat disappear.

### Metal Flake Size

This controls the size of the physical metal flakes within the paint surface. Increasing flake size makes the metal flake effect more apparent. By default, the flake size is set to 1.0.



### Metal Flake Visibility

This controls the opacity of the metal flake effect in the metallic paint material. A value of 0 causes the flakes to be completely transparent. At higher values, the flakes blend in with the base color of the metallic paint material.



## Plastic (Transparent)

The *Plastic (Transparent)* material provides the basic settings needed to create simple plastic materials. Set the diffuse (overall color) and add some specular (reflections), then adjust the roughness. This is a very versatile material type that is used for anything from concrete to woods.

**Diffuse**

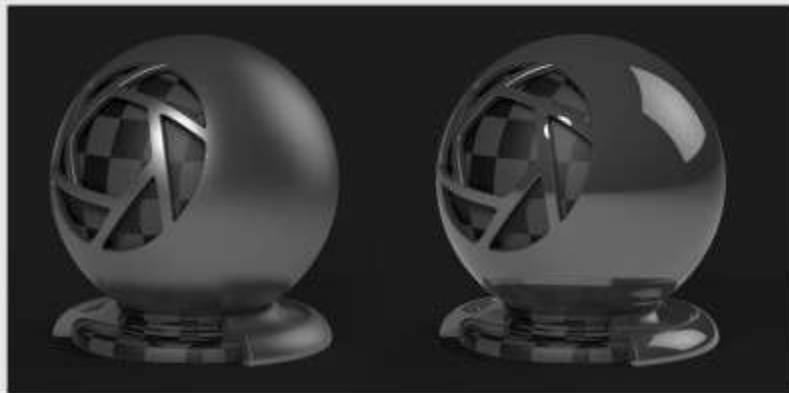
This can be thought of as the overall color of the material. Transparent materials will have little or no diffuse color applied.

**Specular**

This is the color and intensity of the reflection of light sources within the scene. Black will completely turn off reflections, while white will provide a full reflection.

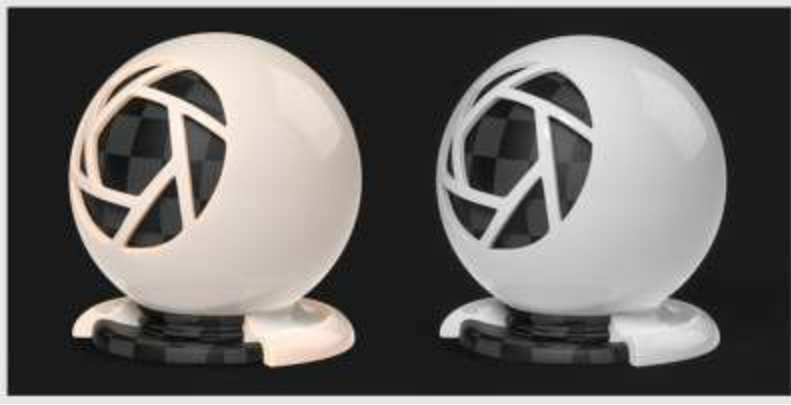
**Roughness**

This will add microscopic levels of imperfections to the surface of the material when the values are increased. When set to 0, a material will appear perfectly smooth.



**Diffuse Transmission**

This will cause additional light to be scattered across the surface of the material which can simulate a translucent effect. It will increase render time.



### **Specular Transmission**

This can be thought of as the transparency of the material. Black will be 100% opaque and white will be 100% transparent. If a transparent glass or plastic is being created, the diffuse should be black with all the color derived from this parameter. Transparent glasses or plastics should also have the specular set to white. If a cloudy plastic is desired, the diffuse can be set to a very dark version of the color set here.

## **Translucent (Advanced)**

The *Translucent (Advanced)* material type provides control over subsurface scattering properties that are found in many plastics and other materials.

### **Surface Color**

This controls the diffused color of the outer surface of the material. Consider this the overall color of the material. Something to be aware of with

### **Subsurface Color**

This setting controls the color that light will take on as it passes through the material.

Your own skin is a great example of the subsurface effect. When a bright light shines through the thin parts of an ear or the thin skin between fin

### **Translucency**

This controls how deeply light will penetrate into and through the surface. The higher your translucency value, the more of the subsurface color y

Higher translucency values will also create a softer looking material.

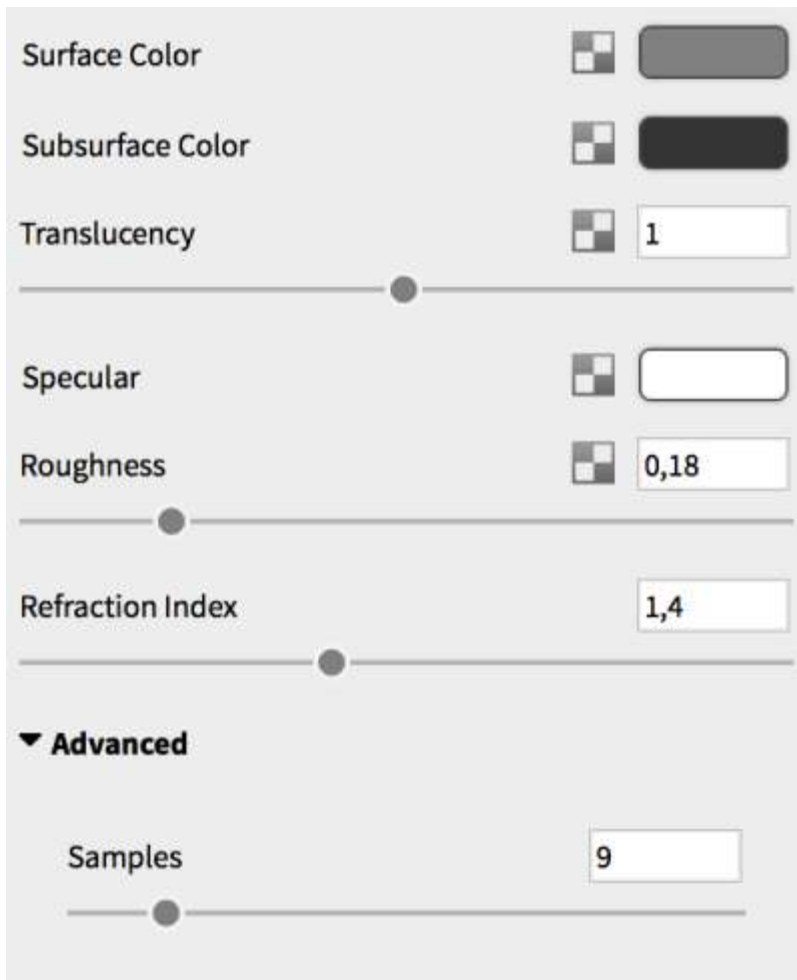
### **Roughness**

Increasing roughness will spread and distribute reflections over the surface and create a more matte surface.

### **Specularity**

This controls the intensity of the reflections on the surface.

Under the advanced category in this material type, you will also find a refraction index setting. This can be used to further increase or decrease t



## Velvet

The *Velvet* material is very useful for creating soft fabrics that have the distinct light catching effects that result from the soft fibers in finely woven fabrics.

This is a complicated material by KeyShot standards, and you will generally be able to do fabric materials well enough with the plastic or advanced material types. However, this material type does provide control over parameters not found in other material types.

### Diffuse

This can be thought of as the overall color of the material. A dark color is generally preferred for both the diffuse and sheen settings as this mate

### Sheen

The sheen color is observed as light that appears to be reflected back across the surface from behind, almost as though the surface is backlit. TI

### Roughness

The roughness setting determines how evenly the backscatter effect is distributed across the surface. When this is set to a low value, the backsc

### Backscatter

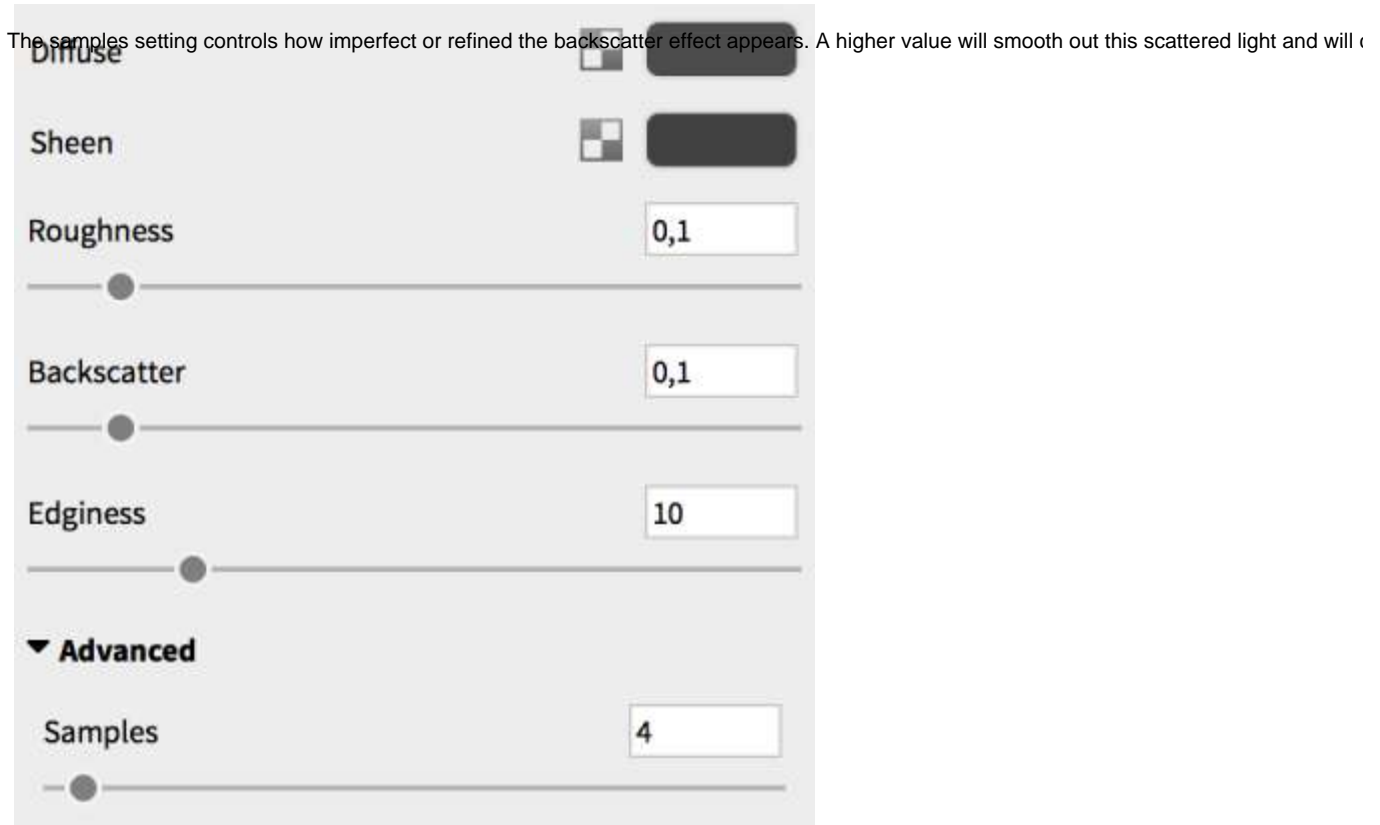
This is light that is scattered across the entire object and is especially apparent in the shadowed areas of the object. It can be used to give an ov

### Edginess

This controls how far the sheen effect spreads over the surface. A low value will cause the sheen to fade out gradually, while a high value will pr

### Samples





## Emissive

The *Emissive* material type can be used for small light sources such as LEDs, lamps or even illuminated screen displays. It is not meant to illuminate scenes as a main light source. The emissive material will need "Global illumination" enabled in "lighting" to illuminate other geometry in the realtime view. It will also need ground illumination to illuminate the ground plane as shown. Color textures can be mapped to the material and any colors included in the texture will be emitted as light. When using emissives, it is a good idea to enable "Bloom" under effects in realtime settings. This will create the glowing effect shown in the image.

### Color

This will control the color of the light emitted from the material.

### Intensity

This will control the intensity of the light that is emitted.

### Visible to Camera

Hide the emissive material from the camera, but the emissive material will still emit light.

### Visible in Reflections

Hide the emissive material from any specular reflections. The effect of the emissive will only be seen on the diffuse component of materials.

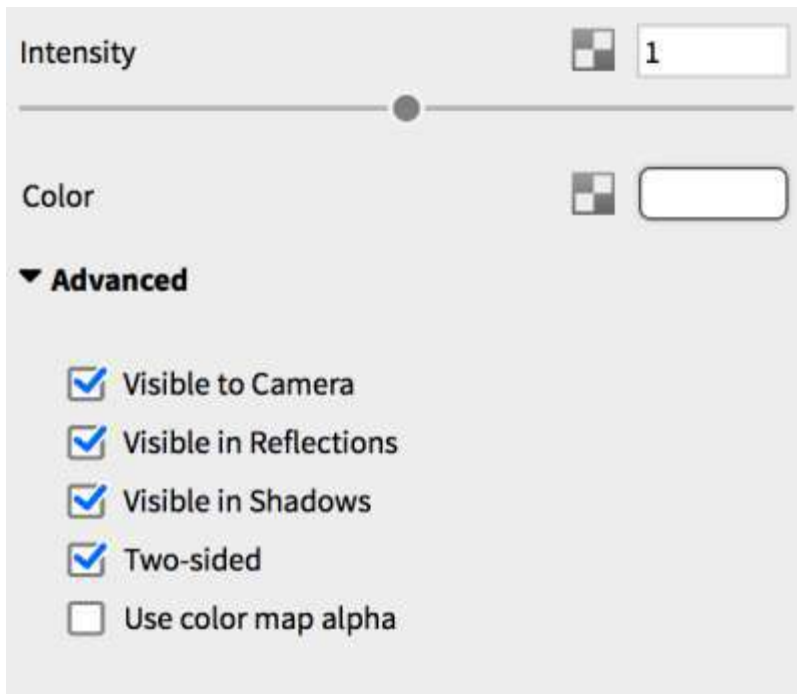
### Two-Sided

This will cause the emissive light to display on both side of the surface.

### Use Color Map Alpha

This will allow you to use the alpha channel in the color map.

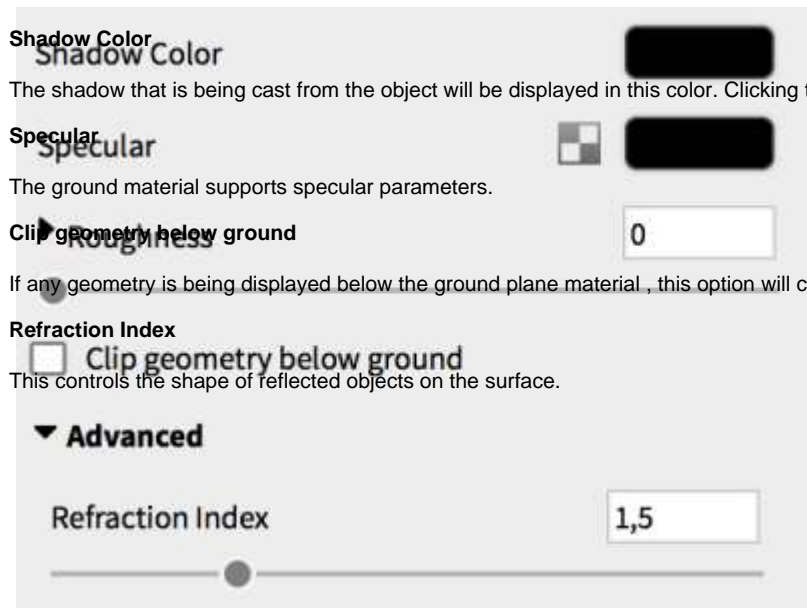




## Ground

The *Ground* material type is a simplified material type for creating ground material.

Simply click *Edit* and select *Add Ground Plane*. This will add a ground plane into your KeyShot scene. The ground material can also be applied to imported geometry.



## Toon

The *Toon* material type allows you to create concept art from your 3D model. You are able to control the contour width, the number of contour lines, and whether or not shadows are cast onto surfaces.

### Color

This will control the fill color of the toon material.

### Contour Color

This will control the outline of the model.

### Contour Angle

This will control the number of interior contour lines in the toon sketch. A lower value will increase the number of interior contour lines and a higher value will decrease the number of interior contour lines.

### Contour Width

This will control how thin or how thick your contour lines will be.

### Contour Quality

This will control the quality of the contour lines. Use a lower value to obtain a rough sketch look, or a higher value for a more clean and precise stroke.

The screenshot shows a settings panel for a toon sketch. It includes the following controls:

- Color:** A color picker with an orange selection.
- Contour Color:** A color picker with a black selection.
- Contour Angle:** A slider set to 60.
- Contour Width:** A slider set to 0.188.
- Contour Quality:** A slider set to 5.
- Transparency:** A slider set to 0.
- Advanced:**
  - Contour width is in pixels
  - Outline Contour
  - Interior Edge Contour
  - Material Contour
  - Environment Shadows
  - Shadow Multiplier:** A slider set to 0.75.
  - Outline Width Multiplier:** A slider set to 1.
  - Part Width Multiplier:** A slider set to 5.
  - Part Contour

### Transparency

Increasing this value will allow light to pass through the geometry. Use this feature on transparent parts, or to show interior views of your model.

### Advanced

#### Contour width is in pixels

When this setting is enabled, the "Contour Width" slider is calibrated to allow for finer contour lines. When this setting is disabled, the "Contour Width" slider is calibrated to allow for thicker contour lines.

#### Outline Contour

This will allow you to show or hide the outline in your sketch.

#### Interior Edge Contour

This will show or hide the interior contour lines in your sketch.

#### Material Contour

This will allow you to show or hide the contour line that separates each unlinked toon material. If the toon materials are linked, this setting will not have an effect.

#### Environment Shadows

This will reveal the shadows cast by the model onto itself due to the lighting environment.

#### Shadow Multiplier

When the "Environment Shadows" setting is enabled, this controls the strength

of shadows cast on the toon material.

**Outline Width Multiplier**

Increase this value to create a “perimeter line” effect with your toon material. This will help pop the part from your scene and create a stronger visual contrast.

**Part Width Multiplier**

Use this to increase the line width of part contours and interior edge contours. It will not affect the scene unless Part Contour is enabled.

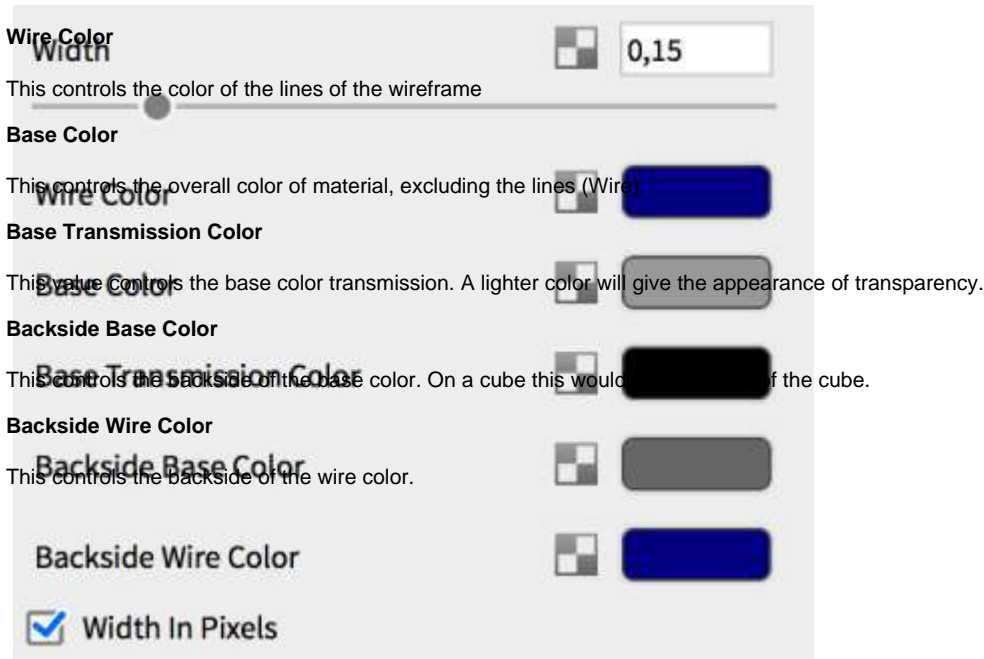
**Part Contour**

Enable this to allow the use of the Part Width Multiplier parameter.

The following video shows you how to quickly switch all materials in your scene to a single material.

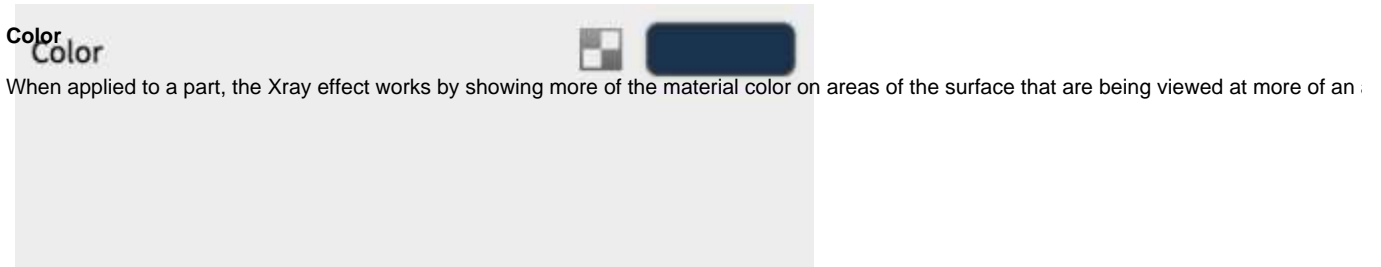
**Wireframe**

The *Wireframe* material type exposes the lines and vertices of each polygon of a surface.



**Xray**

The *Xray* material type provides a useful tool for illustrative renderings. It is often used to create a faded view through an outer shell.



## Axalta Paints

As the leading manufacturer of auto body paints, Axalta has created several collections of KeyShot materials that are an accurate representation of the real world paints they provide. Below you will find information and tips on how to use Axalta paints.

## Light Sources

Physical lights are designed as materials that may be applied to parts. Any geometry can be turned into a light source. You can either import new geometry or use existing geometry.

### Light Source Material Types

There are three types of physical light source material types:

- [Area Light Diffuse](#)
- [Point Light Diffuse](#)
- [Point Light IES Profile](#)

### Applying a Light

Applying a light material is similar to applying other materials. Light materials will be displayed in the material type dropdown menu. Select the light source type, and KeyShot will update the object to a physical light. Light sources can be easily found in the scene tree represented by a light bulb icon.

### Moving a Light

Right-click the part that is assigned as a light and select "Move Model." This will activate the "Move Tool" widget. You can also select the light source in the scene tab, in the second pan select the position tab. You can activate the "Move Tool" widget from there, or use the input boxes for a more precise positioning.

### Animating a Light

Since light sources are materials applied to a part, they can be animated just like any other part. Simply select the light in the Scene Tree that you would like to animate, right-click and apply animation you would like.

## Area Light Diffuse

*Area Light Diffuse* is a material type that will give you a wide range of light dispersion. This will function similarly to a flood light.

### Color

Here you can choose the color the light will cast.

### Power

The power of the light can be controlled by either Watts or Lumen.

### Apply to Front of Geometry

Select this to apply the light source to the front of the surface geometry.

### Apply to Back of Geometry

Apply the light source to the backside of the surface geometry.

### Visible to Camera

Here, you can toggle whether or not the light source geometry is shown in realtime window.

#### On this page:

- [Light Source Material Types](#)
- [Applying a Light](#)
- [Moving a Light](#)
- [Animating a Light](#)

### Visible in Reflections

Color

Here, you can toggle whether or not the reflection of the light source is shown in realtime window.

### Visible in Shadows

Power

Here, you can toggle whether or not the light source geometry casts a shadow in realtime window.

### Samples

Advanced

Use this slider to control the amount of samples used in the render.

Apply to front of geometry

Apply to back of geometry

Visible to Camera

Visible in reflections

Visible in Shadows

Samples

## Point Light Diffuse

Applying a *Point Light Diffuse* to geometry replaces it with a point located in the parts center.

Color

Color

Here, you can choose the color the light will cast. For accurate lighting colors, use the Kelvin scale to select accurate lighting temperatures.

Power

Power

The power of the light can be set to either Watts or Lumen.

Radius

Radius

Adjust the radius to control the "Falloff" from shadows cast from this light.

## Point Light IES Profile

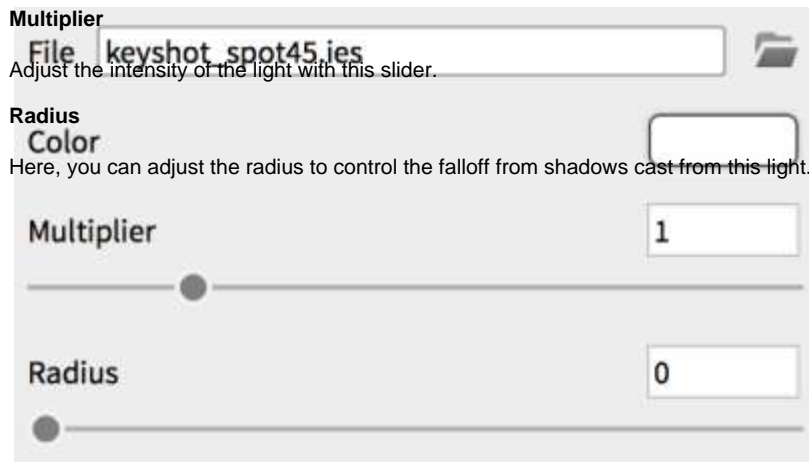
When using IES light, you will need to load an IES profile by clicking on the folder icon in the editor. As soon as you load the profile you will see the shape of the IES profile in the material preview. You will also see the shape in form of a mesh in the realtime window.

**File**

This displays the name and location of the IES profile being used. Click the folder icon to change to a different IES profile.

**Color**

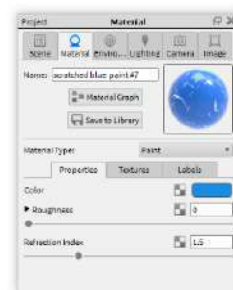
Here, you can choose the color the light will cast. Use the Kelvin scale to select accurate lighting temperatures.



## Material Graph

Advanced material editing is available through the KeyShot Material Graph. The Material Graph opens in a separate window and displays materials, textures, labels and more as nodes in a graph view to visualize connections and relationships within complex materials.

The Material Graph can be accessed through the Project window Material tab by KeyShot Pro users only. Click the Material Graph button at the top of the dialog to launch the Material Graph window. There are five components of the Material Graph window: menu bar, Ribbon, Materials & Textures Library, Material Properties, and the work area.



# Material Graph User Interface

## Material Graph Menu Bar

### **Material**

#### **New**

This will replace the working material and any textures with a basic diffuse material to start from scratch.

#### **Save to Library**

will save the working material to the specified folder in your KeyShot Library. Export will save an .mtl file to the specified location. The Nodes menu provides quick addition of Material, Texture, Animation, and Utility nodes to the work area. The View menu gives you access to Layout Graph, which automatically arranges connected nodes in the work area. The Window menu gives access to hide/show the Materials & Textures Library and the Material Properties window.

#### **Export**

This will allow you to export your material as a KeyShot MTL file type in a specified folder.

### **Nodes**

This provides quick addition of Material, Texture, Animation, and Utility nodes to the work area.

### **View**

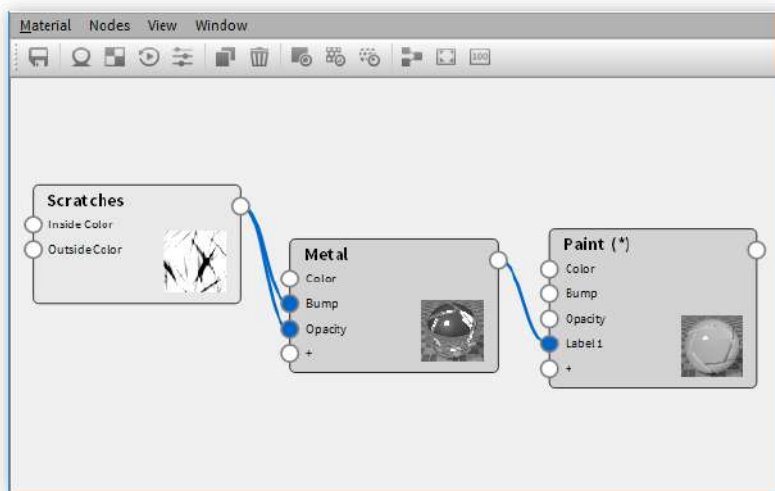
This gives you access to Layout Graph, which automatically arranges connected nodes in the work area. It also has the options for previewing individual node settings in the realtime window such as color, alpha, and bump. You can also stop the preview within this menu as well.

### **Window**

This gives access to hide/show the Material Properties window, Materials & Textures Library, and the Material Graph Ribbon.

#### On this page:

- Material Graph Menu Bar
  - Material
  - Nodes
  - View
  - Window
- Material Graph Ribbon
  - Preview Modes
  - Work Area Controls
- Material Graph Libraries
- Material Graph Properties
- Material Graph Work Area



## Material Graph Ribbon

The ribbon provides quick access to the same functions found in the menu bar with the addition of "Duplicate" and "Delete" selected nodes.

The quick-access node action icons add default nodes for each category. The Material icon adds an "Advanced Material" node. The Texture icon adds a traditional texture map and opens the file browser window to select your image file. The Animation icon adds a Color Fade node. The Utility icon adds a Bump Add node.

## Preview Modes

The ribbon also includes toggles for showing the preview modes found in “View” on the menu bar. To activate a preview mode, select a node you would like to preview. After selecting a node, the available preview modes will become selectable. Click on a preview mode to activate it, which will make the selected node red in the work area. To disable the preview mode, click on the activated preview mode again on the ribbon.

## Work Area Controls

At the end of the Material Graph ribbon, you will find buttons for aligning the nodes within the work area, fitting all the nodes within the work area, and viewing the nodes at 100% zoom level.

## Material Graph Libraries

The Materials and Textures Library contains an organized thumbnail display of all the same nodes found in the Nodes menu and the Work Area right-click menu.

## Material Graph Properties

The Material Properties dialog shows the associated properties for the current node being edited—similar to the Material tab in the Project window but with access to all nodes.

## Material Graph Work Area

The Work Area displays all nodes and connections of materials, textures, labels, material animations and utilities. Right click in the work area for access to the same nodes as those found in the Nodes menu. Select a node by left clicking. Select multiple nodes by left-clicking and holding *Ctrl* (*Cmd* on Mac). Use the marquee selection to select a group of nodes by holding Shift while clicking and dragging. Right click on a selection of nodes to delete or duplicate that selection. Zoom in or out of the Work Area using the middle mouse wheel and pan using the left mouse button.

## Material Graph Nodes

Nodes are displayed as gray boxes in the Work Area. Each node has different input and output channels depending on the type.

Channel connections are made by clicking on an output channel and dragging and releasing directly onto an input channel or onto the node itself. When it is released onto the node, a context menu will show all the available channel options. Once a connection is made, a blue line will appear connecting the 2 nodes. Right click the line to remove or disable the connection. A disabled connection will be displayed as a grey dashed line. If you select a connection, it will turn light blue.

On this page:

## Material Node Types

See [Material Types](#) covered in our Materials section.

## Texture Node Types

See our Texture Types covered in our [Textures](#) section.

## Animation Node Types



## Color Fade

The Color Fade animation node is unique in that it allows you to create changing parameters of any of your custom material color swatches. when you add a Color Fade node, an animation node will automatically be created in the animation timeline. Like other animation nodes, you can select the node and change the settings in the animation properties window.

### Color Bar

Here you can set what colors will fade from one to the the next. Click on the dropper circle to select it, then use the color swatch to choose a color. If you would like to add more than 2 color to fade to, click on an empty area below the color bar to create another color swatch. click and drag the color pins and the gradient apex slider to your desired animation effect.

### Time

With a color selected on the color bar, you can enter in where in the timeline it will become the selected color.

### Time Settings

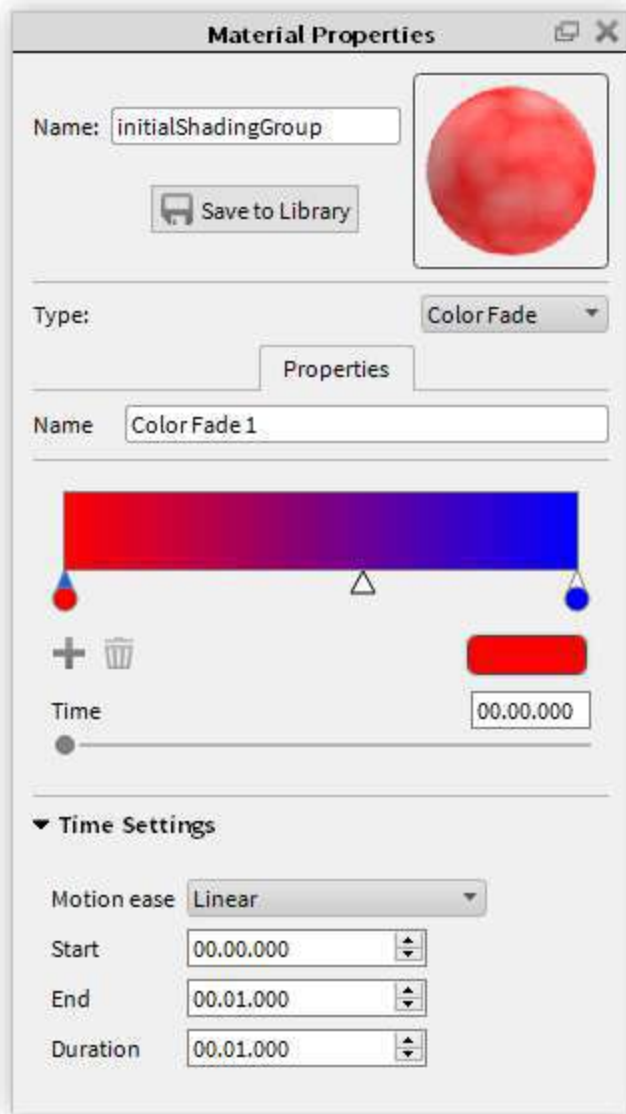
Use these settings to fine tune your Color Fade animation in your scene.

For more details about time animation and time settings, click [HERE](#).

### On this page:

- [Color Fade](#)
- [Number Fade](#)





### ***Number Fade***

The Number Fade animation node is unique in that it allows you to create changing parameters of any of your numerical properties within your custom material. when you add a Number Fade node, an animation node will automatically be created in the animation timeline. Like other animation nodes, you can select the node and change the settings in the animation properties window.

#### **From**

Enter the numerical value you would like the animation to start at. use the sliders, or type in a specific value.

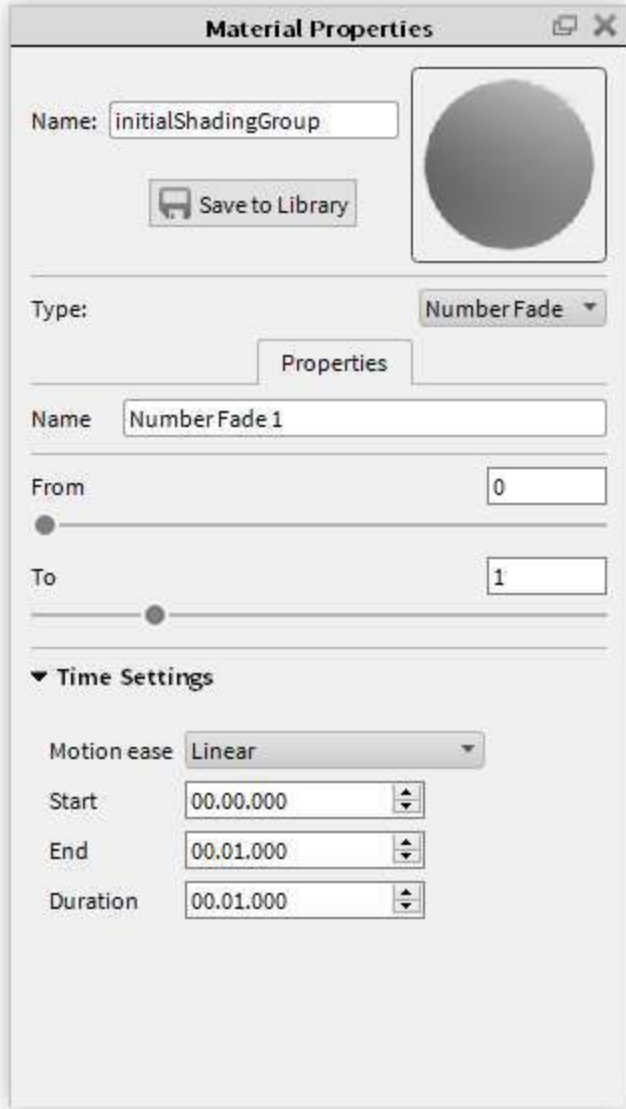
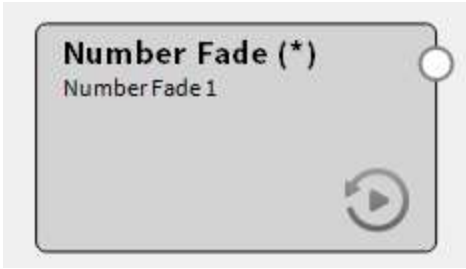
#### **Time**

Enter the numerical value you would like the animation to end at. use the sliders, or type in a specific value.

#### **Time Settings**

Use these settings to fine tune your Number Fade animation in your scene.

For more details about time animation and time settings, click [HERE](#).



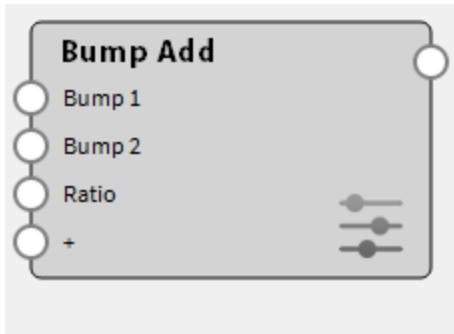
## Utility Node Types

### ***Bump Add***

Combine two bump texture maps or procedural textures. Control their interaction by defining the Ratio and Weight in which the two bumps are visible.

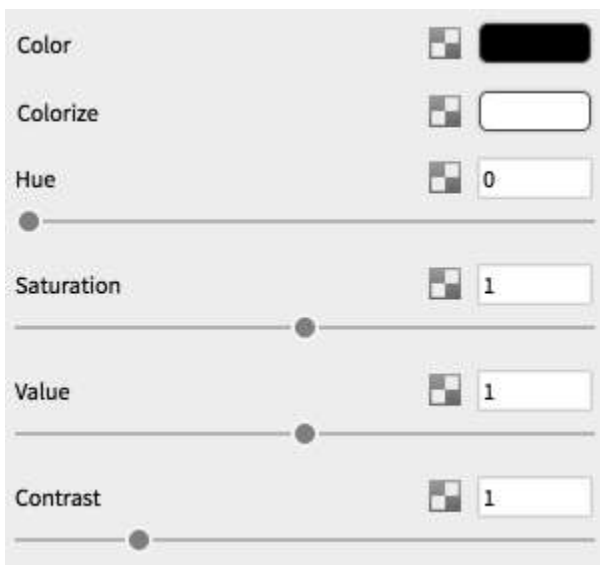
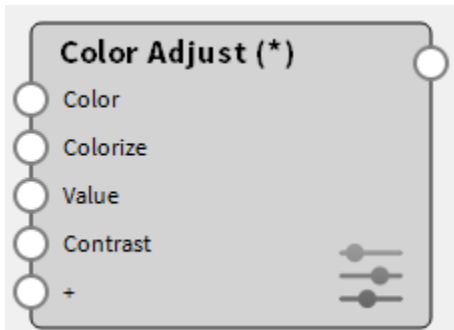
#### **On this page:**

- Bump Add
- Color Adjust
- Color Composite
- Color Invert Utility Node
- Color Key Mask Utility Node
- Color To Number
- Color Curve Randomize



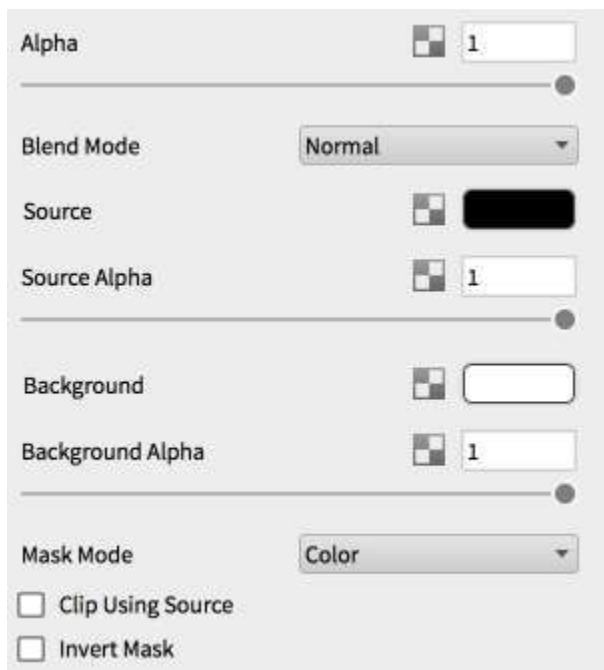
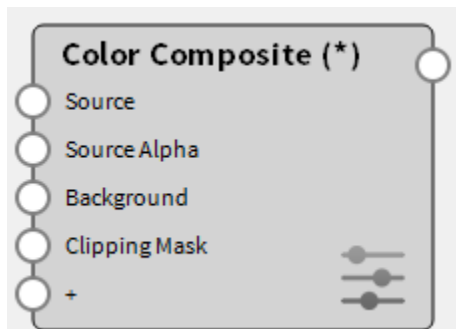
### **Color Adjust**

Colorize and/or modify the existing color of a texture map or procedural texture by adjusting Hue, Saturation, Value, and Contrast.



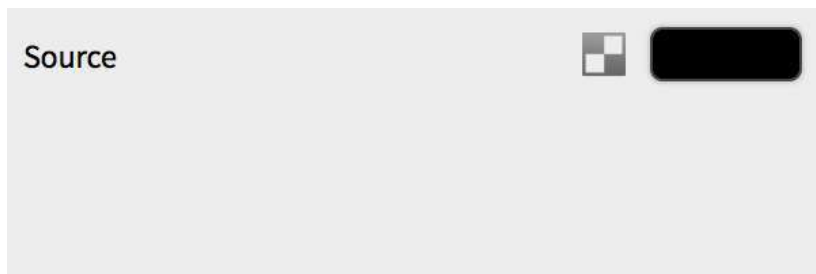
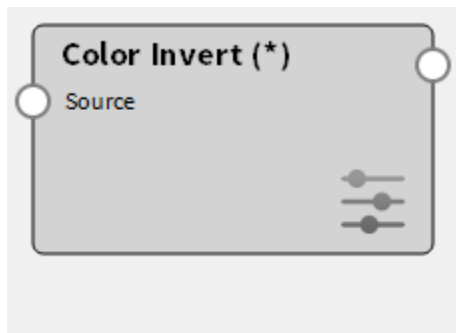
### **Color Composite**

Layer and combine two texture maps or procedural textures with control of Blend Mode and Alpha (transparency).



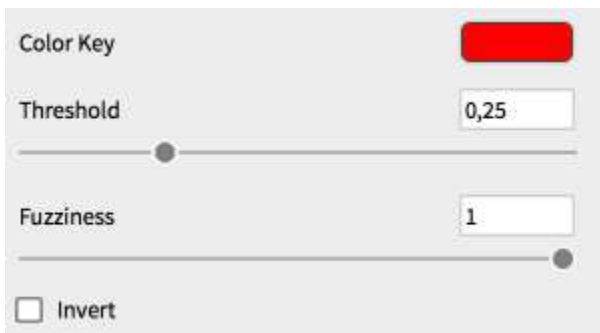
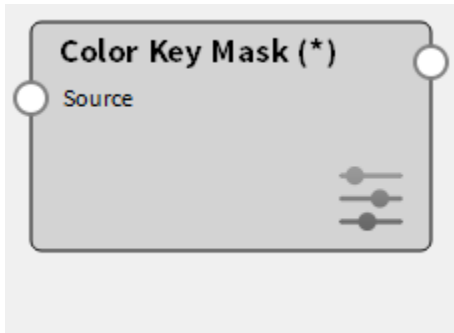
### Color Invert Utility Node

Invert the color of a source texture map or procedural texture.



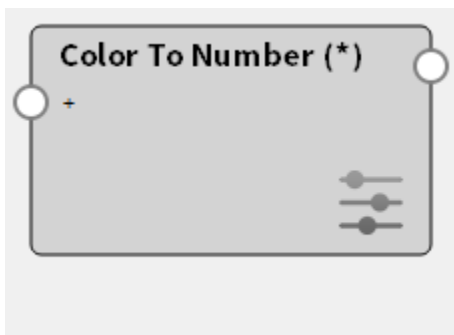
### **Color Key Mask Utility Node**

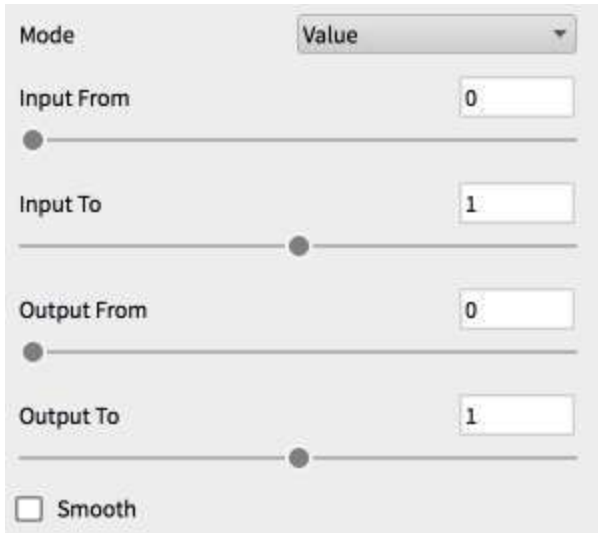
Mask a specified color within a texture map or procedural texture. Control the strength of the mask by adjusting Threshold and Fuzziness.



### **Color To Number**

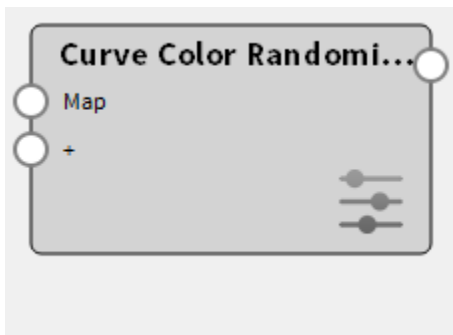
The Color to Number node converts a Color to a single number. This is usually done implicitly such that black is zero and white is 1, however there are times where you need more control. This is quite useful e.g. for roughness maps where you can use Color to Number to easily map a black/white image to go from e.g. 0.05 to 0.10 – this would be hard to do otherwise.





### ***Color Curve Randomize***

Add color randomness to curves that are assigned a solid color, texture map, or procedural texture.



## Textures

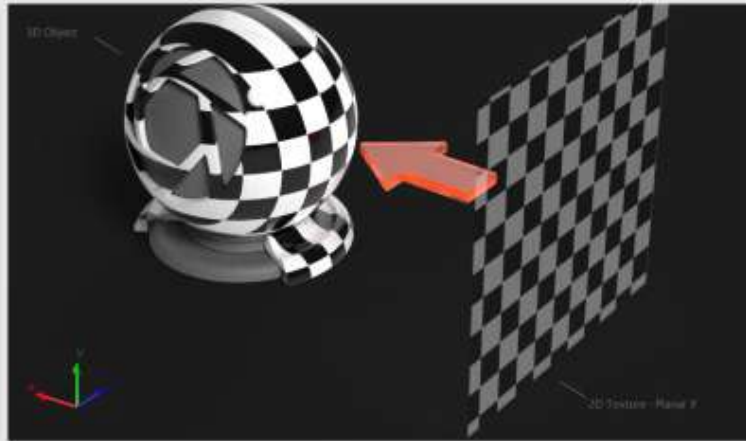
Textures allows images to be mapped to materials to create detailed effects such as wood grain, meshes tile as well as fine imperfections such as brushed metals. Textures are applied in the Material Properties tab under the Texture tab. Textures can be easily dragged and dropped from one mapping type to another.(e.g. bump > specular) Simply hold Ctrl (Windows) or Command (OS X) and drag the texture.

## Texture Mapping

Texture mapping is a way to take 2D images and place them onto 3D objects. This is a common issue that all 3D applications must address in some way. For example, should they be placed from the top? From the bottom? From the side? The following examples cover the methods KeyShot has for addressing texture mapping.

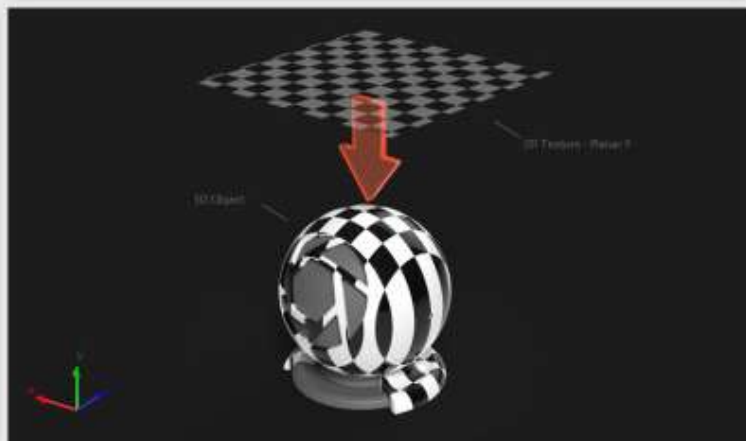
### Planar X

This will project a texture on the X axis only. Surfaces of 3D models that are not oriented on the X axis will show stretching in the texture like in the image shown.



### Planar Y

This will project a texture on the Y axis only. Surfaces of 3D models that are not oriented on the Y axis will show stretching in the texture like in the image shown.



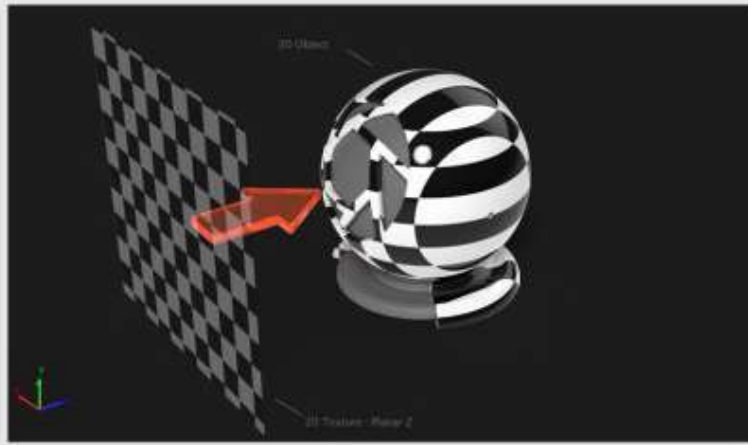
### Planar Z

This will project a texture on the Z axis only. Surfaces of 3D models that are not oriented on the Z axis will show stretching in the texture like in the image shown.

#### On this page:

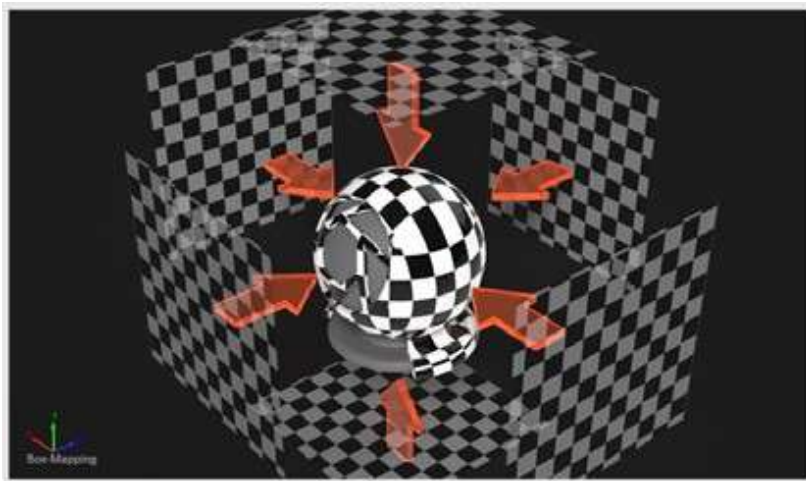
- Planar X
- Planar Y
- Planar Z
- Box Map
- Spherical
- Cylindrical
- UV Coordinates





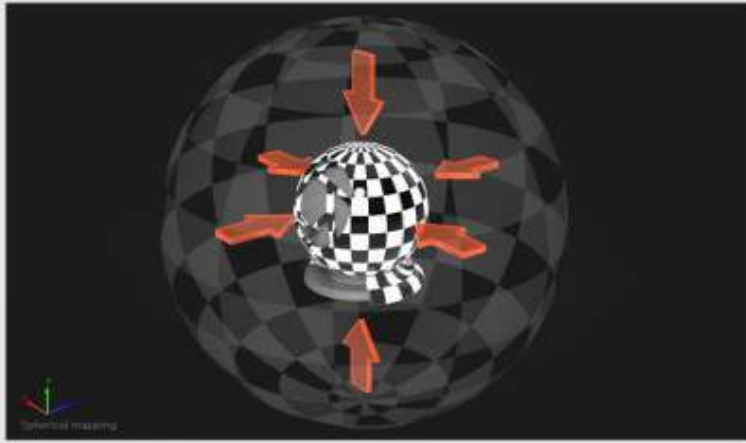
## Box Map

This will project a texture from six sides of a cube in towards a 3D model. A texture will be projected from a side of the cube until stretching occurs, then the next best projection side will take over. Box mapping is a quick and easy solution that will work in most cases because there will be minimal stretching of textures.



## Spherical

This will project a texture inwards from a sphere. The texture will resemble the original image the most at the equator. The texture will start to converge as it reaches the poles of the sphere. As with box mapping, stretching is less of an issue when working on multi sided objects than it is with any of the planar mapping modes.



## Cylindrical

This will project a texture inwards from a cylinder. The texture will project the best on surfaces that are facing the inside of the cylinder. The texture on surfaces that do not face the inner walls of the cylinder will stretch inwards.



## UV Coordinates

This is a completely different method of applying 2D textures to 3D models. Using 3D applications such as 3D Studio Max or Maya, you can design how the texture map is applied to each surface. It is more time consuming and is much more widely used in the entertainment industry as opposed to the design/engineering world.



## Texture Settings

Find all the texture settings in the “Textures” sub tab in the Materials window. All available texture types will be listed.

### Adding a Texture Map

Double click the texture swatch type you would like to add. This will open a window where you can choose the image file to apply as a texture. You can also drag and drop textures from the library.

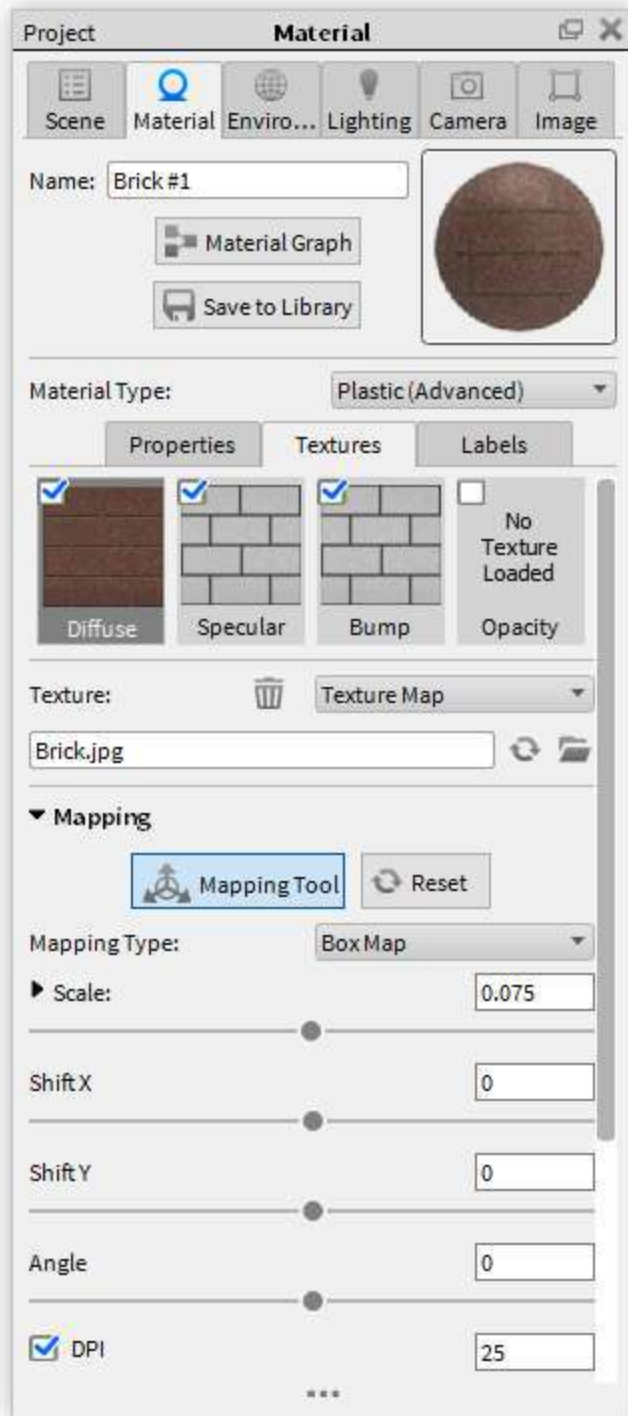
You can also use the procedural map drop down as a texture map. Use the check boxes in the list to toggle the display of the texture. Note that the available texture types will change based on what material type you are using.

### Texture File Management

If you want to delete a texture, use the “Trash” button to delete the selected texture from your material. If you made changes to the image file, use the “Refresh” button to update the texture map to reflect the changes. If you would like to replace the image file used for the texture map, click on the “File” button to choose a new image file to replace it with.

#### On this page:

- [Adding a Texture Map](#)
- [Texture File Management](#)

**Scale**

Change the scale of the image file uniformly, or on the X or Y axis.

**Shift X/Y**

Nudge textures incrementally on the X and Y axis.

**Angle**

Rotate the texture map in degree increments.

**Brightness**

Adjust the brightness of the image file.

**Contrast**

Adjust the contrast of the image file.

**DPI**

Enable accurate texture scaling when the appropriate units are applied to the scene.

**Sync**

Align multiple map settings to match perfectly.

**Repeat**

Tile texture maps on a surface.

**Flip Horizontal/Vertical**

If the image file you are using needs to be mirrored use these toggles to flip the image on the correct axis.



## Interactive Mapping Tool

In addition to the automatic mapping modes, KeyShot has an interactive mapping tool that will allow scaling, translating and orienting of any of the automatic mapping types interactively.

The interactive mapping tool is used to fine tune the position of textures as they are mapped to your model. The tool is accessed from the texture mapping tab within the material editing menu, and it is available when in box, spherical and cylindrical mapping modes.

### Translate

Use arrow handles to move the texture mapping position on the XYZ axes. To translate the mapping, click on any of the three axis arrows. The red, green and blue arrows correspond to the X, Y and Z axes.

### Rotate

Use circle handles to rotate and align the texture mapping to your model. Hold SHIFT to constrain the rotation to 15 degree increments.

### Scale

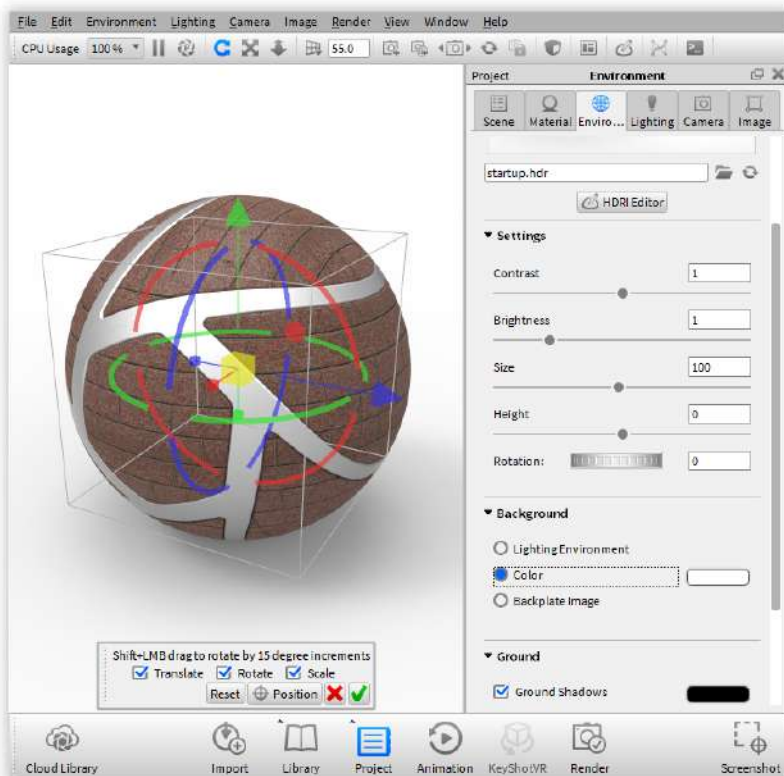
Use cube handles to change the size of the texture mapping. Click on red, green or blue boxes to scale the texture on only one axis, or click on the center yellow box to scale the texture uniformly.

### Position

Use this to establish exactly where you want the center of your texture image to project. Once in position mode, you can simply click on the surface of the model to change the where your texture is projecting.

### Cancel or Confirm Changes

After adjusting the texture mapping with the mapping tool, click the green check mark to confirm the changes and close the mapping tool. Click the red X to cancel the changes and close the mapping tool.

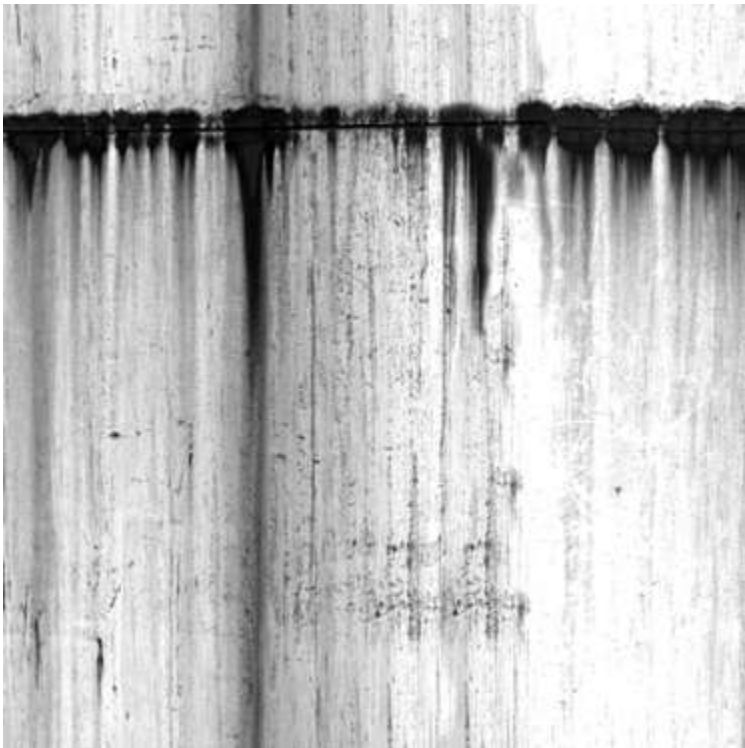


## Color Maps

Color maps use photographs to replace the basic solid diffuse color. This is used to recreate realistic digital materials based on photographs of real world materials. Any common image format can be mapped to material types that have the color map available. The example shows a wood texture mapped to the color texture on the advanced material.

## Specular Maps

Specular maps can use black and white values to indicate areas that have varying levels of specular intensity. Black will indicate areas of 0% specular reflectivity, whereas white will indicate areas of 100% specular reflectivity. Notice on the example that the metal portions are reflective and emitting specular reflections, whereas the rust area does not. The rust area has black mapped to it, whereas the metal area has white. See the texture for reference.



## Bump Maps

Bump maps are used to create fine details in materials that would be unrealistic to include in the model, like the hammered chrome and brushed nickel in the example. There are two methods of applying bump maps. The first and easiest is using a black and white image. The second way is by using a normal map.

### Black and White Image

When using a black and white image for a bump map, the black values are interpreted as lower and the white values are interpreted as raised. You can see how this is interpreted in the example.

### Normal Maps

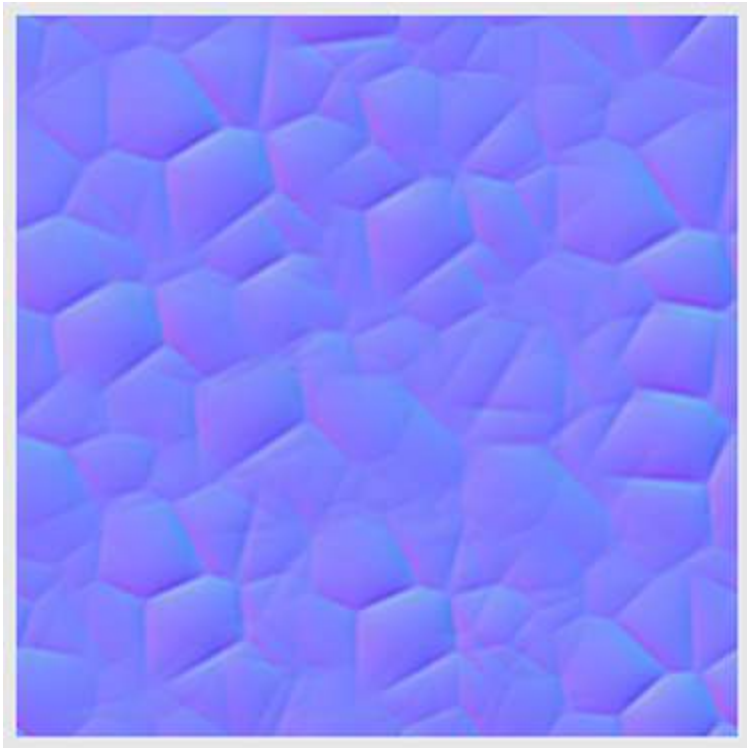
A normal map was used to create the hammered chrome in the example shown. Normal maps contain more colors than the standard black and white bump maps. These additional colors represent different levels of distortion on X, Y and Z coordinates. This can create more complex bump effects than a black and white bump map which represents only two dimensions. However, most bump effects can look very realistic without the need for normal maps. Enable this setting when a Bump map is selected by checking *Normal Map*.

**Bump Height**

With Bump maps, *Bump Height* controls the effect of the map. Increasing this raises the peaks of the bumps, and helps exaggerate the bump when the texture needs to be more visible.







## Opacity Maps

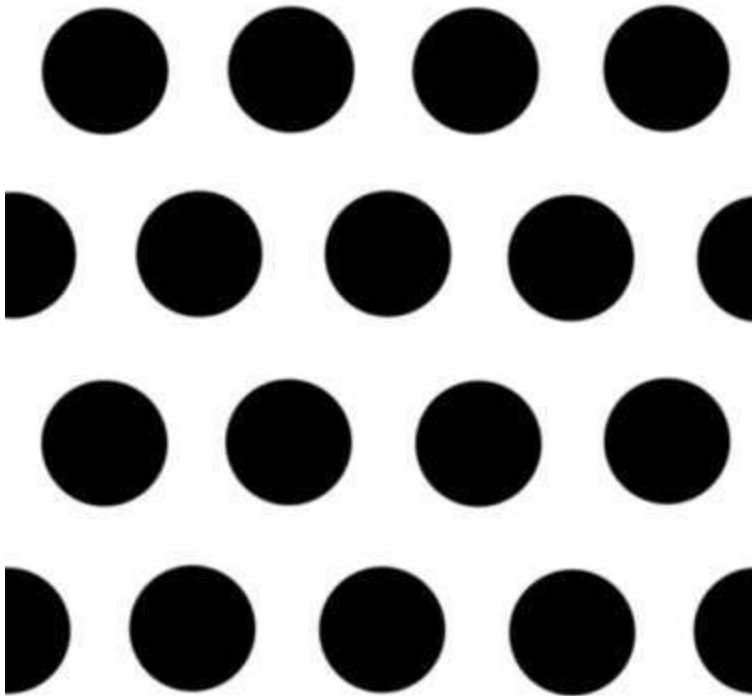
Opacity maps can use black and white values or alpha channels to make areas of a material transparent. This is useful for creating materials like the mesh material shown, without actually modeling the holes.

### Opacity Mode

The opacity mode can be set to three different methods:

- **Alpha**  
This will use any alpha channel that is embedded in the image to create the transparency. If no alpha channel is present, no transparency will be shown.
- **Color**  
This will interpret black areas as completely transparent and white areas as completely opaque. 50% gray will be 50% transparent. This method is available to avoid the need for alpha channels.
- **Inverse Color**  
Inverse color is the opposite of color. White will be completely transparent, black will be completely opaque and 50% gray will be 50% transparent.





## Procedurals

### Procedural Overview

Procedural textures are customizable textures that allow you to control the values and color of the texture in real-time. In comparison to traditional texture mapping, procedural textures wrap around your model without leaving seams or stretching, regardless of the model's shape.

Use the Texture type dropdown to choose the procedural texture you would like to use.

## Procedural Types

### Brushed

The Brushed procedural texture simulates the effects of brushed metal. It is best used as a bump on a metal material with low a roughness value.

#### Color 1/2

Use this to set the color for the highlights and shadows of the texture.

#### Bump Height

Use this to set the depth of the brushed texture

#### Length

Use this to control the length of the brush strokes.

#### Contrast

Use this to control how defined the brush strokes are.

### On this page:

- Brushed
- Cloth Weave
- Fiber Weave
- Mesh (Circular)
- Mesh (polygon)
- Brushed Radial
- Camouflage
- Cellular
- Color Gradient
- Curvature
- Granite
- Leather
- Marble
- Noise (Fractal)
- Noise (Texture)
- Occlusion
- Scratches
- Spots
- Vertex Color
- Wood
- Wood (Advanced)



### **Cloth Weave**

Cloth Weave simulates many types of fabrics and fine woven meshes.

#### **Gap Color**

This will designate the color in between the woven colors.

#### **U/V Thread Colors**

Assign the colors of your threads to affect the overall color of the weave.

#### **U/V Width**

Controls the thickness of the threads.

#### **U/V Wave**

Changes the direction of the threads within the weave to simulate different types of woven patterns.

#### **Contrast**

Increase or decrease the contrast of the threads.

#### **Width Noise**

Controls the uniformity of the thread widths.

#### **Color Noise**

Controls the uniformity of the thread colors.

#### **Distortion Noise**

Controls the uniformity of the thread straightness.



### **Fiber Weave**

Fiber Weave simulates many types of thicker woven material like carbon fiber meshes.

#### **Color 1**

This is the gap color.

#### **Color 2**

This is the color of the woven material.

#### **Projection**

Choose the type of projection used.

#### **Scale**

Set the correct scale of the weave in relation to the model.

#### **Gap**

Controls the size of the gap between the weaves.

#### **Edge Width**

Increasing this creates deeper shadows within the weave

#### **Contrast**

Increase or decrease the contrast of the threads.

#### **Fibers**

Set the amount of threads seen within the fibers.

#### **Noise**

Add noise to the weave color.

#### **Weave Noise**

Add noise to the straightness of the weave.



### **Mesh (Circular)**

Create a pattern of circles that can be used both for meshes in the opacity map and for a polka dot pattern in color maps.

#### **Color 1**

This sets the background color. Set the color to white for mesh if using texture as an opacity map.

#### **Color 2**

This sets circle color. Set the color to black for holes if using the texture as an opacity map.

#### **Lattice Parameters**

- **Lattice Angle**  
Choose the type of projection used.
- **Spacing U/V**  
Change the U/V spacing of the shapes in the pattern.

#### **Radius**

Change the size of the circle in the pattern.

#### **Flatness**

Increase this value to create an ellipse shape.

#### **Shape Rotation**

Rotate the circular shape within the pattern. This will only be visible if the flatness parameter has been increased.

#### **Falloff**

Increase this value to feather the edge of the circle.

#### **Noise Parameters**

- **Jitter**  
Increase this value to add deviation to the pattern.
- **Distort**  
Increase this value to randomly distort the shape of the circle.
- **Distort Scale**

A greater than one value decreases the distortion scale. A less than one value increases the distortion scale.



### Mesh (polygon)

Create a pattern of shapes that can be used for meshes in the opacity map, or a shape pattern in color maps.

#### Color 1

This sets the background color. Set the color to white if using "Lattice Polygon" as an opacity map.

#### Color 2

This sets the shape color. Set the color to black to create holes if using "Lattice Polygon" as an opacity map.

#### Lattice Parameters

- **Lattice Angle**  
Choose the type of projection used.
- **Spacing U/V**  
Change the scale of the overall texture.

#### Shape Parameters

- **Radius**  
This allows you to change the size of the shape in the pattern.
- **Sides**  
Increase this value to change from a square (4), Pentagon (5), and hexagon (6).
- **Shape Rotation**  
Use this to rotate the shape within the pattern.
- **Falloff**  
Increase this value to feather the edge of the shape.

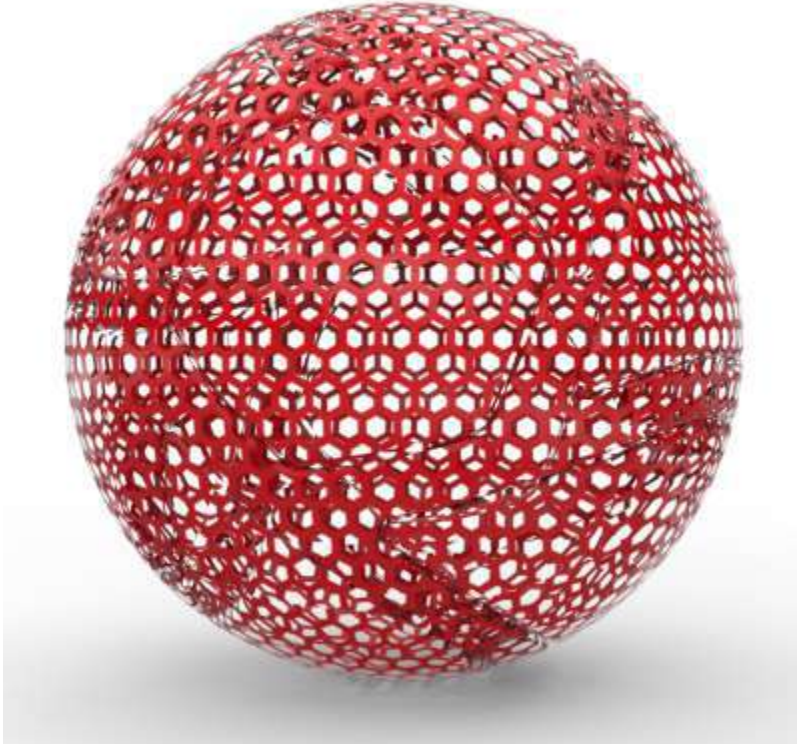
#### Noise Parameters

- **Jitter**  
Increase this value to add deviation to the pattern.
- **Distort**

Increase this value to randomly distort the shape.

- **Distort Scale**

A greater than one value decreases the distortion scale. A less than one value increases the distortion scale.



## **Brushed Radial**

Use the Brushed Radial procedural texture for a spun brushed metal finish.

### **Mapping Tool**

Use the mapping tool to place the center of the brushed texture.

### **Color 1/Color 2**

Choose contrasting colors here to create a ringed brushed pattern.

### **Scale**

Use this to control the overall scale of the texture.

### **Angle Noise**

Increase this value to vary the width of the rings.

### **Distortion Noise**

Increase this value to deviate the rings from a perfect circle. For a traditional spun brushed finish, you will want to leave this parameter at 0.

### **Radius**

Use this to control the amount of rings generated.

### **Falloff**

Increase this value to reduce the contrast between the colors selected.

### **Radial Axial Blend**

Use this to create continuous textures on a cylinder that continues into a rounded cap. For most applications you will leave this at default.



## Camouflage

Use the Camouflage procedural texture to simulate camouflage textures used in the real world.

### **Color 1/2/3/4**

Set the mix of colors to be used in the texture.

### **Scale**

Change the scale of the overall texture.

### **Color Balance**

Colors 1-4 are dispersed through the pattern in descending order, so there are more spots of color 1 than color 3 or 4. Increase this parameter to balance the ratio of colors, or reduce the parameter to increase the difference.

### **Distortion**

Change this parameter to control the amount of shape complexity the spots have.

### **Spray**

Increase this parameter to feather the edges of the spots.

### **Mix Colors**

Enable this option to allow the colors to blend as they overlap.





## Cellular

The Cellular procedural texture is an advanced tool that can create a wide variety of texture maps. You can create a hammered texture as seen here, or you can create cracked surfaces, orange peel paint, crumpled paper, and more.

### Scale

Use this to set the scale of the scale of the texture.

### Bump Height

Use this to control the overall intensity of the texture map

### Contrast

Contrast refers to the difference in the peaks and valleys of the bump map. Control them globally, or expand for finer controls.

### Shape

Control the fractal shapes generated with this slider. Control them globally, or expand for finer controls.

### Levels

Increase or decrease the levels of fractals being generated. Control them globally, or expand for finer controls.

### Noise

Use this slider to add noise to the line quality of the fractal shapes



## **Color Gradient**

The Color Gradient Procedural Texture allows you to mix two separate colors on a surface without having to create a custom texture map.

### **Mapping Tool**

Use this to move the center line of the gradient.

### **Colors**

Double click a color slider to select what color will be applied to the color gradient. Use the triangle slider to determine the midpoint of the gradient. To add another color to the gradient, click the "+" icon. To delete a color, select the color slider to be deleted, and click the "Trash" icon.

### **Location**

Adjust this to numerically control the selected color slider.

### **Gradient Type**

Use the dropdown to choose a gradient type that suits your needs.

### **Scale**

Use this to set the scale of the texture.

### **Angle**

Use this to incrementally rotate the texture on the surface in degrees.

### **Shift**

use this to incrementally shift the texture on the surface.

### **Invert**

Reverse the direction of the gradient.



## Curvature

Use the Curvature procedural texture to analyse surface curvature in your model and parts.

### Negative Curvature

Choose a color to display when surface curvature is going into the negative direction. The more severe the angle, the closer to the set color the texture will be.

### Zero Curvature

Choose a color to display where there is zero curvature. The closer to flat a surface is on the model, the closer color will become to the chosen color.

### Positive Curvature

Choose a color to display where the surface curvature is going into the positive direction.

### Cutoff

Control the scale of the curvature. Decrease the value to have a smaller range of curvature. Increase to have a larger range of curvature.

### Radius

Radius refers to the radius around each point on the surface in which curvature is estimated.

### Samples

Increase the samples to improve the quality of the gradations. Increasing this parameter also increases render time.

### Adaptive Radius

Enable this toggle to even out surface gradations.

### Sample Same Material Only

Enable this toggle to use the curvature data from this material only.



### **Granite**

The Granite procedural texture allows you to simulate the granite texture of a counter top, tile, or stone.

#### **Color**

This is the overall color of your granite texture.

#### **Scale**

This controls the scale of the grain in the granite.



## **Leather**

The Leather procedural texture allows you to easily replicate a leather textured material.

### **Color 1**

This is the color of the high points (bumps) in leather. This color should be lighter than color 2, but it should be as close to color 2 as possible for realistic looking leather.

### **Color 2**

This is the color of the low points in leather. This color should be darker than color 1, but it should be as close to color 1 as possible for realistic looking leather.

### **Scale**

This controls the scale of the leather grain.

It is highly suggested that you add a synced procedural leather bump to further simulate realistic leather.



## **Marble**

The Marble procedural texture allows you to simulate the marble material on a counter top, tile, or stone.

### **Color 1**

This is the overall color of your marble texture.

### **Color 2**

This is the color of the veins in the marble texture.

### **Vein Thickness**

This allows you to adjust the thickness of the marble veins.

### **Vein Noise**

This adds random fluctuations to the marble veins.

### **Vein Noise Scale**

This adds fluctuations to the overall direction of the marble veins.

### **Scale**

This controls the scale of the veins in your marble texture.



### **Noise (Fractal)**

The Noise (Fractal) procedural texture also allows you to simulate ripples and bumps in your material.

#### **Colors 1 and 2**

The noise procedural has light and dark colors that you can modify using these two settings.

#### **Scale**

This controls the scale of the fractal noise.

#### **Levels**

This adds more detail to the fractal noise.

#### **Fall-off**

This controls the color balance. Low values accentuate color 2, and high values accentuate color 1.



### **Noise (Texture)**

The Noise (Texture) procedural texture is very similar to the stock noise texture in the textures library, and it allows you to simulate ripples in glass and liquid materials when used as bump.

#### **Colors 1 and 2**

The noise procedural has light and dark colors that you can modify using these two settings.

#### **Scale**

This controls the scale of the noise.

#### **Magnitude**

This increases the intensity of color 2 and the contrast between the two colors.





## Occlusion

This new procedural texture type allows for the addition of proximity-based shading on a material. It can be used to accentuate or augment the self shadows cast on a material and along with the Material Graph, create interesting texture effects based on occluded and unoccluded areas.

### Unoccluded

Choose a color that will be used where there is least amount of surfaces near each other. This will most likely be the base color, although there are other creative applications of this procedural texture.

### Occluded

Choose a color that will be used where there are surfaces near each other. Examples would be a parting line, a fold of skin, or a narrow alley. For more natural results, choose a color that is a darker value of your "Unoccluded" color to create deeper shadows.

### Radius

It is the maximum distance towards any occluding object. If an object is further away it will not be considered in the occlusion computation. This value will control how deep or far the shaded "Occluded" color will reach on the model.

### Falloff

This value controls how blended the two colors are.

### Bias

The bias settings control the intensity of the occlusion on the model.

### Normal

This setting adjusts the contrast between the "Unoccluded" and "Occluded" colors on the model.

### X/Y/Z Bias

These settings increase the intensity of the "Occluded" color in relation to the X, Y, and Z directions of your scene.

### Advanced

- **Samples**

this setting controls the quality of rendered image.

- **Sample Same Material Only**  
Enabling this option will only calculate the occlusion in relation to parts with this material applied, ignoring other parts.
- **Inside**  
This will invert the normal values to determine occlusion. This is useful when applying this material on a part that was not modeled with interior surfaces.
- **Fast**  
Since the Occlusion procedural texture emulates what is happening with global illumination, you can choose to ignore GI calculations on this material for faster renders.

## Scratches

Scratches is a great way to add weathering to materials, and to metal materials in particular.

### Scale

Use this to set the correct scale of the pattern generated.

### Bump Height

Increase this value to have deeper scratches.

### Density

Use this to control the number of scratches generated.

### Size

Use this to set the size of the individual scratches. Expand to control the scratch width and scratch falloff.

### Directional Noise

This controls the randomness of the direction of the scratches. Decrease this value to have scratches in a more aligned direction. Expand to choose mapping.

### Noise

Controls the straightness of the scratches. Increase the value to have more irregularly shaped scratches. OR irregular scratches. Expand to access the noise scale slider.

### Levels

Controls the number of unique scratches that are generated. Expand to access the level scale.



## Spots

The Spots procedural texture is an interactive method of creating a texture map of scattered spots on a surface.

### Inside Color

Use this to set the color of the spots generated.

### Outside Color

Use this to set the color of the background.

### Scale

Use this to control the overall scale of the texture map.

### Density

Use this to control the number of spots that appear on your surface.

### Radius

Use this to change the overall size of the spots generated.

### Falloff

Feather the edges of your shapes with this parameter.

### Distortion

Increase this parameter to randomly warp the shape of the spots.

### Distortion Scale

Use this parameter to change the amount of distortion is applied to the spots.

### Levels

Increase the amount levels of sizes that appears.

### Levels Scale

This changes the difference in sizes between the various levels. Increase the value to greater than one to decrease the smallest spot size. Decrease the value to less than one to increase the largest spot size.

### Intensity Modifier

Increase this parameter to have the spots decrease in opacity as they decrease in size.

**Invert**

Enable this option to have the spots feather in to the outside color, creating rings or bubble like silhouettes.

**Vertex Color**

The "Vertex Color" texture is used only with geometry imported from other 3D applications that supports vertex color texture maps. Do not use this texture if you are not importing from a compatible 3D application as it will have no affect.

**Default color**

controls the background color that is used for the alpha channel from an imported vertex texture.

**Multiplier**

Blend a color with the imported vertex color texture.

**Wood**

The Wood procedural texture allows you to customize the look of your wood materials. Most often, you will want to start out with the plastic material type and change the specular color to white.

**Ring Width**

This adjusts the thickness of the wood rings.

**Ring Noise**

This adds random fluctuations in each ring.

**Axial Noise**

This adds fluctuations or waviness of the overall direction of the grain.

**Color Noise**

This creates random thick and thin areas to give a more organic look to the wood ring.

**Scale**

Use this to increase size of the grain. For best results, keep the scale small.



## Wood (Advanced)

The Wood (Advanced) procedural texture gives finer control than the basic wood procedural texture, and creates more realism in the map.

### Winter/Spring/Summer/Fall

New wood formed in a tree during spring and summer is light in color. Toward the end of a growing season, new cells formed are smaller and have darker, thicker walls. Choose the color swatches to accurately color the rings in accordance with the seasons.

### Scale

Use this to control the overall scale of the texture map.

### Ring Width

This adjusts the thickness of the wood ring.

### Ring Spacing Variation

This parameter controls the contrast of thick and thin ring shapes to represent different rates of annual growth.

### Ring Noise

This adds fluctuations or waviness to the rings.

### Axial Noise

Increase this parameter to add variations to the circular shapes of the rings.

### Color Noise

Increase this parameter to add more splotches of color in the rings.

### Seasonal Color Noise

Add variation to each color swatch as it blends from each color.

### Knots

#### Knot Color/Border

The knot color is blended into the main colors of the texture. Choose a grey value to darken the knots. The knot border should be darker than any of the other colors.

#### Knot Density

This parameter controls how many knots appear in the texture.

#### Knot Age

Increase this parameter to increase the number of rings that appear in the knots.

#### **Knot Border Size**

This parameter changes the thickness of the knot borders.

#### **Knot Distortion**

Use this to control the fluctuations and add irregularities in the knot shape.

#### **Branch Scale**

Control the overall size of the knots with this parameter.

#### **Grain**

##### **Grain Color Bleed**

This parameter controls the amount of color each ring blends into the rings on either side. Decrease to have very clearly defined rings or increase to give the rings a more blended appearance.

##### **Axial Graniness**

Increase this parameter to blur the texture.

##### **Ring Graininess**

This adjusts the thickness of the wood rings.

##### **Grain Scale**

This adjust the size of the grain striations between the rings.

##### **Grain Thinness**

Control the size of the grain striations with this parameter.

#### **Advanced**

##### **Seed**

Scrub through this parameter to add randomness to all of the previous parameters to create a more natural look.



## **Labels**

Labels are designed for easy placement of logos, stickers or images that need to be placed freely onto a 3D model. Labels are added through the labels tab in a material's properties.

Any common image format will be supported such as JPG, TIFF, TGA, PNG, EXR and HDR. An unlimited number of labels can be added to a material and each label can have its own mapping type. If an image has an alpha channel embedded, it will be retained and areas of transparency will not show. The sample image uses a PNG with transparency so that the square border of the image does not show.

## Label Properties

### Adding Labels

Labels are added by either clicking the “+” icon and selecting “Add Label.” Once added, the label name will be displayed in the list. You can also choose “Duplicate” to create copies of existing labels.

### Deleting Labels

Labels can be deleted by selecting the label in the list and clicking the Trash icon.

### Duplicating Labels

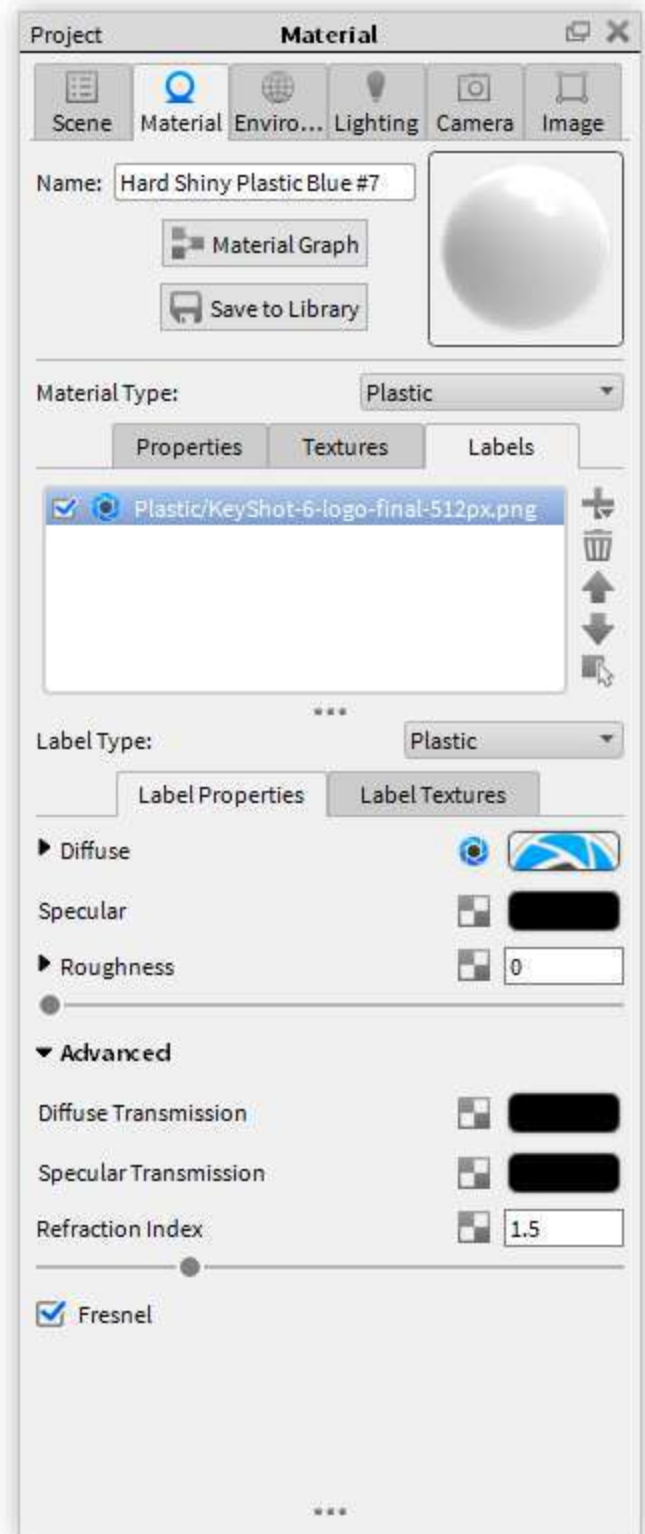
Labels can be duplicated by selecting the label in the list and clicking the Add icon, and select duplicate.

### Layering

Labels will be layered as they are added. If labels overlap on the model, they will stack in the same order as ordered in the Labels list. The label order can be shifted by pressing the up and down arrow buttons.

### Label Type

Each label can be assigned a material type. The default material applied to a label is plastic, but it can be changed to Advanced, Anisotropic, Diffuse, Emissive, Metal, Metallic Paint, Paint, Translucent, Toon, and Xray. The Properties Tab will show the contextual settings for the label type selected. See the Materials section for more.



## Label Textures

In the *Label Textures* tab you can add other maps to your label similarly to the *Textures* tab for Materials. The type of texture





maps available to a label type will be similar to the type of textures available to the material type. Use the check boxes in the list of texture types to enable or disable a texture map.

### Reload

Use the *Reload* button



if you made changes to the image file and need to update the Label on your model.

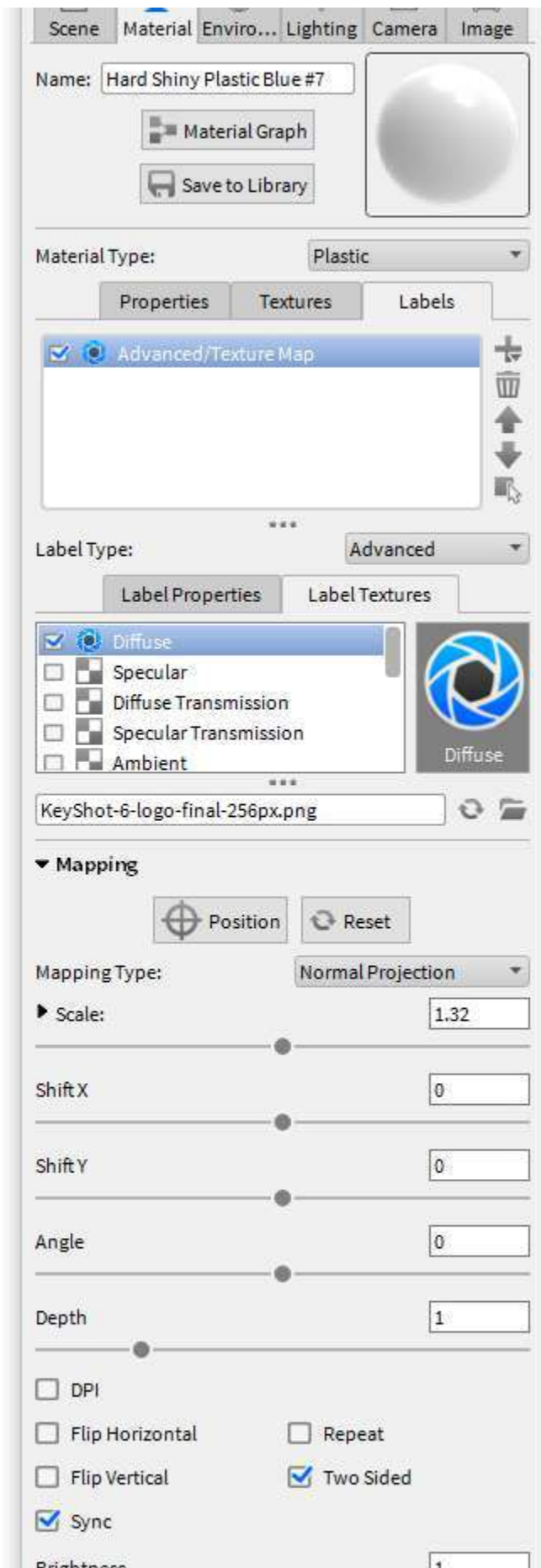
### Load

Use the Load button



to replace the label map image file with a different file. The name of the file will appear in the text box.

To learn more about the label capabilities in KeyShot watch the video below.





## Label Mapping

The default mapping type for labels is Normal Projection. This allows labels to be projected on surfaces interactively. Change the mapping type by using the Mapping Type pull-down.

To position the label, click the mapping tool button and then click on the model to move the label. When the label is in the desired position,

Confirm the placement by clicking the green check button in the bottom of the realtime window. That will deactivate the interactive positioning.

To scale the label, move the scale slider. This will adjust the size of the label and maintain height to width proportions. To scale the label vertically or horizontally, expand the scale parameter to scale independently on the X or Y axis.

To rotate the label, use the angle slider which will rotate the label in degrees.

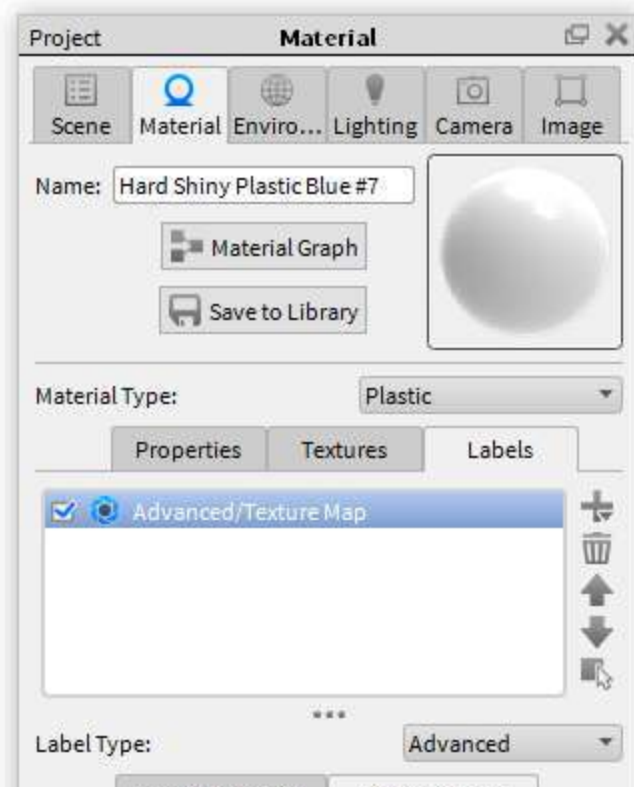
Labels can also be flipped vertically, horizontally and repeated by checking any of those options.

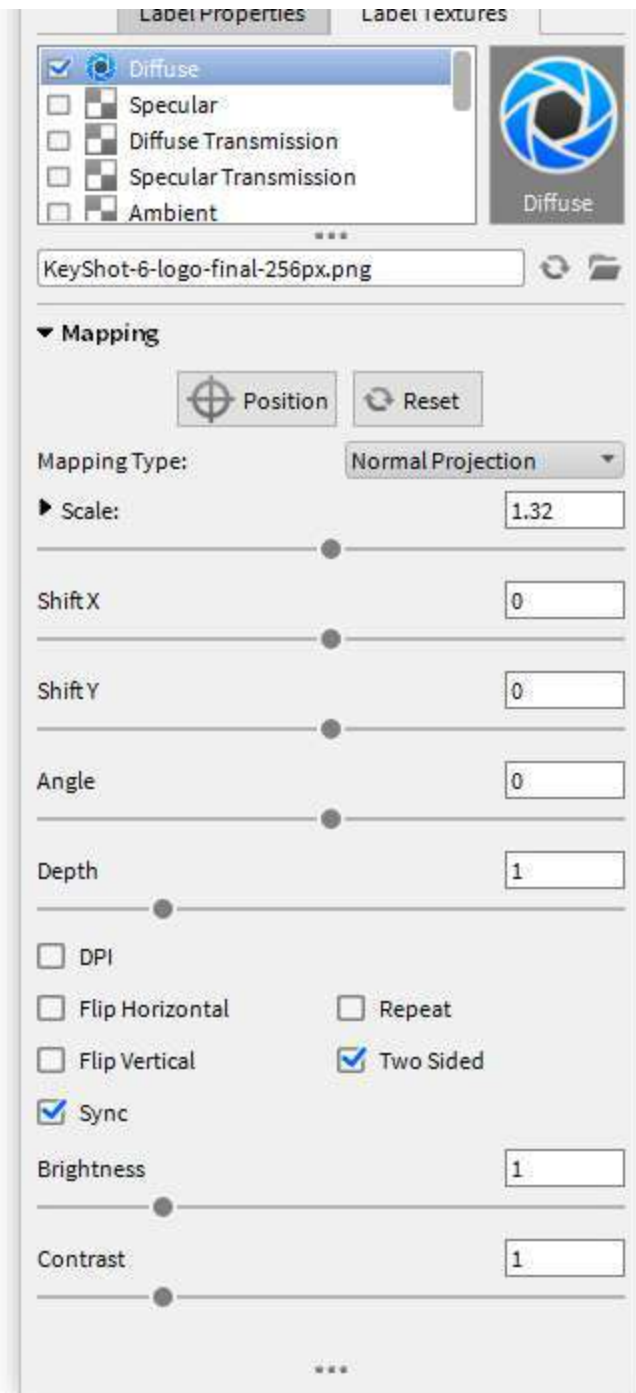
Enabling the "Two Sided" option will display the label on both sides of the surface it is applied to.

The "Sync" option will sync the mapping settings across all texture maps applied to the label.

Brightness and Contrast sliders adjust the label image qualities.

On this page:





Learn how to emboss a logo onto your model by clicking below.

## Lighting

There are two methods of lighting a scene in KeyShot:

- [Environment Lighting](#)
- [Physical Lighting](#)

## Environment Lighting

The primary method of lighting a scene in KeyShot is through Environment

Lighting. Environment Lighting uses spherical High-dynamic-range imaging (HDRI) to represent the full, physically accurate lighting of an interior or exterior space.

## Environment Presets

KeyShot comes with many environment lighting presets to get you on your way fast. Access all environment preset from the *Library* window, *Environments* tab. Additional environments may be accessed on [KeyShot Cloud](#).

## Environment Tab

The *Environment* tab is where you control all the settings for your environment lighting. Access the settings from the *Project* window, *Environment* tab.

## HDRI Editor

KeyShot Pro users will see the HDRI Editor button on the Environment tab directly beneath the HDRI preview. [Learn more](#).

### On this page:

- Environment Presets
- Environment Tab
- HDRI Editor

## Physical Lighting

In addition to the accurate environment lighting in KeyShot, physical lighting allow you to add different types of lighting wherever you need it. Implemented as a KeyShot Material Type, they can be applied to any piece of geometry to turn it into a local light source. It's a completely different approach from traditional rendering applications allowing more flexibility for rendering light accurately in your scene.

### Light Sources

There are three Material Types Light Sources that provide different lighting capabilities:

#### Area Light Diffuse

Turn any object into an array of light. View and adjust the position in the real-time window. Control the intensity of the light using Power (Watts) or Lumens.

#### Point Light Diffuse

Turn any object into a point light. View and adjust the position in the real-time window. Control the intensity either using Power (Watts) or Lumens.

#### Point Light IES Profile

Load an IES profile by clicking on the folder icon in the editor and see the shape of the IES profile load in the material preview and in the form of a mesh in the real-time window.

### Adding Lights

A light source may be added to any objects you like. Import new geometry or use existing geometry as a light source allowing you to easily control multiple, identical light sources simultaneously without requiring you to import and place additional objects in the scene.

When you drag and drop a "light material" onto an object, KeyShot will identify the light source by adding a light bulb icon next to the object. Simply double-click on an object, select Type, and choose one of the following three light sources from the list.

### On this page:

- Light Sources
  - Area Light Diffuse
  - Point Light Diffuse
  - Point Light IES Profile
- Adding Lights

## Lighting tab

The *Lighting* tab, located in the *Project* window, provides presets and global light settings.

### Lighting Presets

### On this page:

- Lighting Presets
- How it Works

The Lighting tab contains different Lighting Presets to make applying global light settings faster. Five preset options are included with an additional option to save your own custom preset. The presets include:

#### **Performance**

This preset disables light source materials and shadows with reduced bounces for the fastest performance possible. This is useful for scene setup and quick manipulation.

#### **Basic**

This preset provides simple, direct lighting with shadows for basic scenes and fast performance. This is useful for rendering simple models illuminated by the environment.

#### **Product**

This preset provides direct and indirect lighting with shadows. This is useful for products with transparent materials illuminated by the environment and local lighting.

#### **Interior**

This setting features direct and indirect lighting with shadows that is optimized for interior illumination. This is intended for complex interior illumination with indirect lighting; although it can also be used to avoid noise created by local lights and provide more accurate sampling of HDRIs with very small and strong light sources such as Sun & Sky. It is also useful for:

Jewelry: very fast convergence of caustics

Products: Avoiding noise from local lights in glossy materials

Exteriors: better HDRI sampling (fully spherical); better handling of very bright, very small areas in an HDRI (e.g. Sun & Sky)

#### **Custom**

This preset allows complete control over lighting options with the ability to save and load presets. To add a new preset, adjust your settings, then select the '+' symbol and

## **How it Works**

From the *Project* window, select the *Lighting* tab. Expand the *Settings* section. When you switch between presets, notice how the settings change for each. If a setting is manually adjusted, the preset will switch to *Custom*, which can be saved by clicking the '+' icon next to the *Custom* drop-down menu. After a name is entered, this new custom preset will be added to the drop-down list where it will be saved. To delete a custom preset, simply select it from the drop-down and click the trash icon.

## **Scripting**

A wide range of KeyShot functionality is made available via scripting to unleash the power of automation and batch processing. Predefined scripts are found in the Scripts tab of the Scripting window, which includes easy-to-use scripts for batch rendering, encoding video and more, with complete functionality to create and save custom scripts. This includes camera control, lighting presets, materials and material templates, environment, background, backplates, rendering (images, animations, and VR) and opening/saving/importing files.

### **Overview**

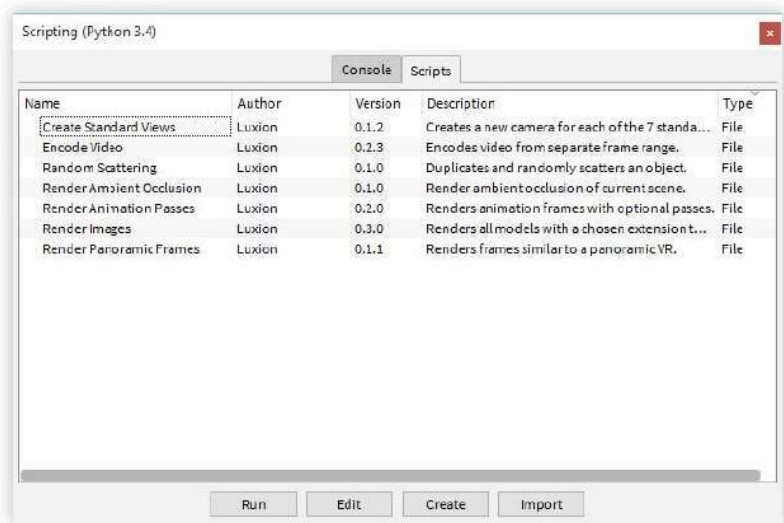
Scripting in KeyShot Pro is implemented using Python 3.4 and is accessed via the "Scripting Console" (Window > Scripting Console) or from the Ribbon bar below the main menu. Scripts can be run from the command line, using the format `keyshot -script`. Online scripting documentation is located at <https://keyshot.com/scripting/doc/6.0/> which also contains a [quick start guide](#) on how to use scripting.

### **Scripts Location**

#### **On this page:**

- [Overview](#)
- [Scripts Location](#)
-

Scripts are located in the KeyShot Assets Folder, e.g. \KeyShot 6\Scripts. To change this location, select *Edit, Preferences, Folders* and change the path for the *Scripts* folder. Scripts in the folder will be visible in the *Scripts* tab of the *Scripting* window.

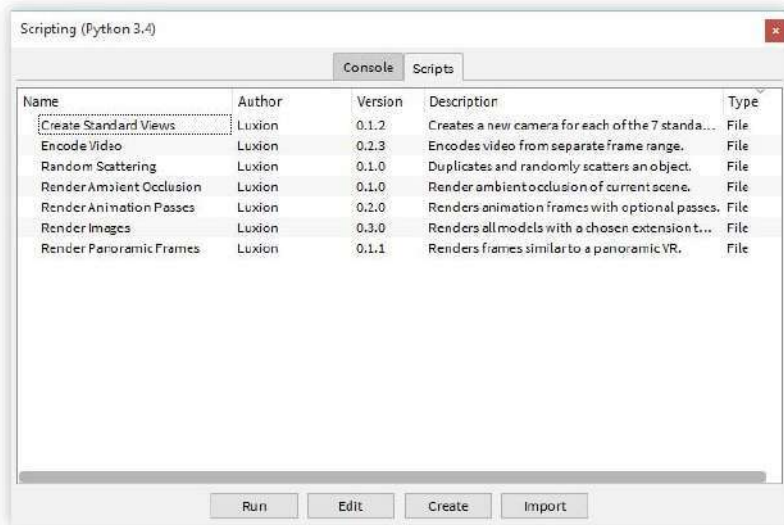


## Creating A Script

To create a script, select *Create* from the *Scripts* tab. Provide a name for the script and the author.

If Python 3.4 is installed locally on the machine, then KeyShot will detect Python and all of the installed modules, such as NumPy, SciPy, PIL, etc., that can then be freely used for scripting in KeyShot (this can be disabled in the advanced preferences section). You may also import a script or edit an existing script using the corresponding buttons on the *Scripts* tab.

Vector and matrix classes are made available in the luxmath module to help with doing calculations. They are named luxmath.Vector and luxmath.Matrix respectively.



## Scripting Examples

### Render Images

Renders OBJ or geometry sequence into images. Renders a frame for each geometry file.

#### How to use:

- Select script and press Run, which shows a dialog asking for input.
- Click the browse button and select the folder with the geometry (.obj) sequence.
- For input, type the extension of the geometry without the dot (obj).
- For output, type the extension of the image format without the dot (png).
- Input the width and height of the output images in pixels.
- Click OK to begin the process.

### Encode Video

Encodes video using an image sequence over a specific range of frames.

#### How to use:

- Select script and press Run, which shows a dialog asking for input.
- Click the browse button and select a folder with the image frames.
- For frame format, copy the name of the file, replacing the frame number with %d, e.g. my\_new\_animation.%d.jpg.
- Enter the start frame – the number in the name of the first image, e.g. 1 on my\_new\_animation.0001.jpg.
- Enter the end frame – the number in the name of the last image, e.g. 60 on my\_new\_animation.0060.jpg.
- Enter FPS for the video.
- Enter the video name.
- Click OK to begin the process.

## HDR Editor

The KeyShot HDR Editor is a simple way to make adjustments to lighting environments. The editor adjustments and pins menu can be docked to the left or right side of the editor dialog.

To learn more about the HDR editor and how to make it better fit your scene, click the link below.

#### On this page:

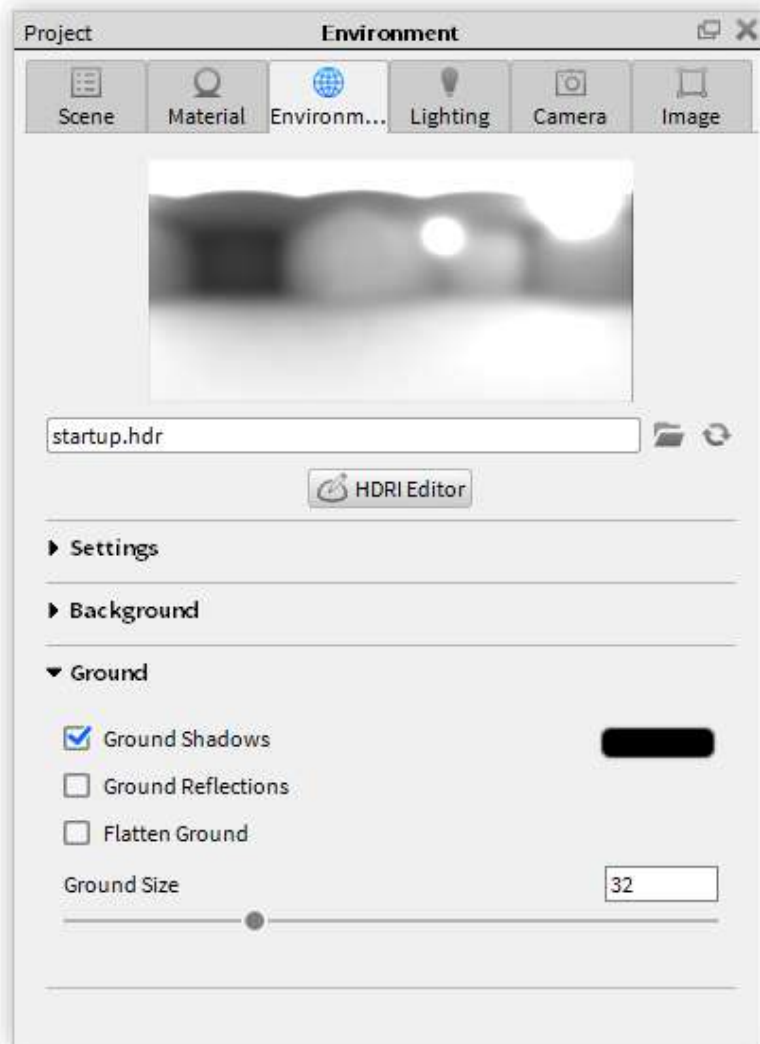
- [Render Images](#)
- [Encode Video](#)

#### On this page:

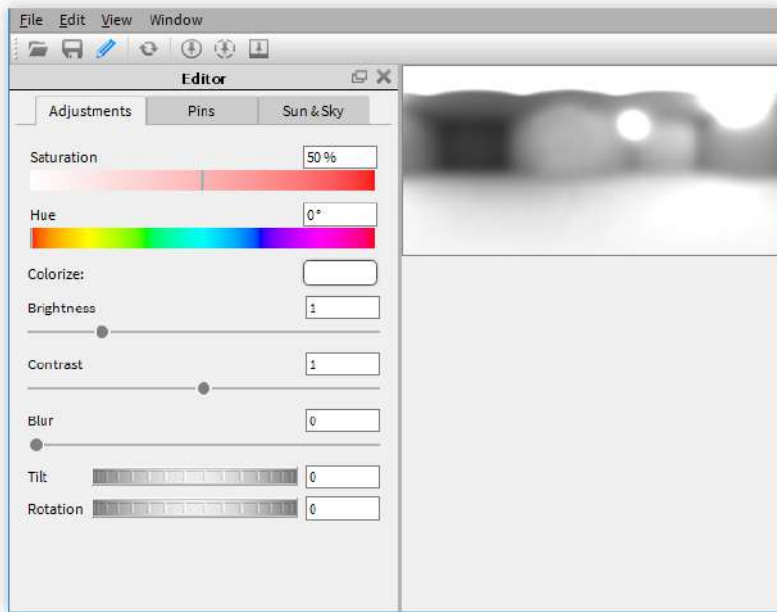
- [Open the Editor](#)

## Open the Editor

The KeyShot HDRI Editor is opened by clicking the *HDRI Editor* button below the thumbnail on the *Environment* tab.







## HDRI Editor Menu

### File

#### New HDRI

You can create an HDRI environment from scratch using this menu item. You will be prompted to choose the resolution and background color for the new HDRI.



#### Open Image

While it is recommended to use an HDRI image file, or a KeyShot HDZ, the KeyShot HDRI editor allows you to use low dynamic range images such as JPG, PNG, and GIF.

#### Replace Image

Use this to swap out the HDRI with another image file.

#### Save

Use this to save the current HDRI to a KeyShot HDZ file.

#### Save As...

Use this to save the current HDRI as an HDRI with a different file name.

### Edit

#### Undo

This will list the last action executed in the HDRI editor. It is important to remember that the "Undo" in the HDRI editor is a separate list of actions than the "Undo" in KeyShot.

#### Clear Pins

Use this to remove all pins from your pin list.

#### On this page:

- [File](#)
- [Edit](#)
- [View](#)
- [Window](#)

### Generate High Resolution

While an environment is being edited, the image is downsized to increase performance. To see the environment in full quality, use the “Generate High Resolution For KeyShot” option.

## View

### Display Type

Here, you can toggle between “Flat” and “Spherical.” “Flat” stretches out the HDRI to a flat rectangular image you can edit. The “Spherical” option displays the image on two circular projections that minimize distortion. Use the display mode that suits your workflow.

### Display Orientation

Use this to choose an orientation that works best for you.

### Reset View

After dragging your HDRI, click on “Reset View” to move the HDRI back to the default position.

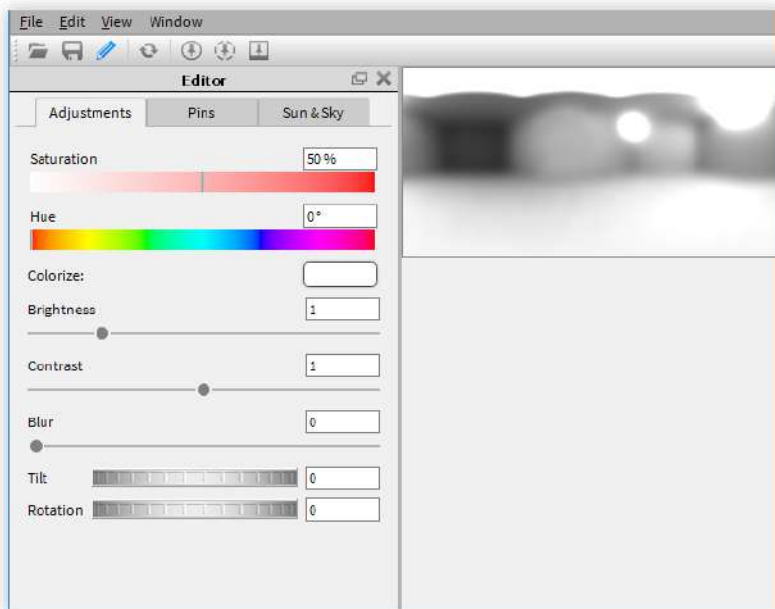
## Window

### Show Ribbon

Enable this option to show the HDRI ribbon, which has a hot of quick action tools for the HDRI editor.

### Show Editor

Enable this option to display the Editor panel, which contains settings for image adjustments, Pins, and Sun & Sky.



## HDRI Editor Ribbon

The “Ribbon” in the “HDRI Editor” contains quick access to tools within the HDRI editor. The tools consist of the following:



- Open
- Save

- Generate High Resolution
- Add Pin
- Add Copy Pin
- Add Image Pin

### Show Ribbon

If the ribbon is not visible, select, *Window, Show Ribbon* from the KeyShot HDRI Editor menu or press the *R-key* on the keyboard.

## HDRI Editor Adjustments

The *Adjustments* tab contains simple sliders to enhance and fine tune the HDRI environment.

### Saturation

Use the saturation slider to increase or decrease the intensity of color in the environment.

### Hue

Use the hue slider to shift the colors of the environment.

The slider is in degrees, from 0 to 360, to represent the color wheel.

When the environment hue is shifted, the resulting color is dependent on the starting point color. For example, if your environment is mostly red and the hue slider is set to 120, the resulting environment will be mostly green. If the starting point is green, and the hue is again set to 120, the resulting environment will be blue.

### Colorize

Use "Colorize" to overlay one color on the entire environment image. The colorize color blends with the original environment colors, so the final colors will be a mixture based on the original colors, the saturation slider value, the hue slider value, and the colorize color.

In order to obtain a single color tone, set the saturation slider to 0 and adjust the "Colorize" setting to your desired color.

### Brightness

Use the "Brightness" slider to lighten or darken the environment.

### Contrast

Use contrast to create a sharper lighting result (high contrast) or a softer lighting result (low contrast).

The the "Contrast" value also controls how sharp the ground shadows in KeyShot will appear. A low contrast environment will show softer shadows.

### Blur

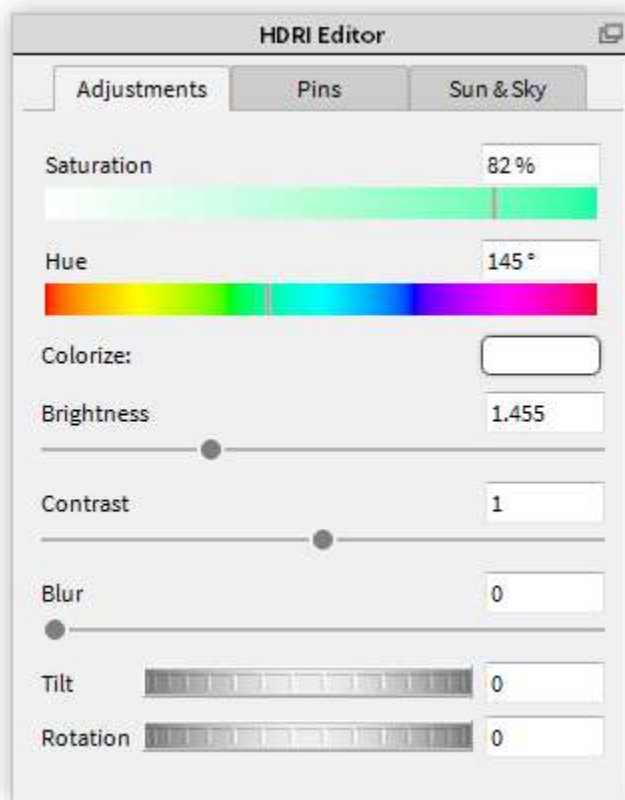
Using the blur slider will blur the environment.

### Tilt

Use the tilt dial to tilt the environment along the X axis. This is a great way to fine tune your reflections.

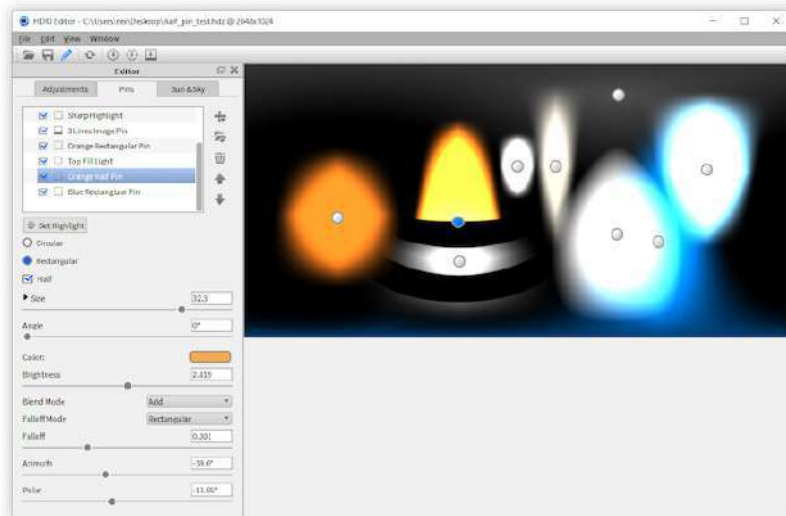
### Rotation

Use the rotation dial to rotate the environment along the Y axis. This works independently from the rotation option available in the environment tab.



## HDRI Editor Pins

Pins are light sources that can be placed into the HDRI to further enhance the image file, and give the desired lighting effect on the object scene.



#### On this page:

- Pin Options
- Pin List
- Pin Types Explained
- Additional Settings

## Pin Options

### Add Pin

The Add Pin options include Add Pin, Add Copy Pin, Add Image Pin, and Set Highlight. Click on the “+” icon to add a pin. Select a pin type to place in the HDRI. The new pin will be displayed in the pin list as well as the preview window. To make a pin active for editing, select it in the pin list or click on the pin handle in the preview window. Drag the pins by their handles to position them. The “Add Highlight”-pin is explained below in the “Set Highlight” section.

### Pin Folders

Use pin folders to organize all your pins in your HDRI. Click on the “Add Folder” icon to add a folder to the list and drag pins into the folder.

### Delete Pin

Click on the trash can icon to delete the active pin.

### Move Pin Up/Down

Click on the arrows to change the pin order in the pin list. The order is important as it will display and layer pins from the top down.

## Pin List

Contains all the pins created in the HDRI editor. You can enable or disable a pin by clicking the checkbox to the left of its name. You can rename a pin by double clicking its name. Right click pins for options to delete or duplicate. The icon to the right of the name denotes the type of pin it is. The active pin being edited will be highlighted blue in the list and will be marked by a blue dot in the preview window.

## Pin Types Explained

### Add Pin

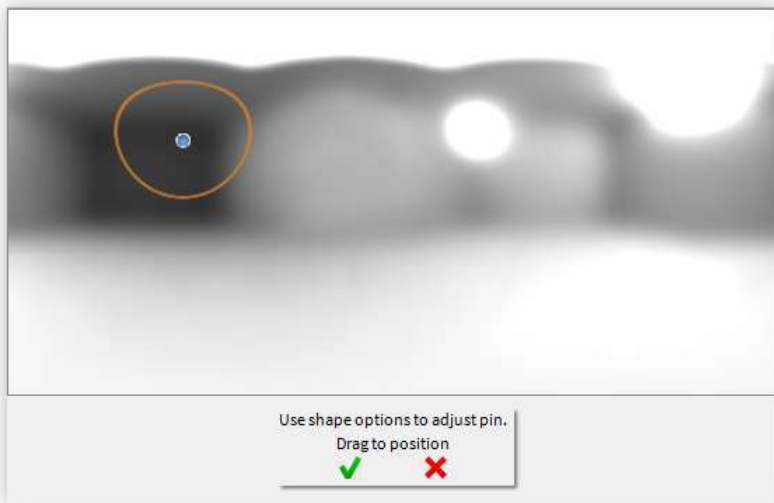
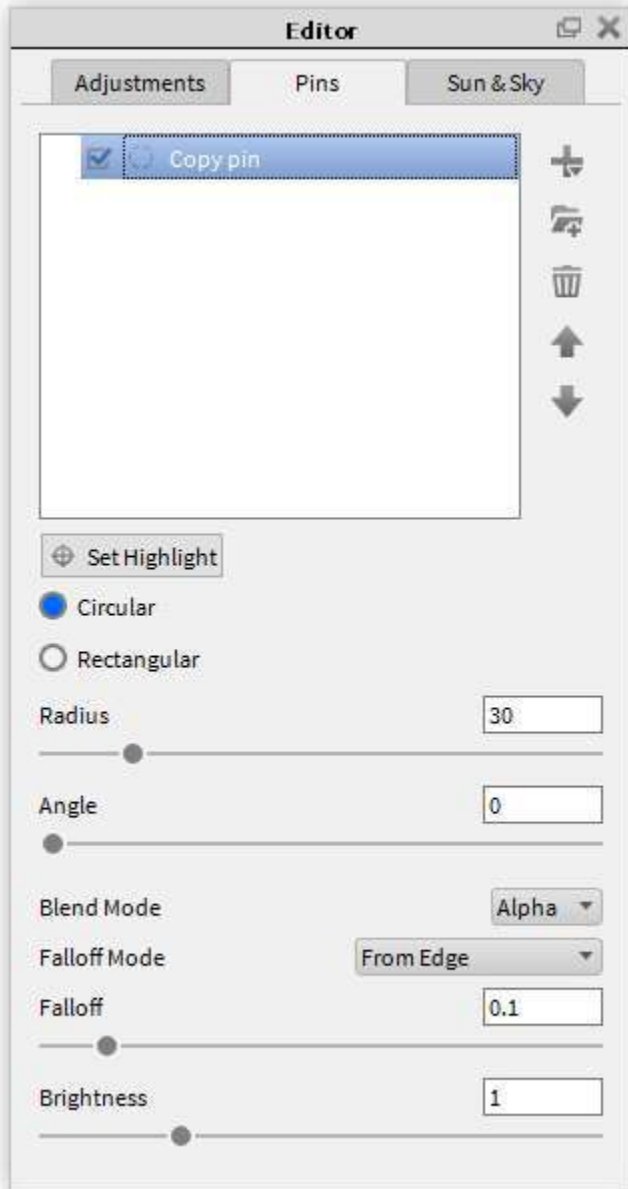
“Add Pin” places a pin into the center of the unfolded HDRI. Grab it to place it in the desired location. Use the controls explained in section “Adjusting Pins” to get achieve the desired effect.

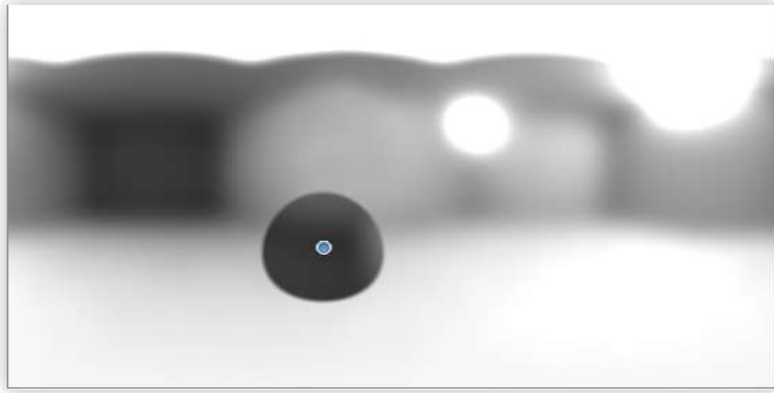
### Copy Pin

When this options is selected, a snapshot is taken of the HDRI image and used as a new pin. After you select “Add Copy Pin,” a pin handle with an orange outline will appear on the preview window. This outline shows the area of the image that will be copied to be used as a pin. Toggle between circular and rectangular for shape you want, then set the size and angle with the adjustment sliders. When on the green check to create the copy pin.

After creating the copy pin, move the pin by the handle to place it where desired. Adjustment sliders similar to those used with the regular pin will be available with the

same effects.



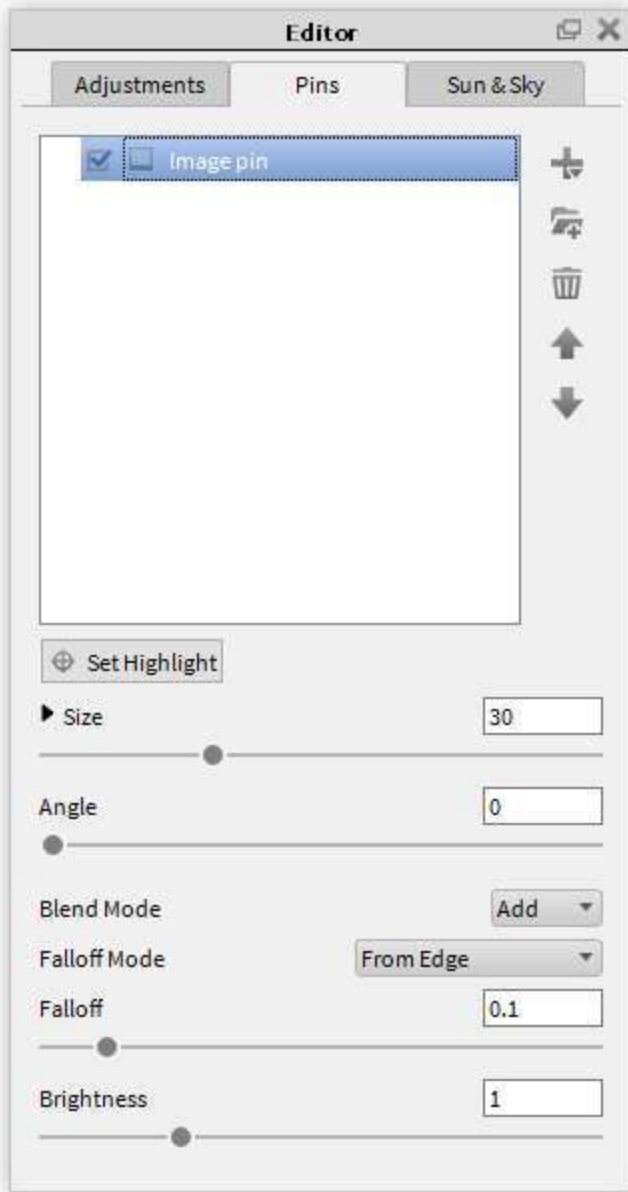


### **Image Pin**

The image pin allows you to use HDR, HDZ, EXR, JPG, PNG, JPEG, and BMP as a pin. There are limitless usages for this pin, such as creating specific reflections, simulating a lighting array and using part of an HDR with another HDR among others.

When adding an image pin, you will be prompted to select an image to be used. Once selected, the image will be placed in the preview window.

Adjustment sliders will be available to edit the image pin. These sliders are similar to the regular pin sliders.





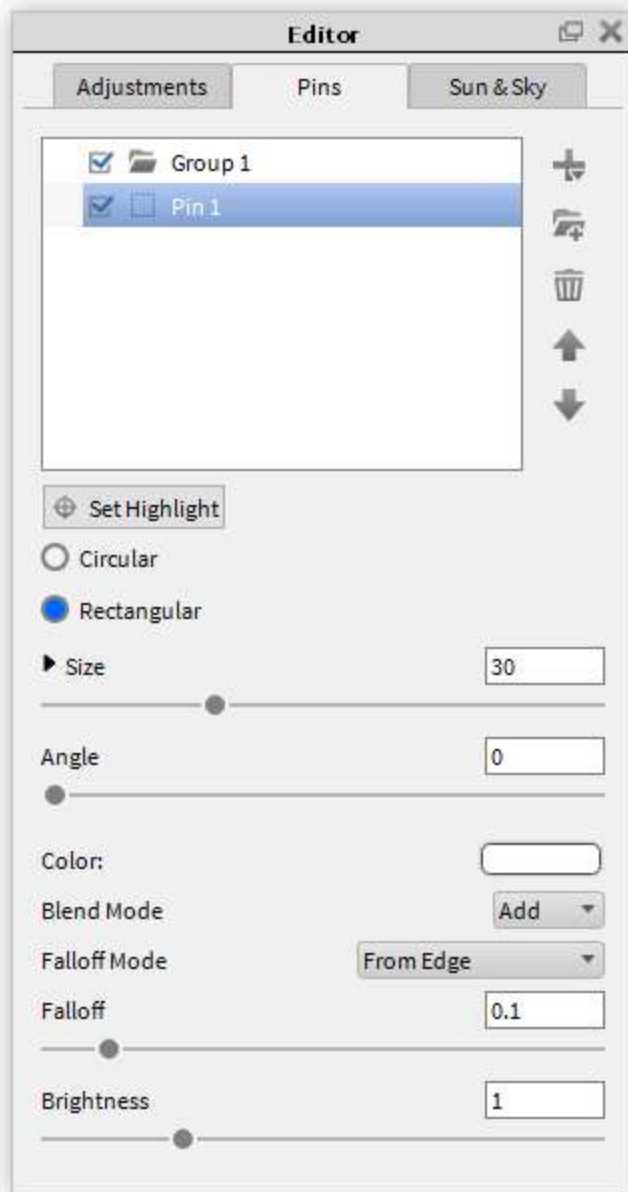
### **Set Highlight**

Adding and setting highlights can be achieved by clicking "Set Highlight." This will bring forward the KeyShot realtime window where you can position your pin by selecting a region on the model you want to highlight. CTRL+Click (CMD+Click on Mac) anywhere on the surface of the model and a pin will be generated facing that point on the surface. When finished, click "Done." Pins added this way can be edited as normal.

To set an existing highlight click onto "Set Highlight", and then select an existing pin in the editor. Click on the object to set the highlight using the selected pin, and use your left mouse button to drag it into the right position.

### **Adjusting Pins**





## Additional Settings

### Circular/Rectangular

This will toggle the shape of the pin. This is crucial when creating very specific shapes and reflections in your renderings.

### Half

For either pin shape you can select the shape to be cut in half. This will cut the pin in half. All adjustments will work the same except that you are now only seeing half of the pin.

### Radius (Circular)

This determines the pin size of circular pins.

### Width/Height/Angle (Rectangular)

This determines the shape and size of rectangular pins.

### Color

Use this to set what color the pin will project. For accurate real-world lighting, use the Kelvin scale.

### Blend Mode

With this option, choose different ways to have the pins blend and interact with each other. Pin order becomes very important with this function.

#### **Falloff Mode**

This controls the falloff of the light from the center of the pin. Different modes have different behaviors. You can see the effect of the various modes both in the editor as well as in the KeyShot realtime window.

#### **Falloff**

This controls the softness of edge of the pin light. Increase the falloff for more blended, softer edges.

#### **Brightness**

Use this to adjust the overall intensity of the pin light.

## **Sun And Sky**

You can create accurate outdoor lighting with the sun and sky system in the KeyShot HDRI Editor.

#### **Resolution**

Here, set the resolution of the sun and sky that will be generated. A smaller resolution has better performance, but a larger resolution has better shadow and reflection quality.

#### **Location**

Here, you can choose a preset city that is closest to where the scene is taking place for accurate portrayal of the sun and seasons at location.

#### **Coordinates**

Another option is to choose "Custom Location" and enter the geo coordinates of a location.

#### **Date**

Use this to set the date to the day the scene will be taking place for accurate portrayal of color temperatures of the seasons.

#### **Time**

Use this to set the time the scene takes place for correct placement of the sun.

#### **Turbidity**

Increase this setting to add more haze to the sky. This will tint the sky with a warm tone and filter the sunlight that is cast in the scene.

#### **Keep Pins**

Enable this feature to keep any pins already created when generating a sun and sky HDRI.

#### **Keep Environment Settings**

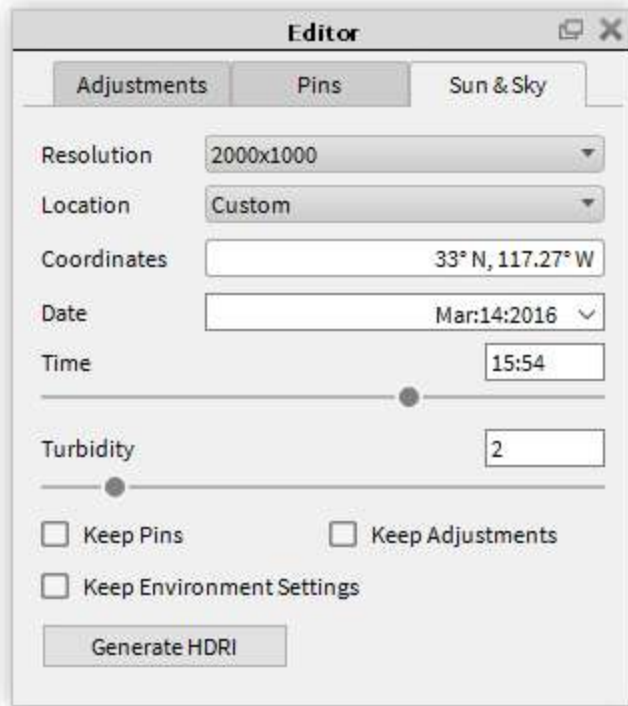
Enable this feature to retain environment settings when generating a sun and sky HDRI.

#### **Keep Adjustments**

Enable this feature to retain adjustments to the normal HDRI when generating a sun and sky HDRI.

#### **Generate HDRI**

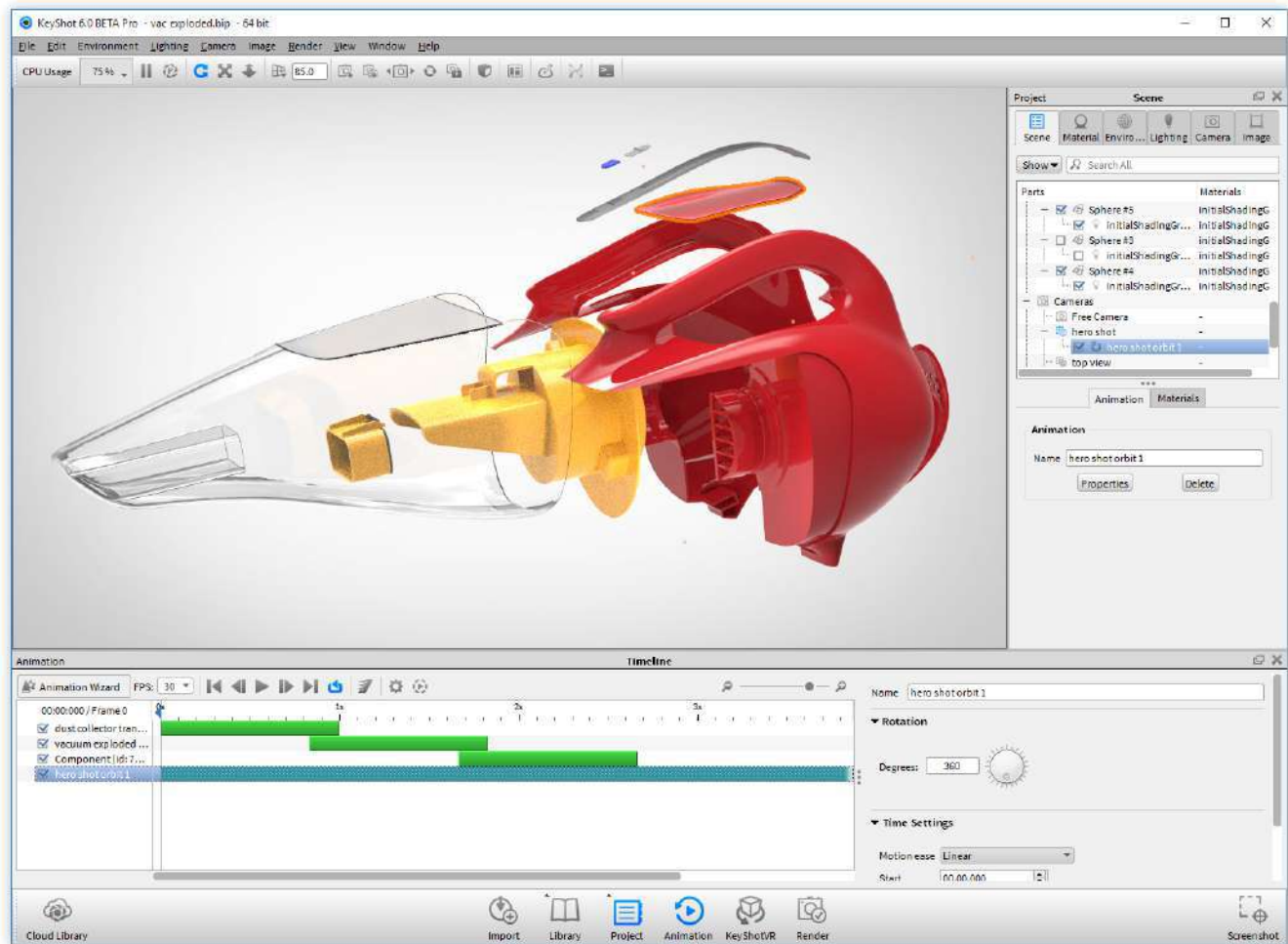
Once your settings are complete, click this button to replace the existing HDRI with a sun and sky HDRI. Caution: Clicking this will remove the previous HDRI. If you want to save your previous HDRI, make sure to save it first before you click "Generate HDRI."



## Animation

The KeyShot animation system has been designed to make simple animations of moving components easy to do.

Animations are not created using a traditional keyframe system. Rather, they are applied as individual transforms to a model or part. Multiple transforms can be added to single parts, and all transforms will be represented in the timeline as shown. These transforms can be interactively moved and scaled in the timeline to adjust timing and change the duration of animations.



## Animation Types

### Part Animation

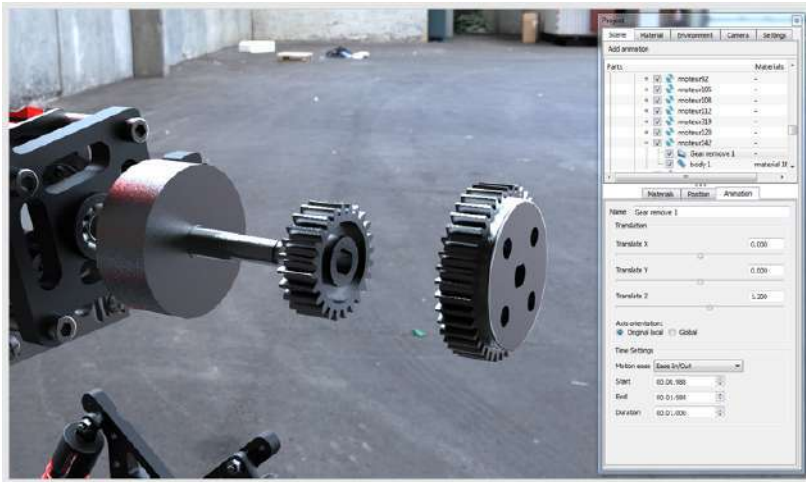
Part Animations are used to apply effects and motion to parts in the scene. There are four animations that may be applied to parts.

### Translation Animation

A translation is an animation where a part or model is moved along the XYZ axes to another position. Translations can be applied to parts or models by right clicking them in the scene tree and selecting "add translation," or through the animation wizard. Hierarchies from CAD systems will be maintained, allowing translations to be applied to entire assemblies and their individual components. When a translation is added, a translation by one unit on the Y axis will be created for a one second duration in the timeline. The translation will be displayed in the scene tree under the component to which it has been applied.

### On this page:

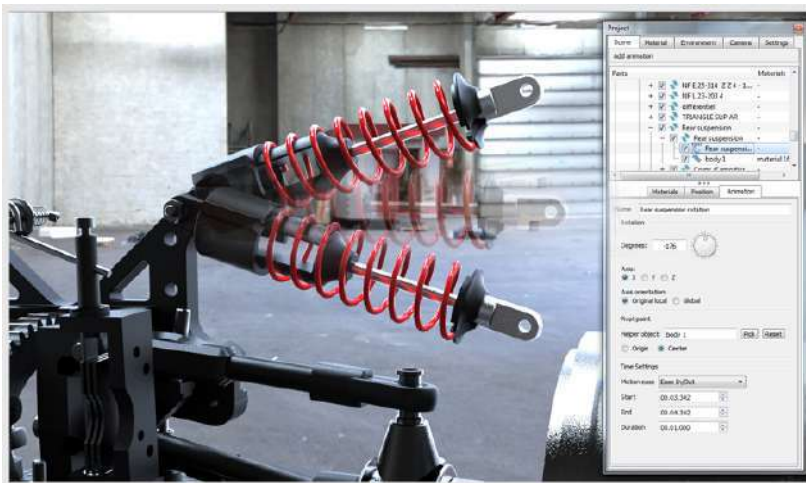
- Part Animation
  - Translation Animation
  - Rotation Animation
  - Pivot Animation
  - Fade Animation
- Camera Animations
  - Camera Zoom
  - Camera Translation
  - Dolly
  - Camera Path Animation
  - Depth Of Field Animation
- Animation Effects
  - Motion Ease
  - Motion Blur
  - Camera Switch Event



## Rotation Animation

A rotation is an animation type where a model or part is rotated along an axis. This axis can be defined by using the model/part's local axis, by using the overall global axis of the scene, or by assigning a helper object around which the model/part will rotate. There are also dynamic pivot points.

Rotations can be applied to parts or models when you right click them in the scene tree and select "add rotation," or through the animation wizard. Hierarchies from CAD systems will be maintained, allowing rotations to be applied to entire assemblies and their individual components. When a rotation is added, a rotation by 90 degrees on the X axis will be created for a one-second duration in the timeline. The rotation will be displayed in the scene tree under the component to which it has been applied.



## Pivot Animation



A pivot point is the point that a part/model will rotate around when a rotation animation is applied.

### Center and Origin

By default, your pivot point is the center point of the part/model to which the animation is applied. Change this to origin mode if your model has a

### Helper Object

A helper object gives the rotation a new point to rotate around. You can click “pick” and select any part of your model or bring in another model a

Tip: If you want to freely control the pivot point, just import a simple model (you can find some primitive shapes in the menu under “Edit” > “Add C

### Dynamic Pivot Points

This setting will allow the rotating part or model to follow a moving helper object. Dynamic pivot points should also be enabled when there are tw

### Axis Orientation

When an animation is applied to a model or part, choose the X, Y, or Z axis to orient the movement. However, these axes have two states.

In global mode, the Y axis always points up. Even if you have rotated a part using your modeling software, or even in KeyShot, when you animat

Local is not a static state. If you move a part (ex. rotating it 45 degrees either in the modeling software or in KeyShot), then the local axes actual

Think about an assembly held together by several screws. These screws were likely modeled on their own with the Y axis pointed straight up fro

Setting these screws to use a global Y translation would mean they would move to the same exact direction (straight up from the ground).

The diamonds in the image all use exactly the same setting, but they have moved out from the ring, each on its own local axis.

### Fade Animation

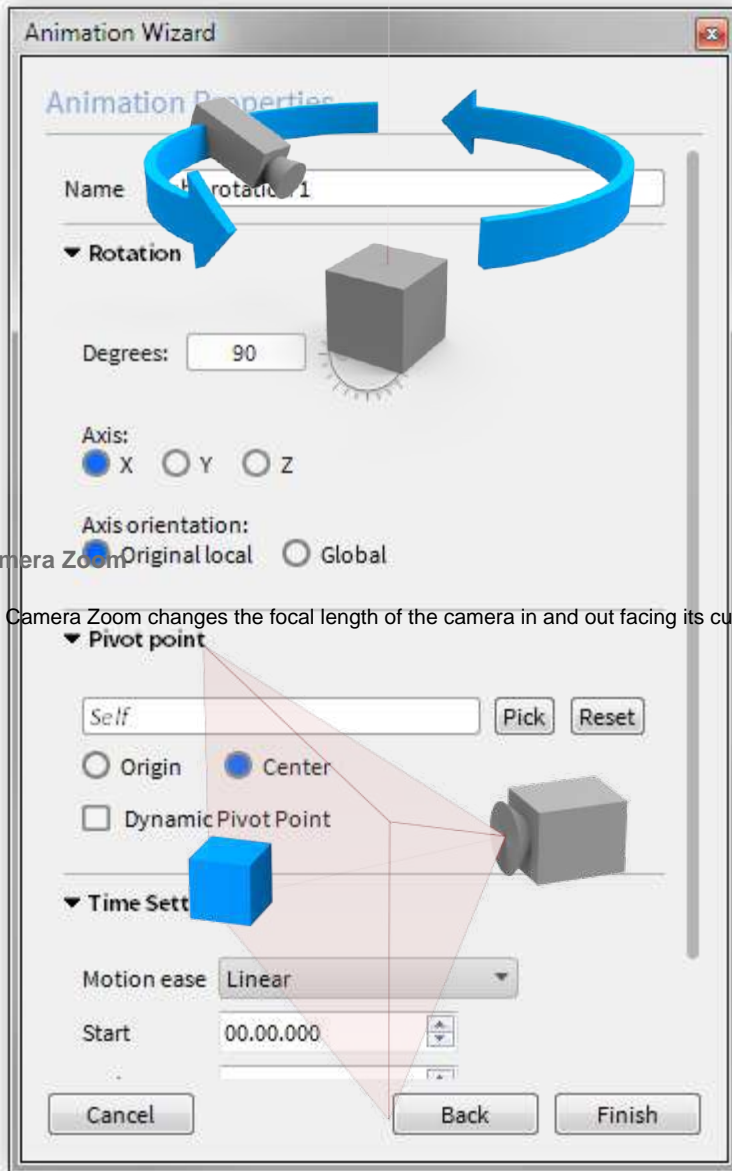
You can quickly apply an animation that fades parts from one opacity level to another. Adjust opacity of parts and groups on the fly and see then

The fade effect on a part or group of parts is created just like any other part animation. Right click on the part or group of parts in the Scene Tree

## Camera Animations

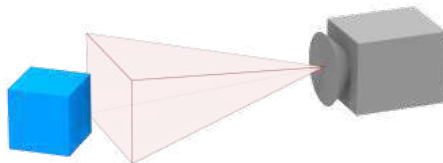
### Camera Orbit

A camera orbit rotates the camera around its current “Look At” point. Camera orbits can be added by right clicking on the camera in the Scene T



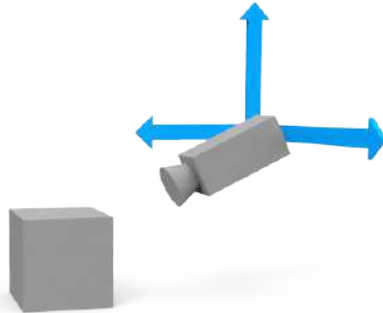
Camera Zoom

The Camera Zoom changes the focal length of the camera in and out facing its current "Look At" point. Camera Zooms can be added by right cli



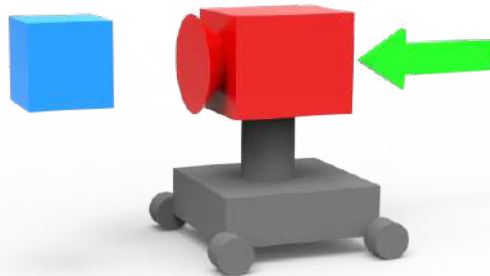
## Camera Translation

Camera translation allows the camera to move on the X, Y and Z axes. Camera translations can be added by right clicking on the camera in the scene tree and selecting "Add Translation."



## Dolly

While the "Dolly" camera animation might look similar to the "Zoom" Animation, what is actually happening is completely different. While the "Zoom" animation changes the focal length of the camera to achieve it's effect, the "Dolly" animation physically moves the camera closer to the subject. Use this when you want to dynamically change your camera location.



## Camera Path Animation

Camera path animation creates a track for the camera to travel along during the animation. This is useful for walkthrough type animations, or for more dynamic camera movements.

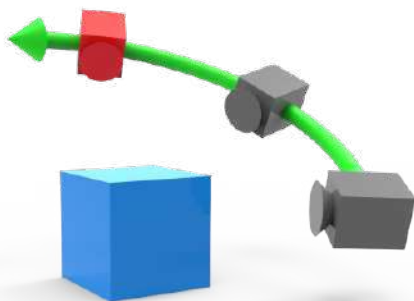
Adjust the Real-time Viewer to the desired view for the camera starting point. From the *Projectwindow*, navigate to the *Scene* tab. The Scene Tree contains the list of saved cameras. Right click on a saved camera and select Path to start creating the animation. The *Camera Path* dialogue box will appear with the first camera position shown. Change the view and click the + above the camera position list. Continue to adjust the view and add points. Don't worry, you can update the path and camera



location after the animation has been created. Hit *OK*. The camera path animation will be visible in the *Animation Timeline*.

To view and edit the camera path, open the *Geometry View* icon from the *Ribbon* or select *Window, Show Geometry View*. The cameras (Control Points) and camera path will be visible. Left-click to select a camera. Right-click to show options to move, add or delete a Control Point.

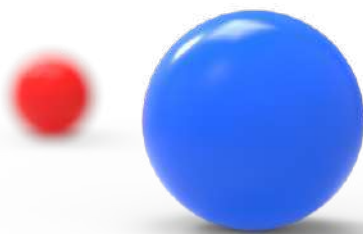
To move a Control Point, select a Camera, right-click and select *Move Control Point*. The Real-time Viewer will move to that Camera position. Zoom out slightly to see the Move Tool and adjust the Camera as needed. When finished, select the green check.



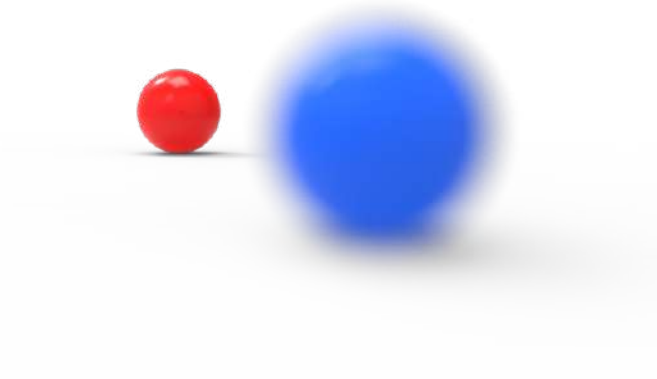
### Depth Of Field Animation

From the Project window, navigate to the Scene tab. Here in the Scene Tree, you will find the list of saved cameras. Right click on the saved camera you wish to animate and select *Depth of Field*. In order for this animation to work, *Depth of Field* must be enabled under the Lens Settings and saved with the camera being animated. The values entered in the *Depth of Field Animation* properties will override what is set in the Camera tab under *Lens Effects*.

Start



End



## Animation Effects

### Motion Ease

Motion easing will create a more natural look when applied to rotations, translations and camera animations. This will add acceleration and deceleration to motion. For example, if a car goes from one stop sign to another and reaches a maximum speed of the 35 miles per hour, it is not traveling that speed for the entire time. The car has to start moving, accelerate to its top speed and then slow down as it approaches the next stop sign. Without motion easing, the car would start and stop abruptly and travel 35 miles per hour the entire time it is in motion.



Linear



Ease In



Ease Out



Ease in/Ease Out

### Motion Blur

KeyShot “Motion Blur” provides a real-time preview of motion applied to the scene where movement is blurred. Capture the motion of objects or cameras as they rotate or move across the screen before you even play an animation or render an image.



To apply “Motion Blur” to objects in motion, check “Motion Blur” button on the Animation window tool bar. Click the arrow to toggle the motion blur to Model/Part or Camera animation. If you already have objects or cameras with animations applied to them, the real time view will update to show the objects in motion.

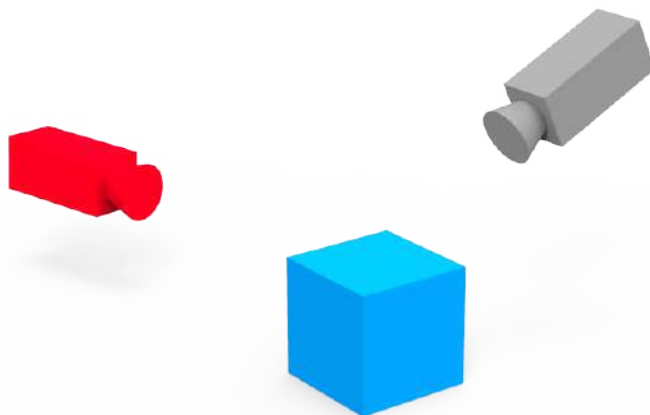
“Motion Blur” can be seen quickly after turning the option on by adding a “Translation” animation to an object or an “Orbit” animation to a camera. The amount of motion blur is controlled through the “Animation” settings by adjusting how fast and how far an object or camera is moving. When “Motion Blur” is enabled, the real time preview of the motion is dependent on the FPS setting.



## Camera Switch Event

Switch cameras in your animation with the click of a button. KeyShot Animation users can now add “Camera Switch Events” to change cameras on the animation timeline. This allows users to easily incorporate other view angles without having to stitch together separate animations afterwards.

With two camera animations set up, Right Click on the camera you will start with and select “Camera Switch Event” to select the camera you want to switch to. This will add the event to the timeline, and will be shown as an orange marker on a separate line. Select and drag the marker to the point where you want to switch to the other camera. Hit play, and watch as the animation switches cameras automatically.



TIP: Camera Switch Event animation can be used to chain multiple camera path animations, created through existing cameras.

To learn more about material animation in KeyShot watch the video below.

## Animation Wizard

For beginners, the easiest way to create an animation is via the animation wizard. The animation wizard can be found in the animation timeline toolbar. When you open the animation wizard, you are presented with many options for model/part and camera animations.

### Model/Part Animation

This type of animation deals with moving or altering the geometry in the scene.

### Camera Animation

This type of animation is relegated to the movements of the camera. Before creating camera animations, it is suggested there are saved cameras already.

### Animation Type

Choose which type of animation you want to add to your project

Model/part animation:

Turntable

Translation

Rotation

Fade

Camera animation:

Orbit

Zoom

Inclination

Translation


Camera Switch Event

Panorama

Dolly

Path

DOF



Cancel Next

### On this page:

- Turntable Wizard
- Translation Wizard
- Rotation Wizard
- Fade Wizard
- Camera Orbit Wizard
- Camera Zoom Wizard
- Camera Inclination Wizard
- Camera Translation Wizard
- Camera Switch Event Wizard
- Panorama Wizard
- Dolly Wizard
- Camera Path Wizard
- Depth of Field Wizard

## Turntable Wizard

Turntable animation rotates the model/part around the global Y axis. Imagine placing

the model or part on a turntable and turning it while taking video. After selecting turntable and clicking next, choose the models/parts that you would like to include in this animation.

**Rotation**

You can set how much the model/part turns in this animation. It can be set to be a partial turn such as 15 degrees, or multiple complete rotations such as 1040 degrees, or even more.

**Center of Rotation**

The default setting for the center of rotation is the local model Y axis. You can change the center to be the environment global Y axis if you want the model/part rotating around the center of the scene.

**Direction**

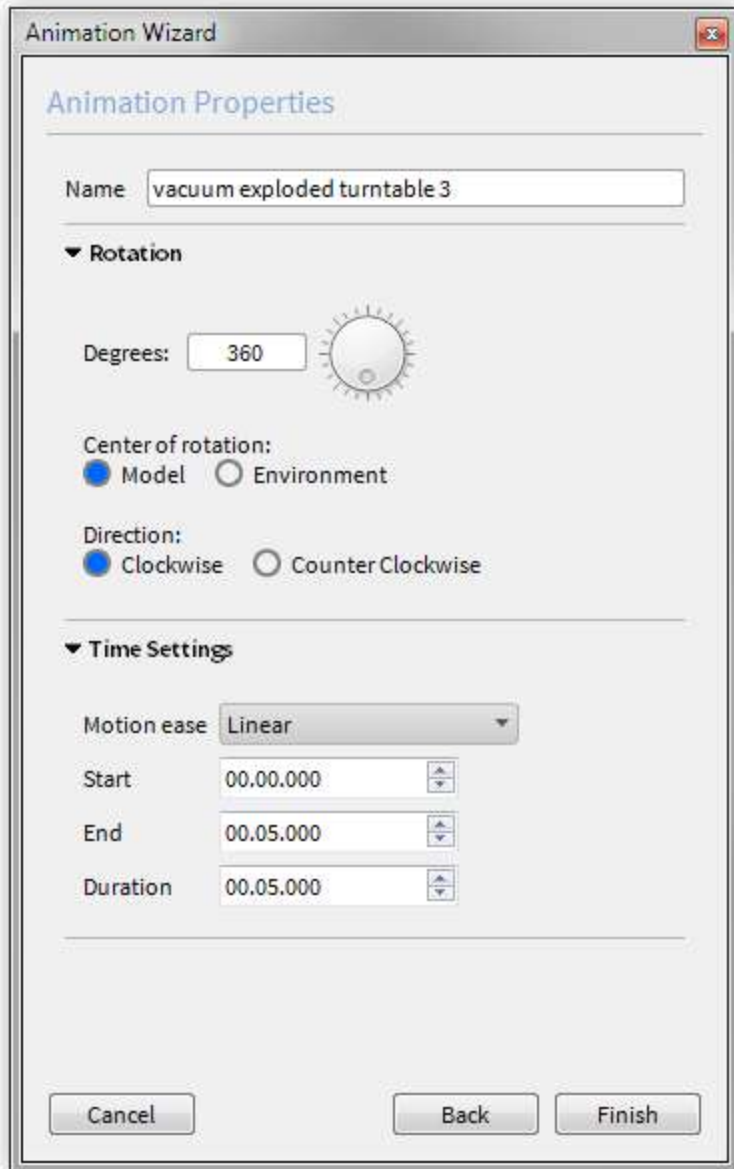
Here, you can choose the direction of rotation.

**Time Settings**

Here, you can set the time the animation starts and ends, as well as the duration. Choose a motion ease setting here as well.

**Motion Ease**

Motion ease will control the acceleration/deceleration of a translation. When an option is hovered over in the drop down list, a preview of the acceleration/deceleration will be shown in the list.



## Translation Wizard

This animation type moves the model/part, changing its XYZ coordinate location. Choose the model/part to be animated after selecting translation from the animation wizard.

### Translate X/Y/Z

Use this to set the distance traveled on the XYZ coordinates.

### Axis Orientation

The default setting uses the local axis of the model/part to calculate translation animation. You can select global to move the model/part in relation to the XYZ coordinates of the scene.

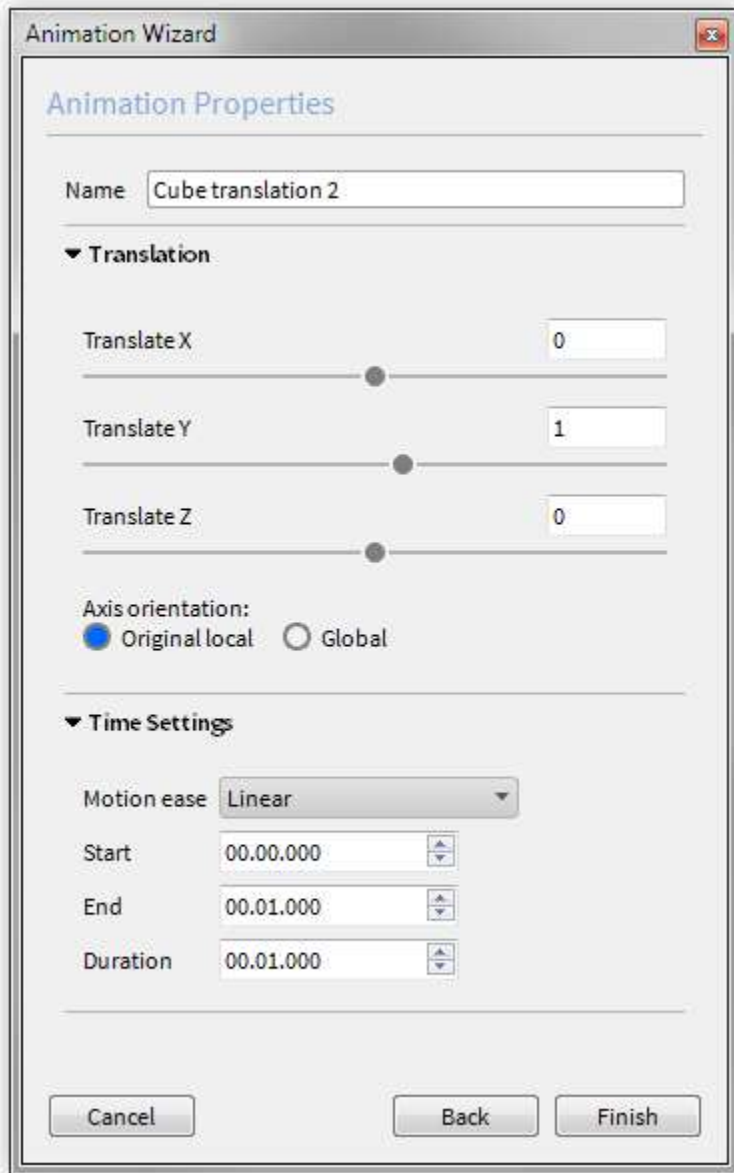
### Time Settings

Use this to set the time the animation starts and ends, as well as the duration of the animation.

### Motion Ease

Motion ease will control the acceleration/deceleration of a translation. When an option is hovered over in the drop down list, a preview of the acceleration/deceleration will be shown in the list.





## Rotation Wizard

This animation type rotates the model/part around the X, Y or Z axis. Choose the model/part to be animated after selecting translation from the animation wizard.

### Rotation

Use this to set this to set how much the model/part turns.

### Axis Orientation

Here, use the model/part origin or global origin for correct XYZ axis.

### Pivot Point

Use this to select an object to use as a pivot point (the default is self), and choose either origin or center to be its location in relation to the part. Enable "Pivot Point Object Axis" to use the local axis of the chosen pivot point object. Enable "Dynamic Pivot" point if using more than one rotation animation.

### Time Settings

Use this to set the time the animation starts and ends, as well as setting the duration. Choose a motion ease setting here as well.


### Motion Ease

Motion ease will control the acceleration/deceleration of a translation. When an option is hovered over in the drop down list, a preview of the acceleration/deceleration will be shown in the list.

**Animation Properties**

Name: vacuum exploded rotation 1

▼ **Rotation**

Degrees: 90 

Axis:  
 X  Y  Z

Axis Orientation:  
 Original Local  Global

▼ **Pivot Point**

Self

Origin  Center

Pivot Point Object Axis

Dynamic Pivot Point

▼ **Time Settings**

Motion ease: Linear

Start: 00.00.000

End: 00.01.000

Duration: 00.01.000

## Fade Wizard

After selecting "Fade" in the animation wizard, choose the part or model that you would like to have fade in or out in the animation.

### Fade From

Use this to choose the opacity level at which the animation should start. If you want the part to fade in, start the opacity at 0. If you want the part to fade out, start the animation at 100.

### Fade To

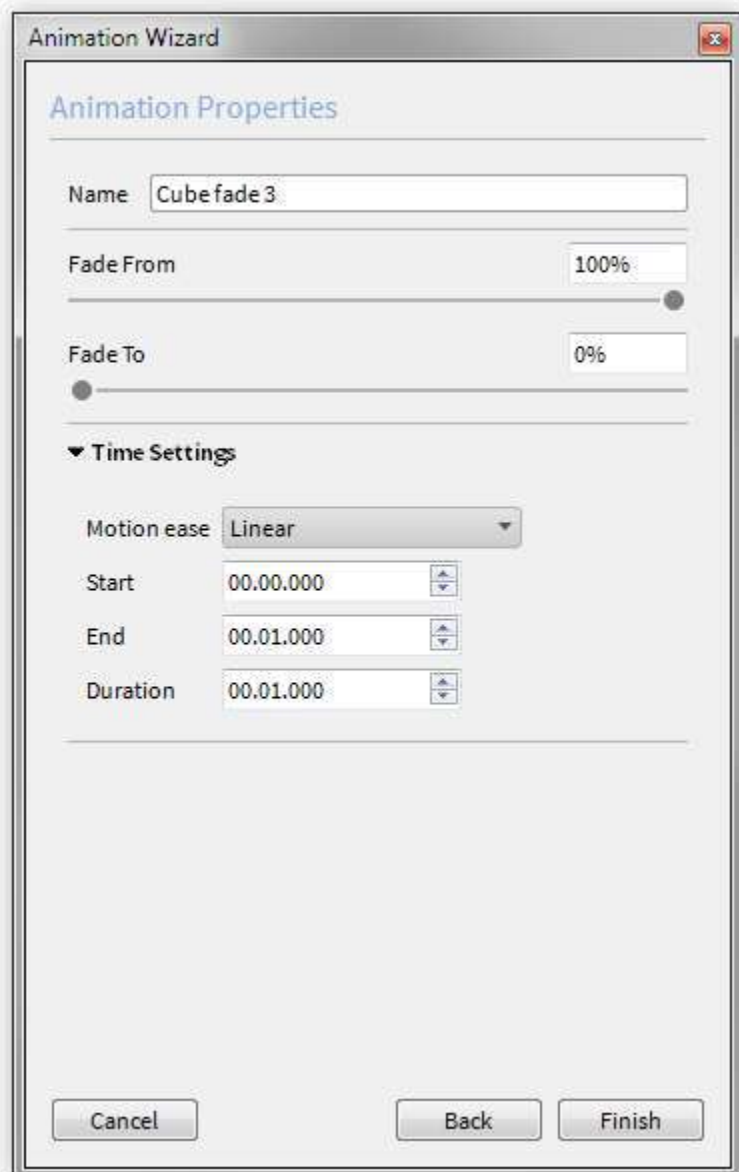
Use this to set what the final opacity level will be at the end of this animation node. To completely fade out, set the opacity to 0. To partially fade out, choose a number less than the "fade from" value.

### Time Settings

Use this to set the time the animation starts and ends, as well as setting the duration. Choose a motion ease setting here as well.

### Motion Ease

Motion ease will control the acceleration/deceleration of a translation. When an option is hovered over in the drop down list, a preview of the acceleration/deceleration will be shown in the list.



## Camera Orbit Wizard

Camera orbit animation rotates the camera around the "Look At" point assigned to that camera. After selecting "Orbit" animation, select a saved camera to animate.

### Rotation

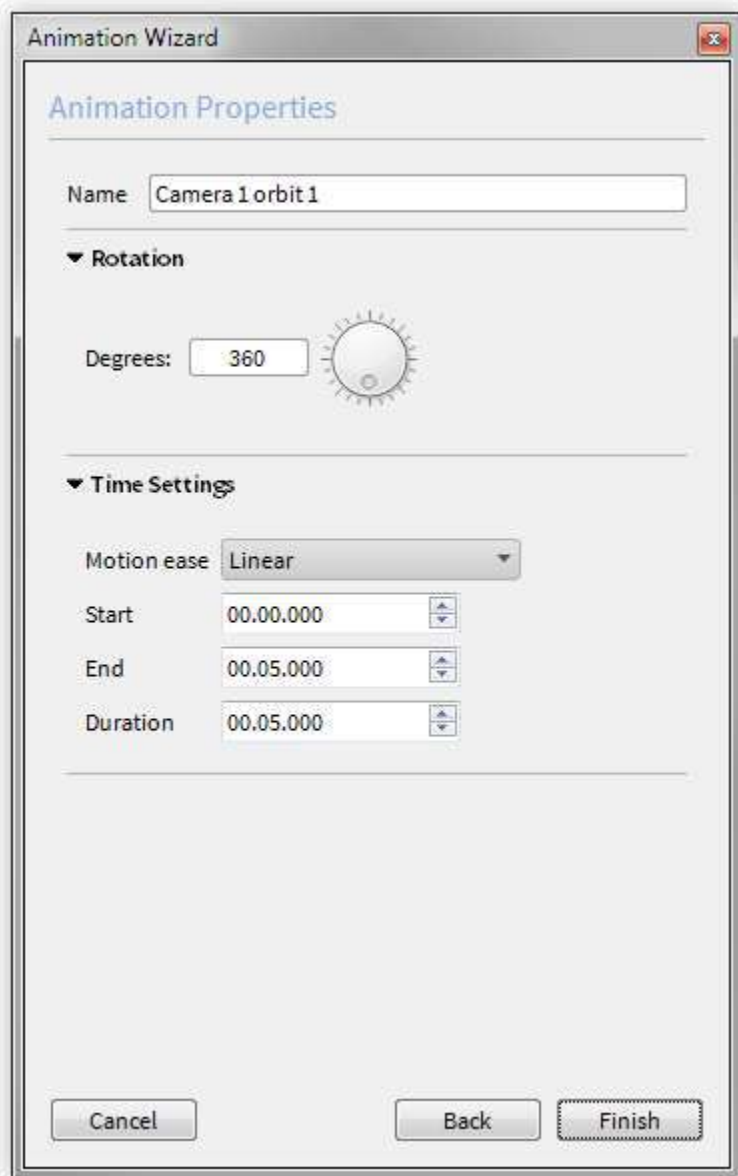
Use this to set how much the camera rotates in this animation.

### Time Settings

Use this to set the time the animation starts and ends, as well as setting the duration. Choose a motion ease setting here as well.

### Motion Ease

Motion ease will control the acceleration/deceleration of a translation. When an option is hovered over in the drop down list, a preview of the acceleration/deceleration will be shown in the list.



## Camera Zoom Wizard

This animation type changes the focal length of the camera. After selecting zoom, select a saved camera to apply the zoom animation.

### Distance

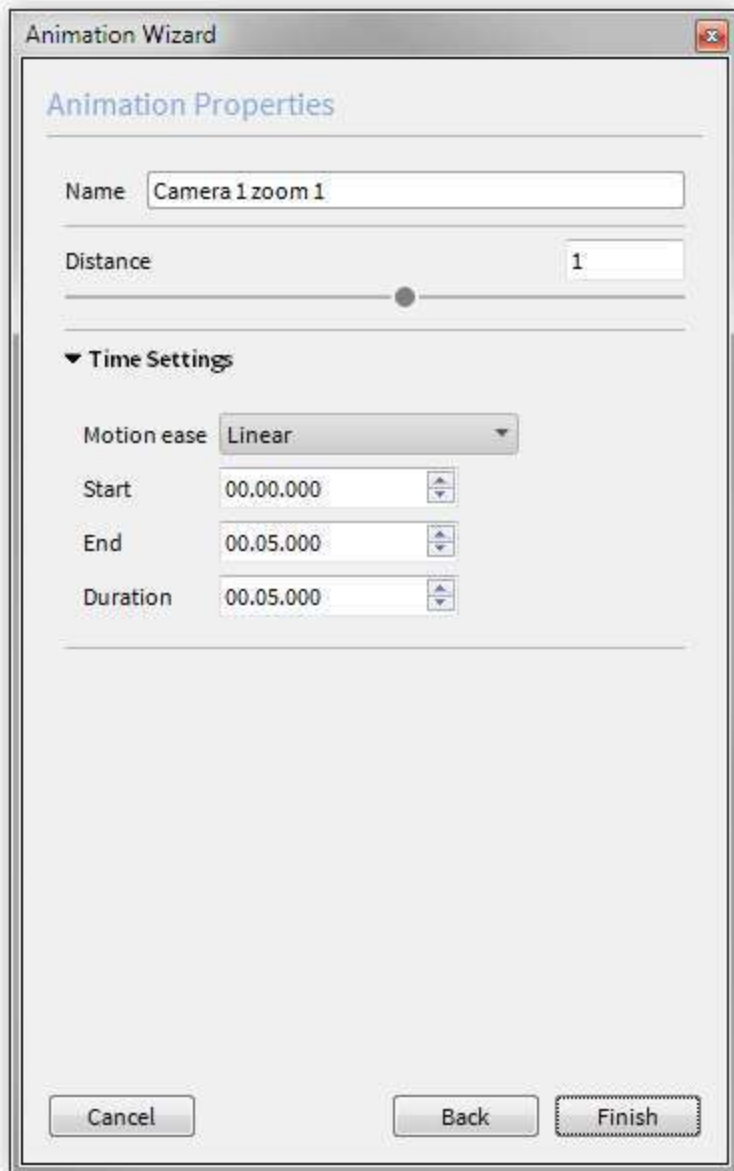
Use this to set the distance traveled during the animation.

### Time Settings

Use this to set the time the animation starts and ends, as well as setting the duration. Choose a motion ease setting here as well.

### Motion Ease

Motion ease will control the acceleration/deceleration of a translation. When an option is hovered over in the drop down list, a preview of the acceleration/deceleration will be shown in the list.



## Camera Inclination Wizard

This animation type rotates the camera along the X axis while keeping the "Look At" point focused on a part. Select a saved camera after selecting inclination in the wizard.

### Rotation

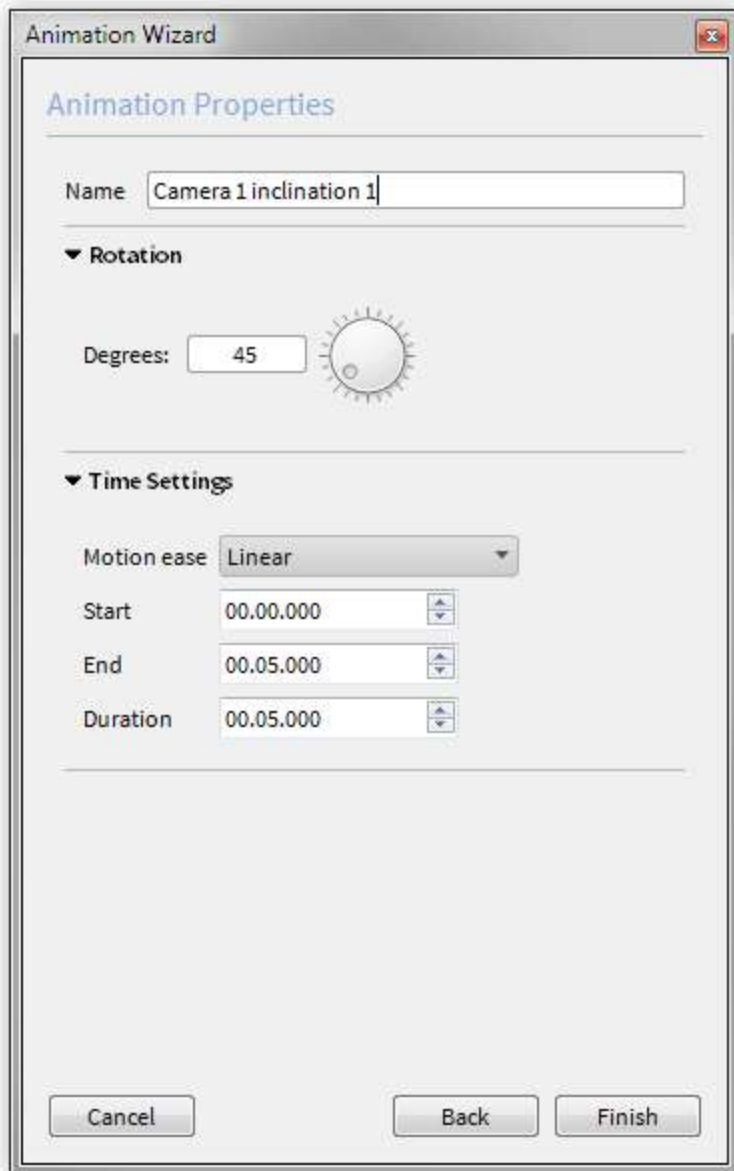
Use this to set the amount of vertical rotation around a part that the camera should travel.

### Time Settings

Use this to set the time the animation starts and ends, as well as setting the duration. Choose a motion ease setting here as well.

### Motion Ease

Motion ease will control the acceleration/deceleration of a translation. When an option is hovered over in the drop down list, a preview of the acceleration/deceleration will be shown in the list.



## Camera Translation Wizard

This animation type moves the camera, changing its XYZ coordinate location. Choose the saved camera to be animated after selecting translation from the animation wizard.

### Translate X/Y/Z

Use this to set the distance traveled on the XYZ coordinates during the animation.

### Axis Orientation

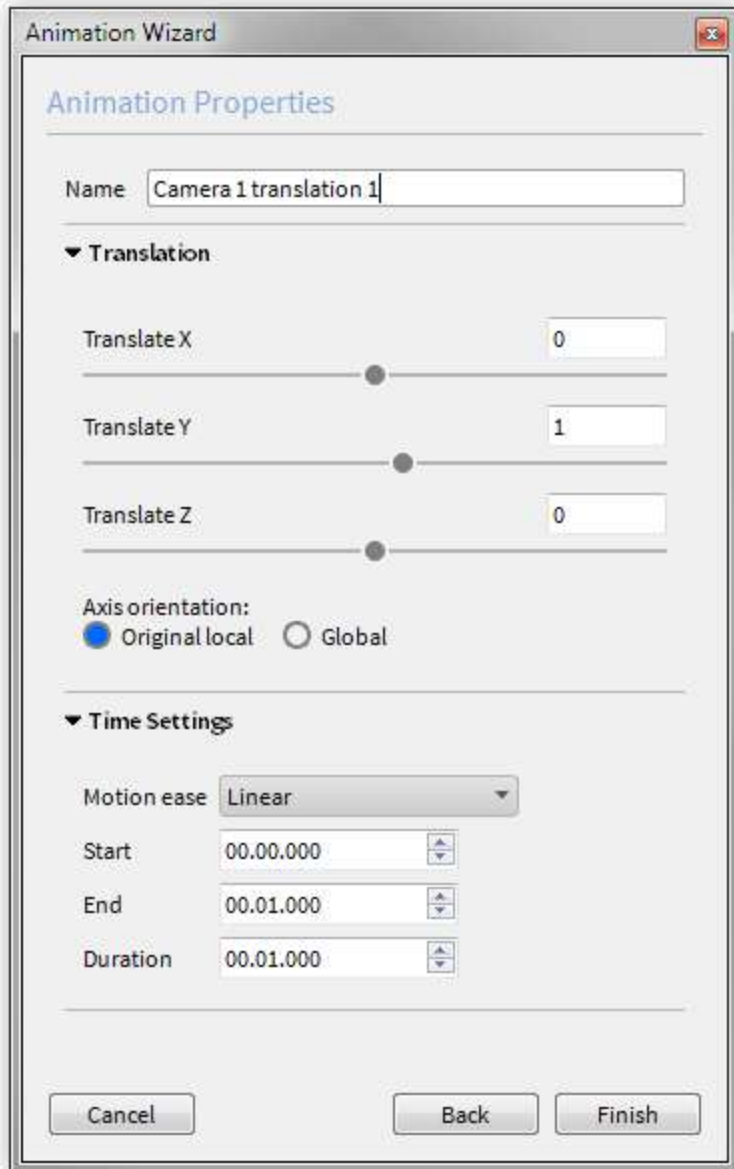
The default setting uses the camera's local axis to calculate translation animation. You can select global to move the model/part in relation to the XYZ coordinates of the scene.

### Time Settings

Use this to set the time the animation starts and ends, as well as setting the duration.

### Motion Ease

Motion ease will control the acceleration/deceleration of a translation. When an option is hovered over in the drop down list, a preview of the acceleration/deceleration will be shown in the list.



## Camera Switch Event Wizard

This event switches instantly between two cameras in the animation timeline. Choose a saved camera to switch from after selecting camera switch event from the animation wizard.

### From Camera

This is the origin camera the event is placed on.

### To Camera

Here, select from the list of saved cameras to switch to.

### Time Settings

Use this to set the time the event occurs in the timeline.

**Animation Properties**

Name

---

▼ **Camera switch**

From camera hero shot

To camera

---

▼ **Time Settings**

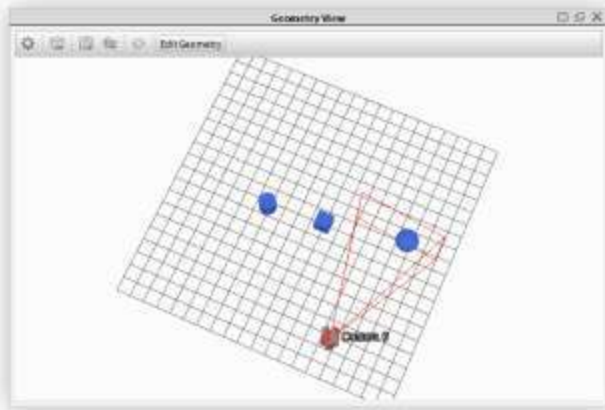
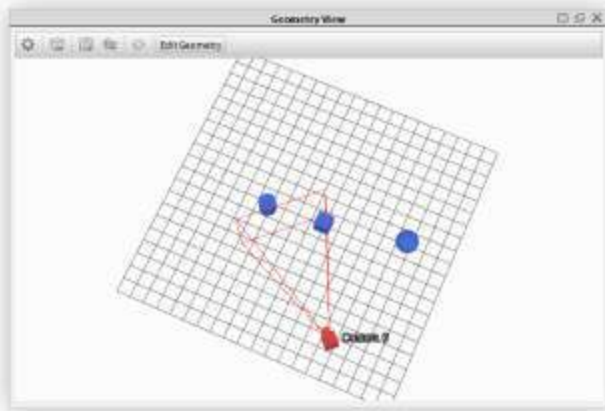
Start

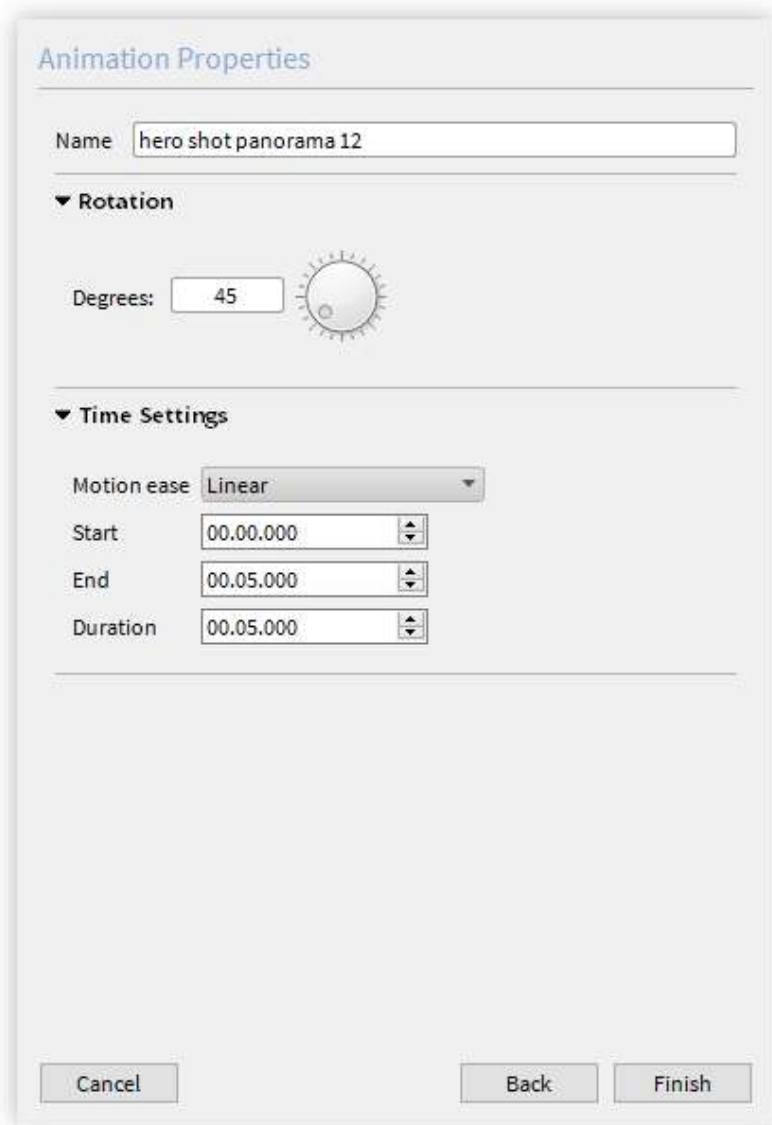
---

### Panorama Wizard

Select a saved camera to animate, and set the degrees it will move during the animation. Use the Geometry View and enable "Show Camera FOV" to display the area that will be in view as the camera pans around. Use this view to help you set the correct settings.



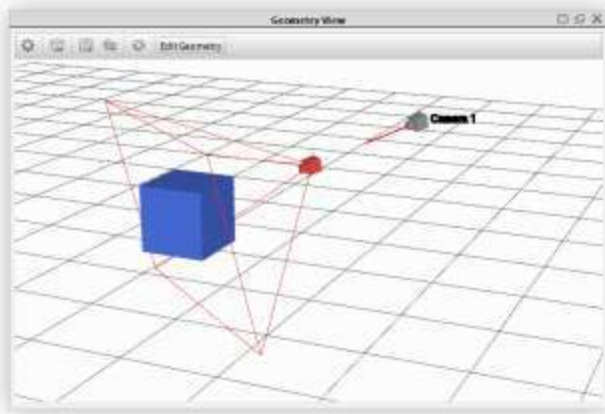
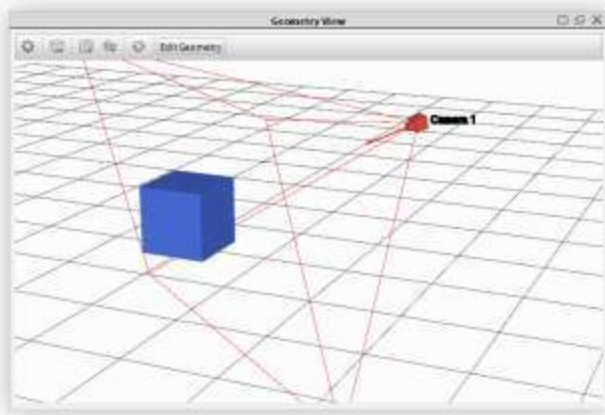




## Dolly Wizard

Choose a saved camera or create a new saved camera to animate, and use the distance parameter to set the amount the camera will move. within the animation.

To see the distance traveled, open the Geometry View Window to see the camera moving as you preview the animation.



**Animation Properties**

Name

Distance

▼ Time Settings

Motion ease

Start

End

Duration

## Camera Path Wizard

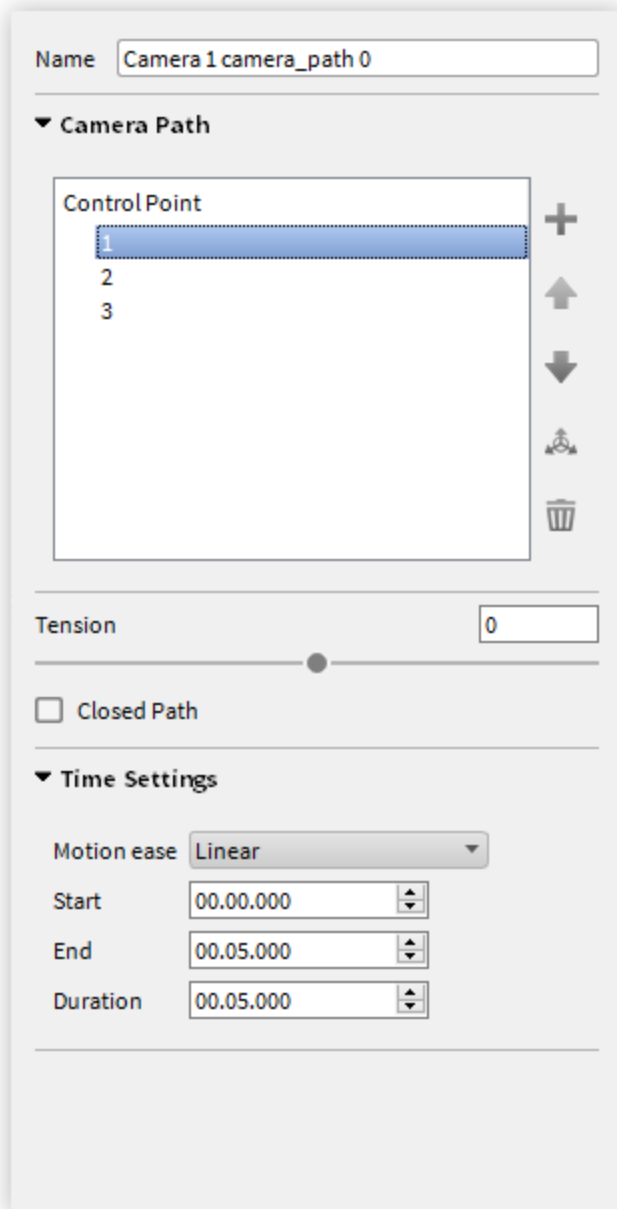
move the active camera to specific points around your scene, and use the “+” button to add camera control points to the path animation. After creating your points, you can change the order follow on the path, as well as use the move tool to move the camera control point to a new location. For even more control, use this in conjunction with the Geometry view so you can see the the path created, as well as the control points. You can also move the control points from the Geometry view.

### Tension

This setting controls how tight or loose the path is. With a looser setting, the path will become more curvy. With a tighter setting, the path will become more straight.

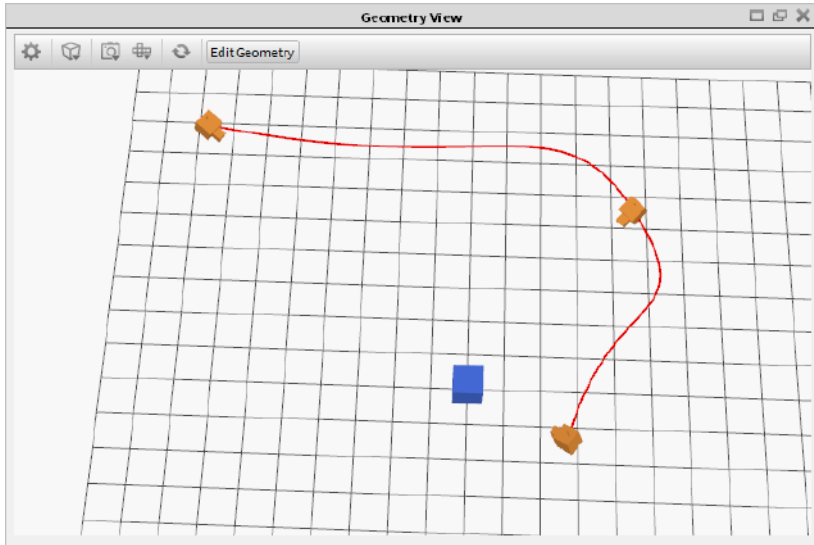
### Closed Path

Enable this option to connect the first and last control points so it is a closed loop. This will result in the camera animation ending where it began.

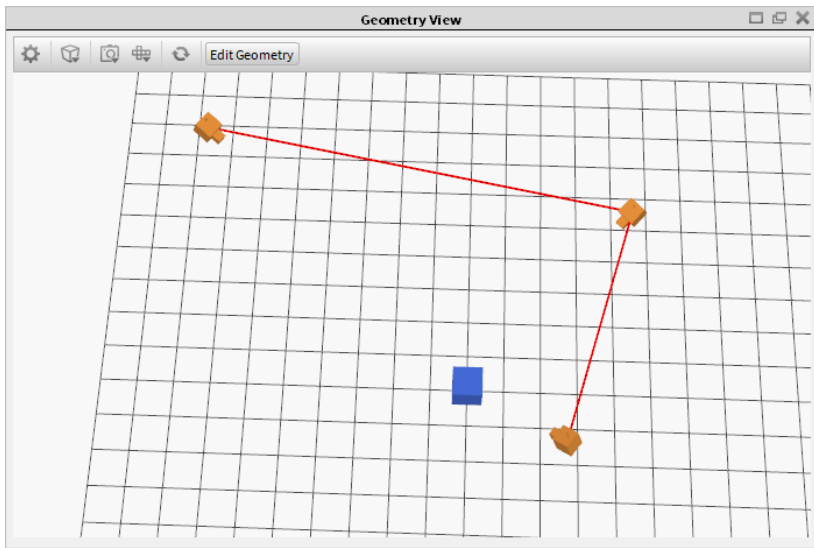


### Editing a Camera Path

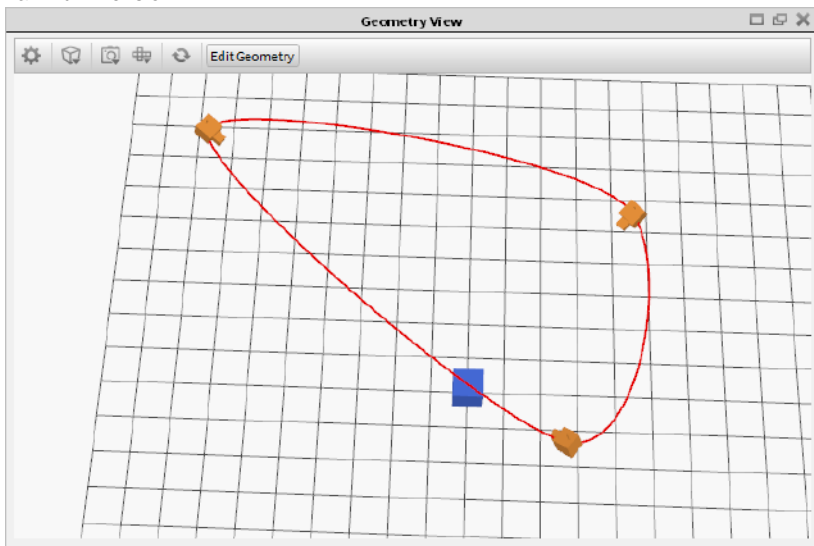
To edit your camera path, open the Geometry View Window and enable “Camera Paths” in the settings and set the camera type to “Perspective.” This will allow you to see the path that the camera will follow in the animation. As you adjust the slider, you will be able to see the difference between high and low tension settings. You can also see the path created when you enable the “Closed Path” option.



Minimum Tension



Maximum Tension



Closed Path

**Moving a Camera**

To move a camera on the path, select the point in the list under the animation

properties panel and click the "Move" button. This will activate the move widget within the Geometry View and allow you to click and drag to translations and rotations on the point. Like the "Move Tool" found in the "Scene" tab, you can choose between local or global for the axis. As you move the control point in the Geometry View, the the new angle will be shown in real-time in the Real-time Window. Once you are done with moving the control point, click the green check to apply the edit to the control point, or click the red X to cancel the move.

Name

▼ Camera Path

Control Point

- 1
- 2
- 3

Tension

Closed Path

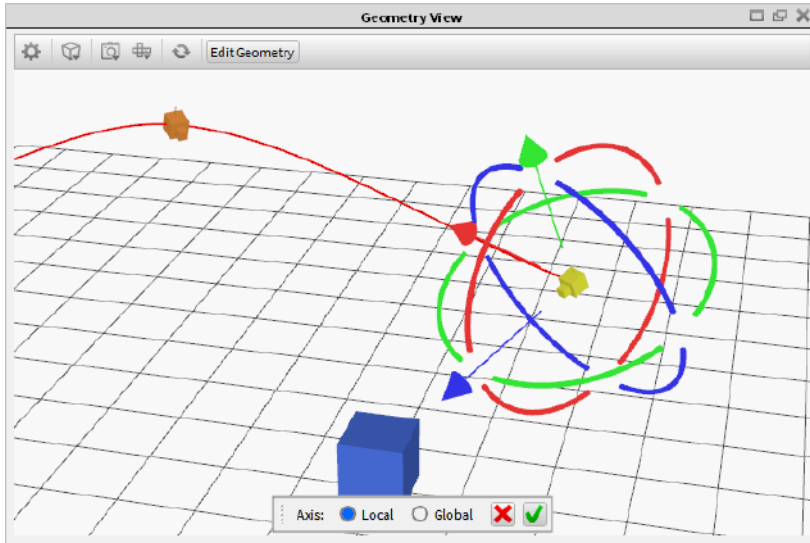
▼ Time Settings

Motion ease

Start

End

Duration



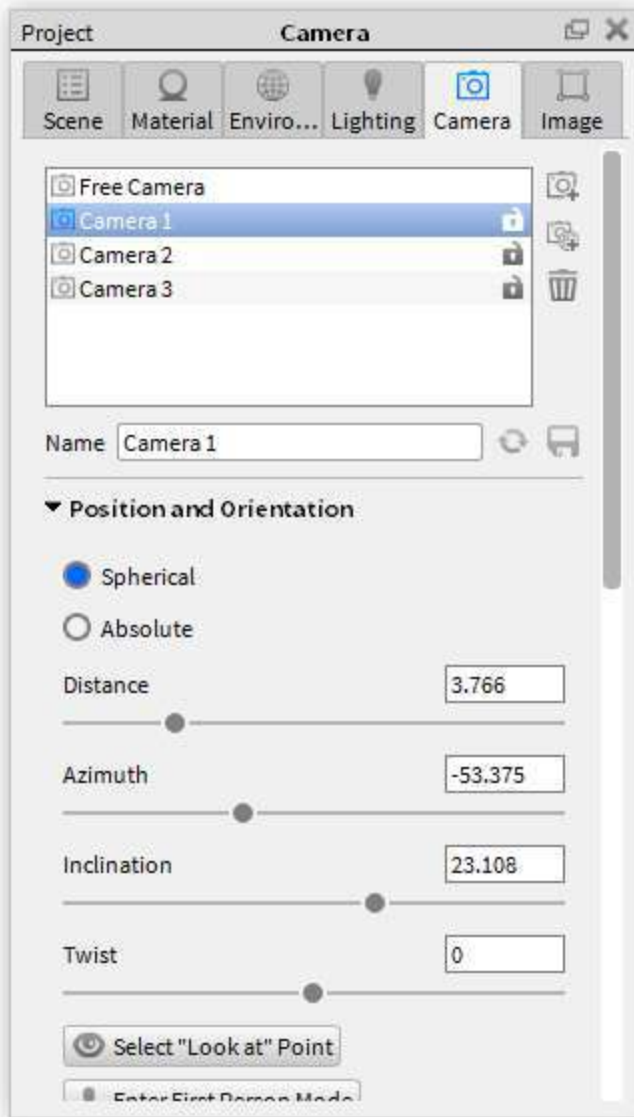
Geometry View

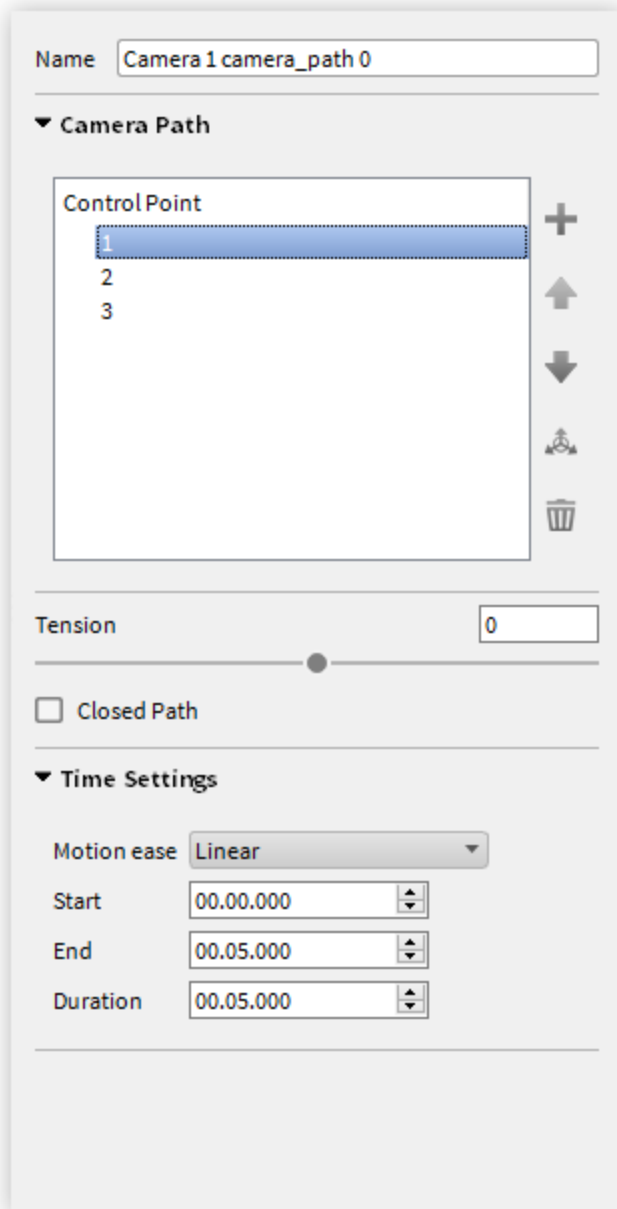
**Tips**

A technique you can use to fine tune your control points is to create a saved camera for each control point you would like your camera to target. After you have your saved cameras created, create a "Camera Path Animation." Select the first saved camera, and click the "+" in the Animation properties to add a control point. go to your next saved camera, and create another control point. Continue with this workflow until all saved cameras have been made into control points.

When you preview your animation, you will see that the camera will reach your saved camera points exactly while traveling along the path. Click the "+" to add a new control point for each saved camera.





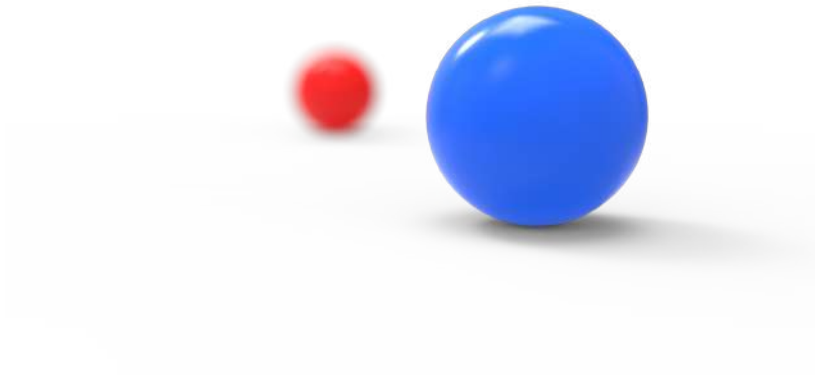


## Depth of Field Wizard

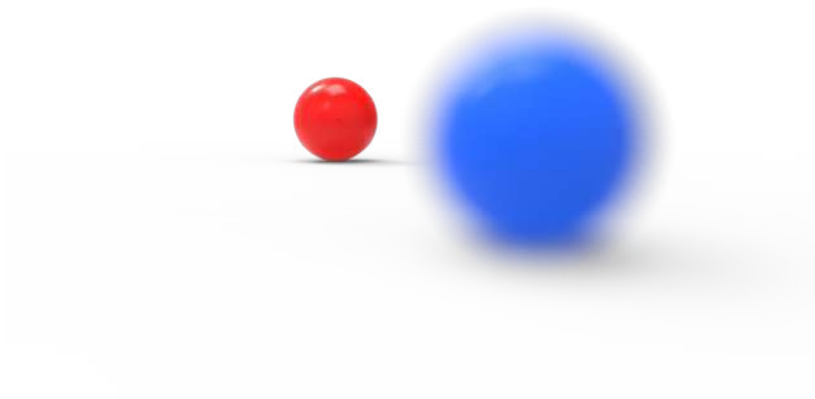
Use this animation type to animate a change in focal point within your scene.

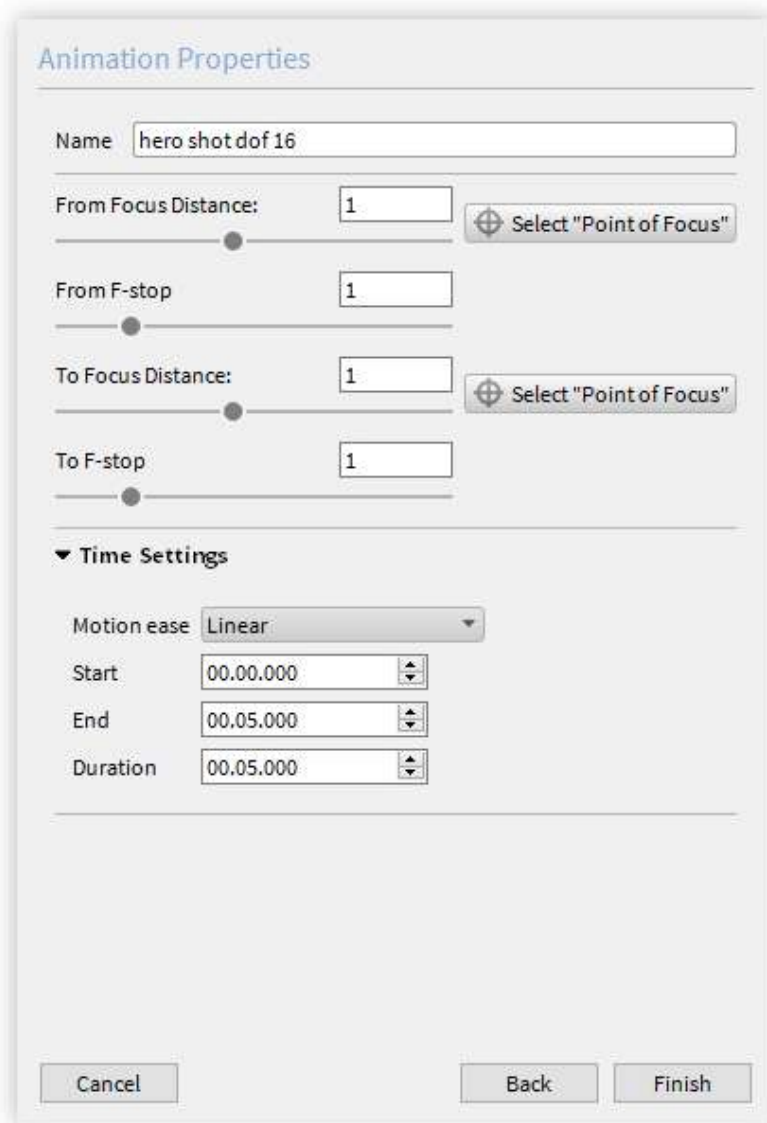
Use the first "Select Point of Focus" tool to pick what is going to start in focus, and the second to designate then end focal point. Use the sliders to fine tune the focus for the start and end focal points.

**Start**



End





## KeyShotVR

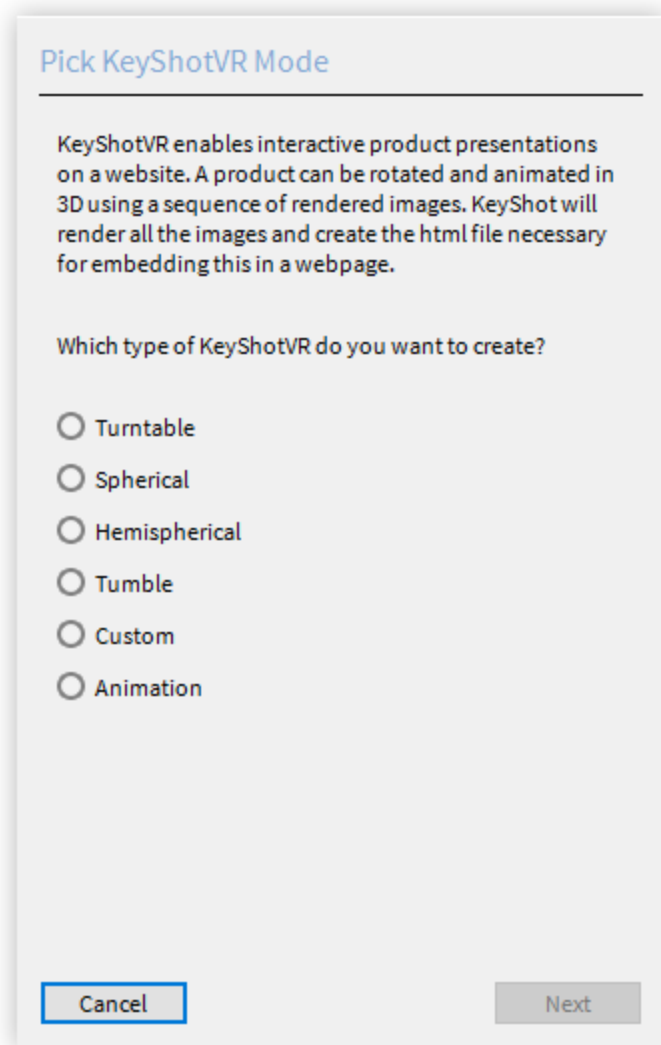
KeyShotVR gives you the ability to bring your 3D renderings to interactive webpages. With KeyShotVR, you can create high-quality, touch-enabled, 3D rendered content capable of being displayed in any web browser supporting HTML5. The content can be viewed using a mouse (or a finger using touch-enabled devices) and does not require a browser plugin to work.

## KeyShotVR Wizard

You can set up a KeyShotVR through the KeyShotVR Wizard. The KeyShotVR Wizard is accessed by pressing the KeyShotVR button on the KeyShot Toolbar, or through the main menu by selecting *Window, KeyShotVR...*, or by hitting the *V-key*.

Note: These and other KeyShotVR options are located in the KeyShotVR tab of the Render options window (*Ctrl-P, Cmd-P*).

## Pick KeyShotVR Mode



#### On this page:

- Pick KeyShotVR Mode
  - Turntable
  - Spherical
  - Hemispherical
  - Tumble
  - Custom
  - Animation
- Pick KeyShotVR Rotation Center
  - Environment
  - Object
  - Camera
  - Look At
  - Custom
  - Horizontal Environment Rotation
- Pick Initial KeyShotVR View
- Set KeyShotVR Smoothness
  - Smoothness Control
  - Angle Control
- Set KeyShotVR Output

There are six KeyShotVR modes to choose from. When you select one of the six modes, you will see a preview of the KeyShotVR view rotation. After choosing a mode, click *Next*.

#### Turntable

Creates a standard turntable view to rotate a model up to 360 degrees.

#### Spherical

Creates a fully-spherical view to see all sides of the model.

#### Hemispherical

Create a half spherical view to rotate around only a portion of the model.

#### Tumble

Create a view that rotates around the model center.

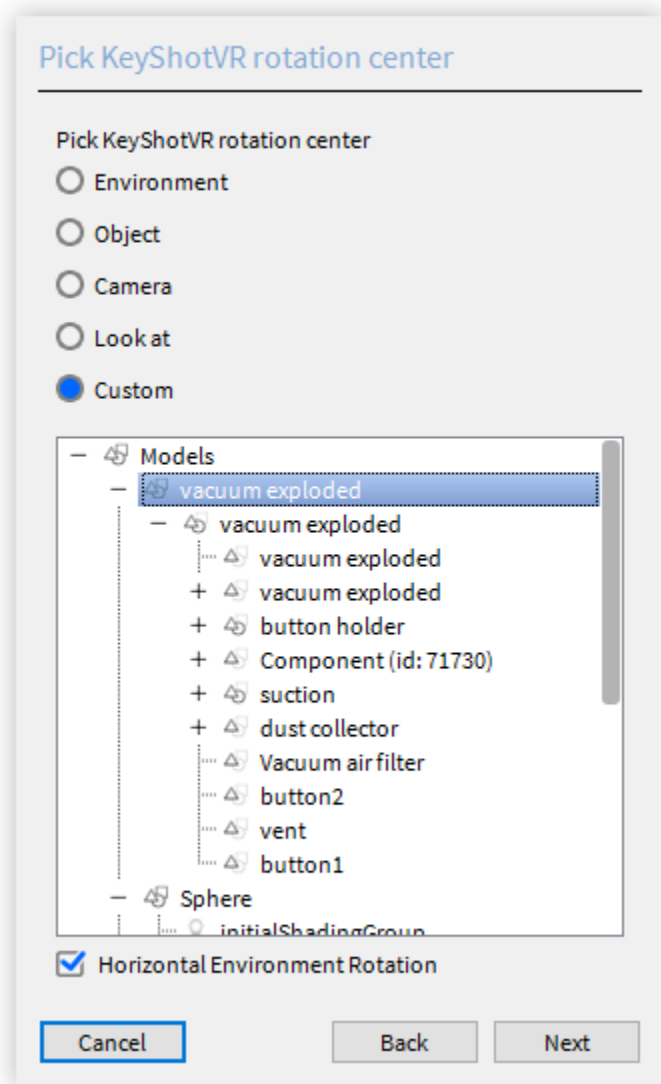
#### Custom

Enter values for each KeyShotVR option to create a custom view.

### Animation

If an animation is present, create a view using an animation. See [KeyShotVR Animation](#).

### Pick KeyShotVR Rotation Center



Next, you will be able to select the center of rotation for your KeyShotVR. After selecting a center of rotation, click *Next*.

### Environment

This option will set the center of rotation at the center of the scene.

### Object

Select an object in the scene as a center of rotation.

## Camera

Use the current camera settings to use as your rotation center.

## Look At

Use your current "Look At" as your rotation center.

## Custom

This option allows you to select the center of rotation from your scene tree items.

## Horizontal Environment Rotation

Enable this option to have the environment rotate with the KeyShotVR.

## Pick Initial KeyShotVR View

Pick Initial KeyShotVR View

Distance (Dolly) 36.155

Azimuth (Orbit) -66.553

Inclination (Elevation) 6.97

Perspective 85

Grid None

Cancel Back Next

Next, you can fine tune the initial camera view of your KeyShotVR. Set the distance, azimuth, inclination, and perspective as you would on the camera tab. Use the grid option to help you center your model for optimal rotation. Once finished choosing your

initial camera angle, click *Next*.

## Set KeyShotVR Smoothness

**Set KeyShotVR Smoothness**

**Smoothness Control**

Horizontal Frames

Vertical Frames

Number of images to be rendered 90

Horizontal angle increments 20.0

Vertical angle increments 20.0

Cancel Back Next

In this step, you will be able to control the smoothness of your KeyShotVR. Once the number of frames has been set, click *Next*.

### Smoothness Control

Allows you to control the smoothness of the model rotation. A higher value of horizontal and/or vertical frames will increase the smoothness of the rotation on the model inside a web browser, but it will also increase the total number of frames to be rendered and may affect load times of the KeyShotVR in the browser.

### Angle Control

If a *Custom* KeyShotVR is chosen, you will also see options for Angle Control. Angle Control allows you to enter beginning and end angles for both the horizontal and vertical rotation.

## Set KeyShotVR Output




### Set KeyShotVR Output

---

**KeyShotVR Output**

Name


Folder  

**Viewing resolution**

Width

Height

**Loading icon**



Maximum image size: 80x80

Default loading icon

In the final step, you configure the output of the KeyShotVR as well as the image resolution for each frame.

Choose the name of your VR and the location of where it will be saved on your computer.

Set the resolution of your VR or choose a preset from the pull down.

KeyShotVR has a default image for the loading icon. To change the icon, click "Browse" and select an image file to replace the default image.

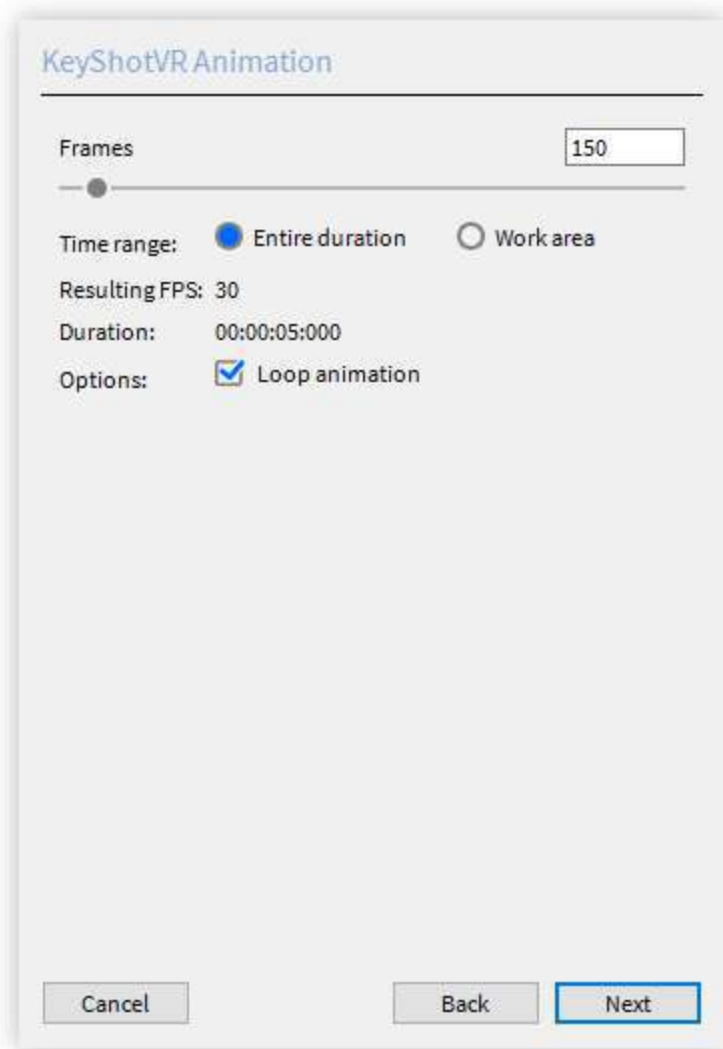
## KeyShotVR Animation

If an animation is applied in the scene, the *Animation* option will be shown as an available KeyShotVR mode. Any animation type can be included as a KeyShotVR. Select *Animation* in the *KeyShotVR Wizard*.

### Frames

#### On this page:

- Frames
  - Resulting FPS
  - Loop Animation



Use the slider or input field to set the number of frames to render in the KeyShotVR. If you have a specific section of the timeline you would like to use, select *Work Area*.

### Resulting FPS

This determines the overall smoothness of the KeyShotVR when it is used in a browser. Increasing the *Frames* slider increases the frame rate. A higher value will give a smoother transition, but be aware that internet speeds can also affect frame rate.

### Loop Animation

This option will provide an infinite looping for the KeyShotVR Animation. Additional options can be accessed by selecting *Render Options* on the final step of the KeyShotVR Wizard.

## Render Output

Click “Render Now” to render immediately, or click “Render Options” to open the “Render Output” window and review your VR settings. All the parameters set in the wizard can be edited in the render output window as well. In addition, there are other options such as image quality and outputting for iPad. There is also an option in this window to output directly to a website you are managing.

### On this page:

- Smoothness Control
- Angle Control
- VR Output

## Smoothness Control

### Animation Frames

If animation is applied to the scene, you will be able to create a VR from this animation. Additional parameters will be shown if enabled. See previous page for animation frames settings.

### Horizontal Frames

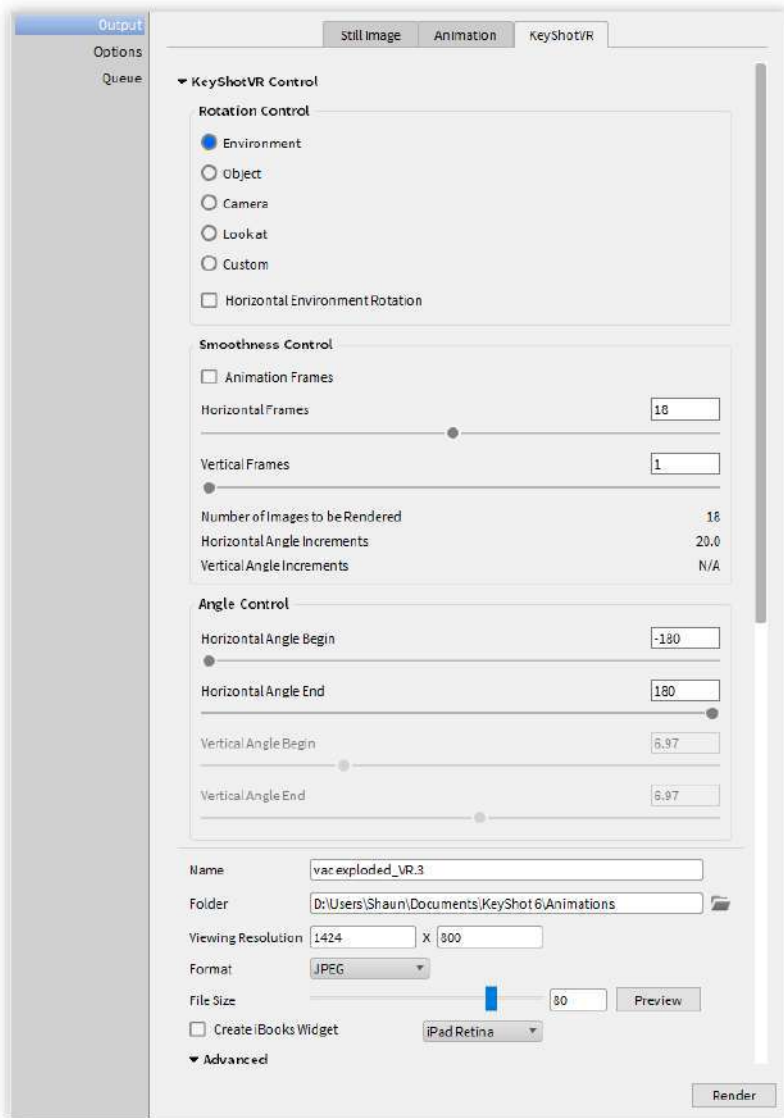
This controls the number of frames in the "X" direction. The higher the number of frames, the more smoothly your model will rotate.

### Vertical Frames

This controls the number of frames in the "Y" direction. The higher the number of frames the more smoothly your model will rotate.

### Horizontal/Vertical Angle Increments

This sets the degrees between each frame. This value will change depending on the number of vertical and horizontal frames and the starting and ending angles.



## Angle Control

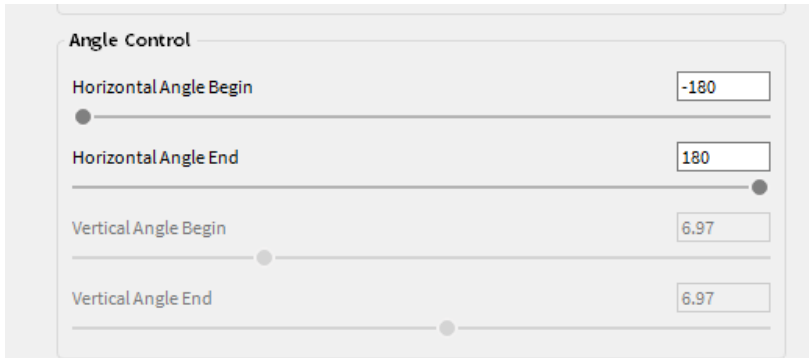
Use these sliders to control the beginning and ending of the VR.

### Horizontal

This controls the beginning and end of the rotation on the “X” plane.

### Vertical

This controls the beginning and end of the rotation on the “Y” plane.



## VR Output

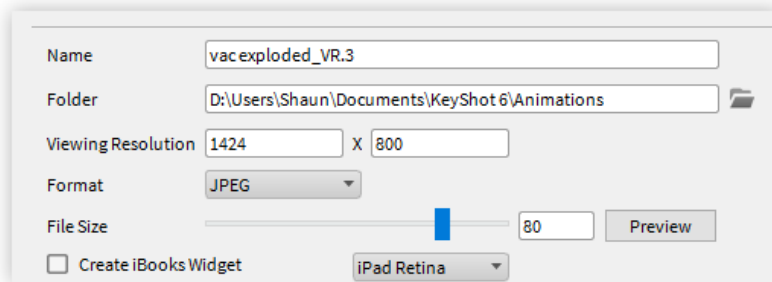
This section allows you to set up the resolution as well as the destination of the VR.

### Image Quality

Selecting the “Preview” button will render one frame from the VR and has a compression slider that allows adjustments to the quality of the image, and updates in realtime. Be aware that a larger file size could increase the time to load the VR in the browser.

### iBook Widget

If this is enabled, an HTML5 widget will be output in the same folder as your KeyShotVR which can be embedded in an iBook using iAuthor. Choose the iPad model that you will be creating the iBook for from the dropdown options.



## KeyShotVR Advanced Settings

Advanced settings for KeyShotVR are located in a dropdown menu on the same window as the custom settings. This menu controls how your KeyShotVR interacts in the web browser.

### Rotation Damping

Increasing this value will increase the smoothness of the camera rotation when panning inside the web browser.

### Mouse Sensitivity

This controls the overall mouse sensitivity in the KeyShotVR. Increasing this value will increase the model movement with less mouse movement.

### Zoom-In

Enabling zoom-in will allow you to zoom into the KeyShotVR when inside the browser. Use the “Maximum Allowed Zoom-In Percent” slider to control the amount the user can zoom in your KeyShotVR.

### Preserve Image Quality

Enable this option to render the frames at larger resolution for optimal image quality

when zooming in. The image quality will be preserved when zooming in by enlarging the rendered frame resolution accordingly. This is separate from the viewport resolution setting for each frame. This will also increase the KeyShotVR file size.

#### **Download on interaction**

Enabling this option will set the KeyShotVR to only load the images into the browser after the user interacts with the KeyShotVR.

#### **Allow Fullscreen Mode By Double-Click**

Double-clicking the left mouse button will enter full-screen mode.

#### **Show Loading Icon**

enabling this will allow the loading icon to be shown when the KeyShotVR is loading in the browser. This image can be changed by selecting "Browse" and browsing to the image file you prefer.

#### **Name of Div**

This defines the KeyShotVR section in the HTML code.

#### **FTP Deployment**

Enable this option to allow KeyShot to load the rendered KeyShotVR directly into your FTP address.

#### **Confirm Before Deployment**

When the VR is finished rendering, you will be prompted to accept the deployment to the FTP site.

#### **Generate Embeddable HTML Code**

This will give you the code necessary for implementing your KeyShotVR in a website using the iframe tag.

#### **Embed FTP Settings in BIP File**

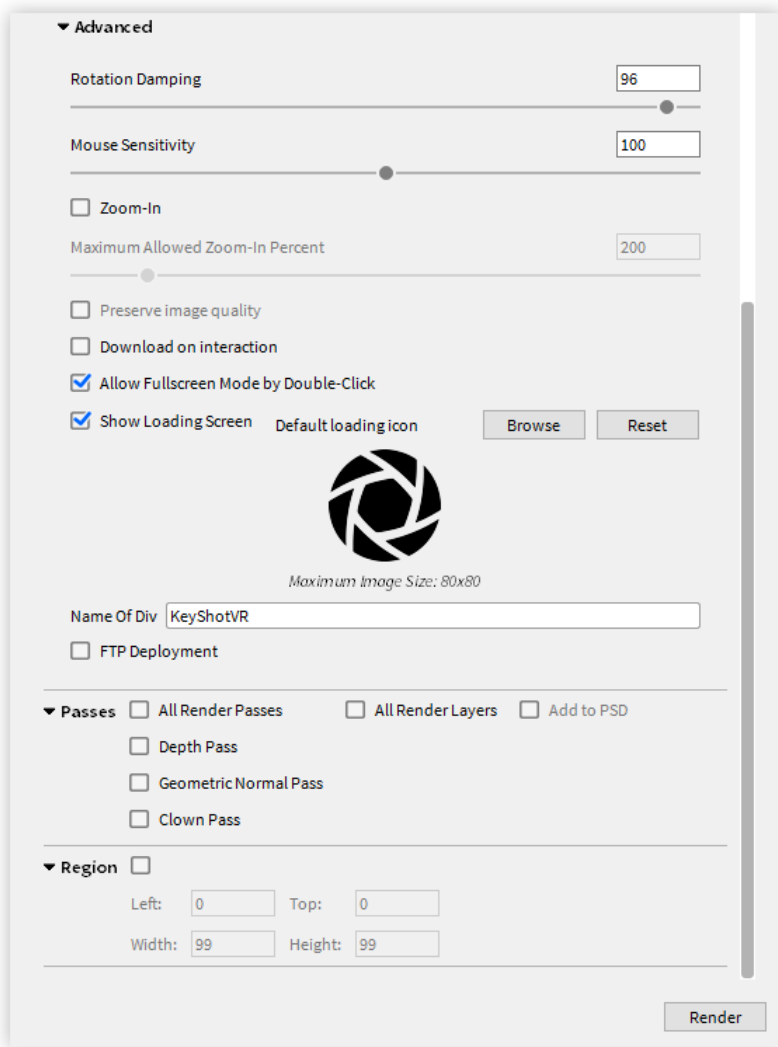
This will save all the FTP credentials inside your BIP file for easy deployment by another user.

#### **Passes**

You can create passes similarly to how you create passes in still renders. Enable the passes you would like to output with your KeyShotVR render.

#### **Region**

You can select a region to render for similarly to region rendering still images. click and drag the box in the real-time window, or enter in the specific values.



## Interior KeyShotVR

The Interior KeyShotVR is essentially a “look-around” KeyShotVR that uses the camera itself as the rotation center. With this feature, in addition to the option to control Horizontal Environment Rotation, dynamic interior and look-around KeyShotVRs can be created to help visualize what a space feels like in first person.

### How it Works

From the KeyShotVR Wizard or the KeyShotVR Render dialog, you are presented with an option to Pick KeyShotVR Rotation Center. Use Camera as the rotation center to enable the Interior KeyShotVR. Depending on the desired outcome, you can also enable Horizontal Environment Rotation from the same dialog page. If the background is set to Lighting Environment, the Horizontal Environment Rotation should be enabled for the most realistic effect.

## KeyShotVR Output

Once the KeyShotVR has finished rendering, a web browser window with the finished KeyShotVR will be displayed. Additional settings can be set in the HTML code that was produced with the KeyShotVR. You can find the HTML code along with all the render frames in a folder at your save location.

## KeyShotVR Variables

Below is a list of KeyShotVR variables. these variables are set in the *.html* file created

On this page:

On this page:

by KeyShot when the KeyShotVR is rendered. These variables can be edited after the KeyShotVR is created if minor edits are needed, rather than recreating the KeyShotVR over again. The *.html* file can be edited use a standard text editor.

## Variable Location

All KeyShot variables are located in the KeyShotVR *.html* file *<head>* section, within a *<script>* tag, and are called by the *initKeyShotVR()* function.

```
<head>
<script type="text/javascript">
function initKeyShotVR() {
var nameOfDiv = "KeyShotVR";
}
</script>
</head>
```

## Variables

### nameOfDiv

The div id of the KeyShotVR. This is where the KeyShotVR content is located.

#### Usage Example:

```
var nameOfDiv = "KeyShotVR";

<body oncontextmenu="return false;">
<div id="KeyShotVR"></div>
</body>
```

### folderName

The name of the folder that contains all the files for the KeyShotVR. This is set under *Render, Output* options in the *KeyShotVR* tab, *Name* entry.

#### Usage Example:

```
var folderName = "material_ball_VR.10";
```

### viewPortWidth

The width of the KeyShotVR in pixels. This is set under *Render, Output* options in the *KeyShotVR* tab, *Viewing Resolution*, first text field entry.

#### Usage Example:

```
var viewPortWidth = 640;
```

### viewPortHeight

The height of the KeyShotVR in pixels. This is set under *Render, Output* options in the *KeyShotVR* tab, *Viewing Resolution*, second text field entry.

#### Usage Example:

```
var viewPortHeight = 640;
```

### backgroundColor

The background color of the *.html* page in hexadecimal notation. This will be the color behind/surrounding the KeyShotVR. The default is white (#FFFFFF). This option can only be set from in the *.html* file.

#### Usage Example:

#### On this page:

- Variable Location
- Variables
  - nameOfDiv
  - folderName
  - viewPortWidth
  - viewPortHeight
  - backgroundColor
  - uCount
  - vCount
  - uWrap
  - vWrap
  - uMouseSensitivity
  - vMouseSensitivity
  - uStartIndex
  - vStartIndex
  - minZoom
  - maxZoom
  - rotationDamping
  - downScaleToBrowser
  - addDownScaleGUI Button - Deprecated
  - downloadOnInteraction
  - imageExtension
  - showLoading
  - loadingIcon
  - allowFullscreen
  - uReverse
  - vReverse

```
var backgroundColor = "#FFFFFF";
```

### uCount

This is the number of horizontal frames in the KeyShotVR. This is set under *Render, Output* options in the *KeyShotVR* tab, under *KeyShotVR Control, Smoothness Control*.

#### Usage Example:

```
var uCount = 18;
```

### vCount

This is the number of vertical frames in the KeyShotVR. This is set under *Render, Output* options in the *KeyShotVR* tab, under *KeyShotVR Control, Smoothness Control*.

#### Usage Example:

```
var vCount = 18;
```

### uWrap

This allows the KeyShotVR to continue rotation in the horizontal direction when set to true.

#### Usage Example:

```
uWrap = true;
```

### vWrap

This allows the KeyShotVR to continue rotation in the vertical direction when set to true.

#### Usage Example:

```
var vWrap = true;
```

### uMouseSensitivity

This controls the horizontal mouse/touch sensitivity for the KeyShotVR. Changing the value to/from a negative value will change the direction of the KeyShotVR rotation. This is set under *Render, Output* options in the *KeyShotVR* tab, under *Advanced*.

#### Usage Example:

```
var uMouseSensitivity = -0.0055;
```

### vMouseSensitivity

This controls the vertical mouse/touch sensitivity for the KeyShotVR. Changing the value to/from a negative value will change the direction of the KeyShotVR rotation. This is set under *Render, Output* options in the *KeyShotVR* tab, under *Advanced*.

#### Usage Example:

```
var vMouseSensitivity = 1;
```

### uStartIndex

This controls the horizontal start frame for the KeyShotVR. This is set by viewing angle in the KeyShotVR settings, under *Render, Output* options in the *KeyShotVR* tab, under *KeyShotVR Control, Angle Control*.

#### Usage Example:



```
var uStartIndex = 1;
```

### vStartIndex

This controls the vertical start frame for the KeyShotVR. This is set by viewing angle in the KeyShotVR settings, under *Render, Output* options in the *KeyShotVR* tab, under *KeyShotVR Control, Angle Control*.

#### Usage Example:

```
var vStartIndex = 0;
```

### minZoom

This controls the minimum zoom level for the KeyShotVR. Setting to a negative value will allow Zoom out capability. Increasing the value above 1 will change the zoom level of the VR when loaded. This is set in the KeyShotVR settings, under *Render, Output* options in the *KeyShotVR* tab, under *Advanced* by checking the *Zoom-In* checkbox.

*Note: KeyShot automatically calculates the resolution when rendering the KeyShotVR based on this setting when 'Preserve image quality' option is enabled. If changed afterward, grainy images may be experienced.*

#### Usage Example:

```
var minZoom = 1;
```

### maxZoom

This controls the maximum zoom level for the KeyShotVR. Increasing this number, increases the amount a KeyShotVR can be zoomed in. This is set in the KeyShotVR settings, under *Render, Output* options in the *KeyShotVR* tab, under *Advanced* by checking the *Zoom-In* checkbox.

*Note: KeyShot automatically calculates the resolution when rendering the KeyShotVR based on this setting when 'Preserve image quality' option is enabled. If changed afterward, grainy images may be experienced.*

#### Usage Example:

```
var maxZoom = 1;
```

### rotationDamping

This controls the speed at which the rotation slows down when a KeyShotVR is rotated. Increasing this value will increase the duration of rotation before coming to a stop. This is set in the KeyShotVR settings, under *Render, Output* options in the *KeyShotVR* tab, under *Advanced*.

#### Usage Example:

```
var rotationDamping = 0.96;
```

### downScaleToBrowser

This variable controls the automatic resizing of a KeyShotVR when a browser is resized; it allows a KeyShotVR to be responsive. This is set to true by default and can only be changed in the *.html* file.

#### Usage Example:

```
var downScaleToBrowser = true;
```

### addDownScaleGUIButton - *Deprecated*

With KeyShot 6 this option has been deprecated. The option is still available for

legacy KeyShotVRs that require this from in the `.html` file.

**Usage Example:**

```
var addDownScaleGUIButton = false;
```

### downloadOnInteraction

This variable allows a KeyShotVR only to be loaded after it has been clicked. This option is set in the KeyShotVR settings, under *Render, Output* options in the *KeyShot VR* tab, under *Advanced*.

**Usage Example:**

```
var downloadOnInteraction = false;
```

### imageExtension

This variable is the image extension for the frames generated for the KeyShotVR. Only one extension type may be used. This is set in the KeyShotVR settings, under *Render, Output* options in the *KeyShotVR* tab, under *KeyShotVR Control, Format*.

**Usage Example:**

```
var imageExtension = "jpg";
```

### showLoading

If this variable is set to *true*, the loading icon will be shown. If set to *false*, it will not be shown. This option is set in the KeyShotVR settings, under *Render, Output* options in the *KeyShotVR* tab, under *Advanced* by selecting the *Show Loading Screen* option.

**Usage Example:**

```
var showLoading = true;
```

### loadingIcon

This allows a different loading icon to be used. The variable is the filename of the icon located in the the *KeyShotVR files* folder. This option is set in the KeyShotVR settings, under *Render, Output* options in the *KeyShotVR* tab, under *Advanced*, by selecting the *Default loading icon*.

```
var loadingIcon = "ks_logo.png";
```

### allowFullscreen

This variable allows a KeyShotVR to be viewed fullscreen when it is double-clicked in desktop browsers. This option is set in the KeyShotVR settings, under *Render, Output* options in the *KeyShotVR* tab, under *Advanced*, by selecting *Allow Fullscreen Mode by Double-Click*.

**Usage Example:**

```
var allowFullscreen = true;
```

### uReverse

**Usage Example:**

```
var uReverse = false;
```

### vReverse

**Usage Example:**

```
var vReverse = false;
```

Example of KeyShotVR variables in the KeyShotVR .html file

```
<script type="text/javascript">
  var keyshotVR;

  function initKeyShotVR() {
    var nameOfDiv = "KeyShotVR";
    var folderName = "material_ball_VR.10";
    var viewPortWidth = 640;
    var viewPortHeight = 640;
    var backgroundColor = "#FFFFFF";
    var uCount = 2;
    var vCount = 1;
    var uWrap = true;
    var vWrap = false;
    var uMouseSensitivity = -0.00555556;
    var vMouseSensitivity = 1;
    var uStartIndex = 1;
    var vStartIndex = 0;
    var minZoom = 1;
    var maxZoom = 1;
    var rotationDamping = 0.96;
    var downScaleToBrowser = true;
    var addDownScaleGUIButton = false;
    var downloadOnInteraction = false;
    var imageExtension = "jpg";
    var showLoading = true;
    var loadingIcon = "ks_logo.png"; // Set to empty string for default icon.
    var allowFullscreen = true; // Double-click in desktop browsers for fullscreen.
    var uReverse = false;
    var vReverse = false;
    var hotspots = {};

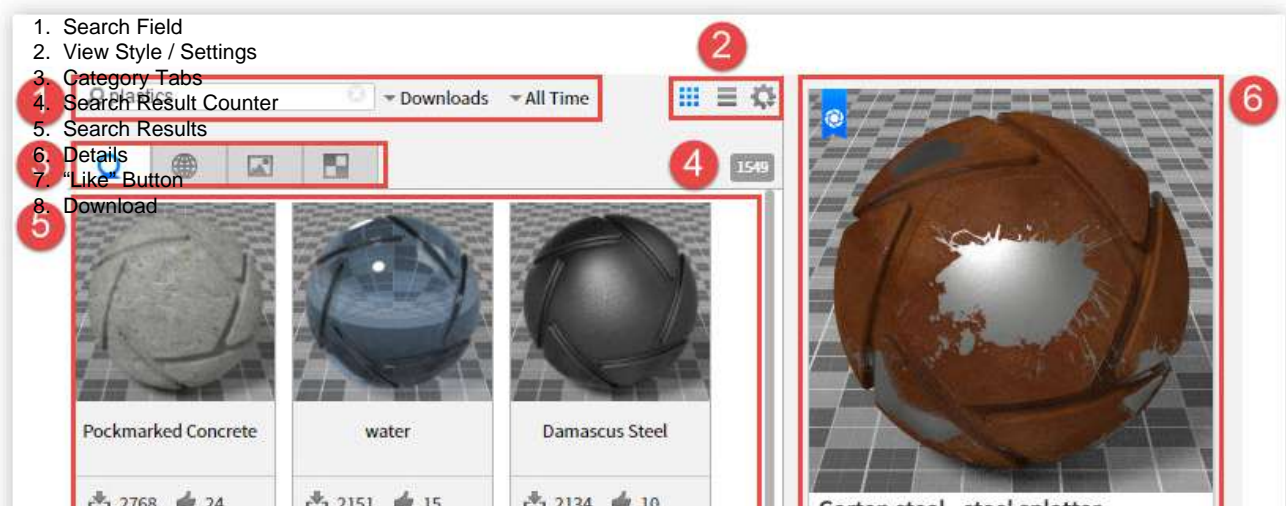
    keyshotVR = new keyshotVR(nameOfDiv, folderName, viewPortWidth, viewPortHeight,
    backgroundColor, uCount, vCount, uWrap, vWrap, uMouseSensitivity, vMouseSensitivity,
    uStartIndex, vStartIndex, minZoom, maxZoom, rotationDamping, downScaleToBrowser,
    addDownScaleGUIButton, downloadOnInteraction, imageExtension, showLoading,
    loadingIcon, allowFullscreen, uReverse, vReverse, hotspots);
  }

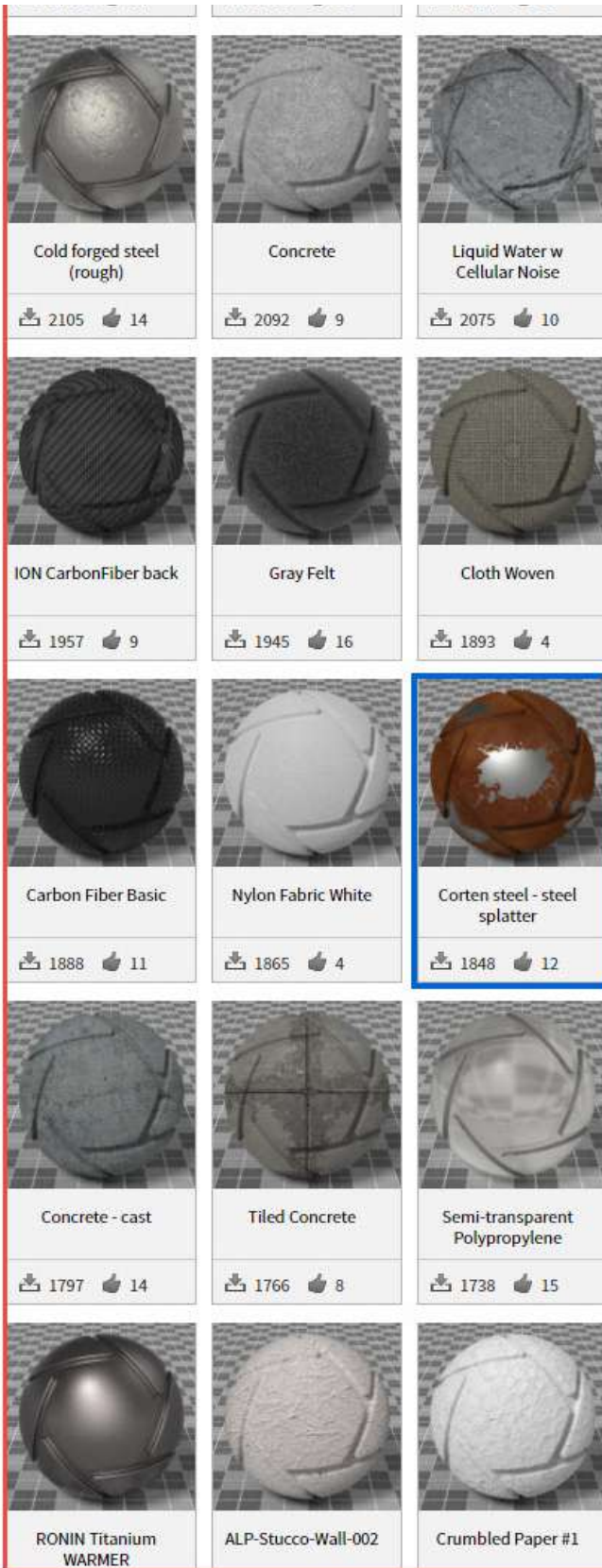
  window.onload = initKeyShotVR;
</script>
```

## KeyShot Cloud

KeyShot Cloud is an online library where you can share your own custom materials and resources, as well as having access to resources uploaded by other KeyShot users. When the KeyShot Cloud button is pressed, your default web browser will open and take you to the login page for KeyShot Cloud.

## KeyShot Cloud User Interface





**Corten steel - steel splatter**

Uploaded: April 9, 2014

By: DriesV

7

Like

Advanced based material with color, specular and bump textures. Includes a highly reflective metal splatter.

Tags: *metal, rough, rusty, weathered, splatter, steel*

Size: 4.82MB

8

View comments

Download

0

1848

12



Click the KeyShot Cloud button on the toolbar, or go directly to <https://cloud.keyshot.com>.

Before you have access to KeyShot Cloud, you will need to login with an existing account or to create a new one. Click Register and enter your details.

To log out, click the settings icon in the upper right of KeyShot Cloud window and select "Log Out".



The image shows a login form for KeyShot Cloud. At the top left is the KeyShot logo, a stylized camera lens. To its right is the text "KeyShot Cloud". Below the logo and title, there are three input fields: "Email:" with the value "Joe@luxion.com", "Password:" with a masked password "\*\*\*\*\*", and a checkbox labeled "Remember me (two weeks)" which is checked. At the bottom of the form are three blue buttons: "Login", "Register", and "Recover".

## KeyShot Cloud Search

KeyShot Cloud has robust search capability. Type any search term or use search syntax (ex. @username) to search for resources.

The search results may be organized using the *Order By* and the *Results Since* dropdown menus.

Click on a resource entry to bring up the details of that specific resource such as the size, description, tags, creator, and more. The details section will also contain the *Download* button to download the resource to your KeyShot Library, as well as a *Report* button to flag any resource as offensive material.

## Uploading/Downloading Resources

### Uploading Resources

To upload your custom resources to the Cloud Library, click the *Upload* button on the bottom right of the KeyShot library panel.

You will be prompted to edit the name if desired and to add a description and tags to help other users search for your resource. If you don't know what tags to use, you can click *Suggestions* and KeyShot will auto generate tags for you.

After clicking *Next*, a confirmation of resources to be uploaded will be displayed. Click *Upload* to send your resource to the cloud and give other users access.

#### On this page:

- [Uploading Resources](#)
- [Downloading Resources](#)


Resource Upload: 1 of 1  
File: Paint Gloss White.kmp  
Size: 23.44 KB

Name:

Description:

Tags:  [Suggestions?](#)


Allow commenting



[Cancel](#) [< Back](#) [Next >](#)

### Downloading Resources

To download a resource on the Cloud, click the *Download* button on the resource you would like to download. The resource will be automatically downloaded to your downloads folder in the appropriate tab, and you will then be able to move it to an existing or custom folder.




**KeyShot 5 Material**  
Uploaded: [September 14, 2015](#)  
By: [Bruno F](#) [Like](#)

formerly know as "Hard Shiny Plastic Blue"

Tags: [plastic](#)

Size: 37.73KB

[View comments](#)

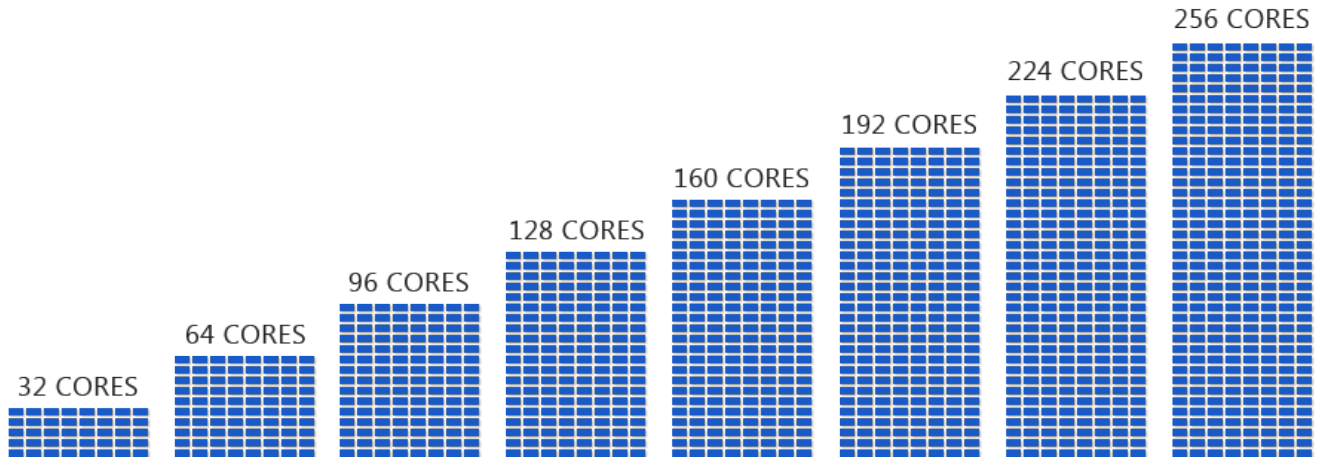
[Download](#) [0](#) [31](#) [0](#) 

# Network Rendering

KeyShot Network Rendering allows you to connect multiple computer systems in your office network and utilize the available hardware to reduce rendering times significantly. In fact, the correlation between render time and number of cores in your network is approximately linear and inversely proportional. In other words, by doubling the number of cores you potentially cut your render time in half.\* In addition, rendering over the network is convenient. You may continue working in KeyShot or any other application without slowing down your system while the designated rendering stations process your render “jobs”.

The KeyShot Network Rendering software is compatible with Mac and PC systems.

**The more cores you have, the faster your images and animations will render.\*\***



\* Please note that this is an approximation under optimal conditions. Render times are subject to hardware specs, core count differences between slaves, scene complexity, unit of time, multi-tasking, and network traffic.

\*\* Please note that Luxion does not sell or rent cores. All computer hardware (i.e. processor cores) is provided by the customer.

More on KeyShot Network Rendering and Network Rendering Installation can be found [here](#).