# KeyShot® 6

# What's New Guide

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# Introduction

The new and improved features and enhancements in KeyShot 6 are distributed in four areas of focus:

- **Improved Workflow Efficiency**—Lighting Presets, Real-Time Region Rendering, Copy to Scene Set, Save Active Scene Set, Multi-Layer PSD, Lock Scene Tree Items, Move Tool Updates.
- **Greater Material Control**—Material Graph, Materials on Labels, Material Animation, Occlusion Procedural.
- **Amazing New Capabilities**—Geometry View, Geometry Editor, Scripting Console, First Person View, Shift Lens.
- **Powerful Feature Enhancements**—Flexible Import Options, Unlimited Rendering Resolution, Pro with Animation, Camera Path Animation, Pivot Point Objects, Zoom Animation, DOF Animation, Panorama Camera Animation, Interior KeyShotVR, Preserved Image Quality, Responsive KeyShotVR.

# Product Updates

With KeyShot 6, new product and pricing changes have been made to open up more possibilities for users of both KeyShot HD and KeyShot Pro. The following changes are in effect with this release.

## KeyShot HD

**Now includes Unlimited Rendering Resolution**

Now every version of KeyShot has unlimited real-time and output rendering resolution! There are no longer any restrictions on resolution. From the *Project, Image* tab select from the resolution presets or enter any resolution value with the width and height input fields. This comes with no additional price increase to KeyShot HD.

## KeyShot Pro

**Now includes KeyShot Animation**

Every license of KeyShot Pro now includes KeyShot Animation! Users of KeyShot Pro can now enjoy adding, editing, and rendering all animation types. Animation will no longer be available as a separate add-on (previously $500) and there will be no additional price increase for KeyShot Pro.

If you currently have KeyShot Animation as an add-on, you will be able to use it with KeyShot 6. If you wish to purchase KeyShot Animation, you will need to purchase or upgrade to KeyShot 6. Please contact Luxion at sales@luxion.com for information on adding KeyShot Animation or about how this may affect your current licenses.

Compare KeyShot features

# Feature Highlights

## Interior Lighting

KeyShot now has a new *Interior* lighting mode. This preset is part of the new *Lighting* tab in the *Project* window that contains *Lighting Presets*. *Lighting Presets* provide pre-configured settings for six different light modes, including:

**Performance** - This setting 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 setting 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 setting 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.

**Full Simulation** - This setting features full simulation of all lighting effects and is intended for complex interior illumination with indirect lighting and caustics. Try using this preset when working with gemstones and jewelry that requires a higher number of ray bounces and caustics.

**Custom** - This setting has user-defined settings and the ability to save and load presets.

**How it Works**
From the *Project* window, select the *Lighting* tab (or access via the *Lighting* drop-down on the main menu). Expand the *Settings* options and notice how the parameters change with each preset. If a parameter is manually adjusted, the preset will switch to *Custom*, which can be saved by clicking the *add* icon next to the drop-down. 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.

## Materials on Labels

Materials and textures can now be applied to labels to enhance appearance and realism. Having this flexibility allows for a more accurate communication of labels and their true physical properties.

**How it Works**

It is important to understand that materials on labels act as a blended material rather than a layered material. This means that a material with transparency (i.e. Xray) will create transparency through the parent material as well, not just through the label itself.

When a label has been applied to a material, it will show up in the *Labels* tab of the material it is applied to. The label name now has a prefix based on the material type that is assigned to it. By default, a label will be assigned with the *Plastic* material type and will appear just as it would in KeyShot 5. Selecting a label from the list will display material properties, textures, and mapping parameters below. To adjust label mapping go to the *Label Textures* tab, select the diffuse/color texture thumbnail button and use the mapping controls found below. To change the label's material, select a different type from the *Label Type* drop-down. The available *Label Properties* and *Label Textures* parameters and options will update according to the type selected and behave just as material properties and textures do, with a few small differences.

When an opacity map is applied to a label it will behave as an additional mask for the label texture and will not affect the blended parent material. If a parent material has a bump map applied and *Bump* under *Label Textures* is selected, there is now a new option for *From Parent* under the *Texture Type* drop-down that will allow the bump map that is assigned to the parent material's texture to be adopted. Alternatively, *Apply Bump To Labels* can be enabled in the parent material *Textures* tab when *Bump* is selected to apply the parent bump map to all labels assigned to that material.

# First Person Mode

A First Person View (FPV) Camera with support for ground detection now provides a new way to move and explore a scene, useful for navigating through interior and architectural scenes.

**How it Works**
From the *Camera* menu select *Enter First Person Mode*. A heads-up display (HUD) will appear in the Real-time view with a legend for mouse controls, a value entry field for *Eye height* displayed in scene units, an option to *Lock Eye Height*, and an option to enable *Collision Detection*. The following mouse buttons control motion:

> Left Mouse Button (LMB) - Rotate
> Middle Mouse Button (MMB) - Pan
> Right Mouse Button (RMB) - Move
> Alt+RMB - Move to Position

Activating *Collision Detection* will provide a realistic walkthrough that moves the camera up and down stairs, ramps, and other changes in elevation by calculating camera height to maintain a constant distance to the object currently under the camera. When the green check is selected, a new First Person Camera will be saved in the Camera list in the *Camera* tab.

# Shift Lens

KeyShot 6 now has a new Shift Lens setting with an *Estimate Vertical Shift* function that allows the verticals in a scene to be aligned with the click of a button, which is particularly useful for architectural and interior visualization.

**How it Works**
From the *Project* window, select the *Camera* tab and navigate to the *Lens Settings* section that contains the new option for *Shift* with settings for *Vertical Shift* and *Horizontal Shift*, as well as a button to *Estimate Vertical Shift*. Selecting *Estimate Vertical Shift* will use the current camera *Inclination* value to estimate the appropriate vertical shift value to align the verticals in a scene.

# Lock Scene Tree Items

In addition to *Cameras*, there is now the ability to lock models, parts, and animations in the Scene Tree to prevent them from being modified.

**How it Works**
From the *Project* window, open the *Scene* tab. Right click on a model, part, animation, or camera and select *Lock*, which will display a lock icon in the rightmost column and gray out the respective show/hide checkbox. The right-click menu for models and parts provides an additional option to *Hide and Lock*, which will automatically hide the model or part and subsequently gray out the name indicating its state. To unlock an item simply right click and select *Unlock*.

There are different benefits to locking an item depending on the type:

**Locking a top-level Model** - This will subsequently lock all contained parts and animations to prevent the model and contained parts from being hidden/shown or transformed, Render Layers from being changed, Rounded Edges from being adjusted, and materials from being unlinked and edited to an extent. Material changes are prevented when dragging and dropping a material from the *Library* onto a model or part in the Scene Tree or Real-time view; however, a material can still be edited by double clicking on it in the Scene Tree or Real-time view. If a locked part shares a linked material with an unlocked part, the unlocked part's material will automatically become unlinked when it is assigned by drag-and-drop.

**Locking a Part** - This will prevent all the same changes as models; however, the main benefit is that a hidden and locked part will remember its hidden state when its model level is hidden or shown.

**Locking an Animation** - This will prevent all properties from being modified and will therefore show a grayed-out properties dialog in the *Animation Timeline.*

# Move Tool Updates

The Move Tool has now been improved with an easier-to-use widget along with the ability to pick a rotation Pivot, Snap to Pivot and Snap to Lower Object. The Move widget has been updated by flipping the direction of the scale handles and extending the translate arrows outside of the rotation handles, which now have gaps at the intersection points to reduce the likelihood of unintended actions.

### How it Works

Open the Move Tool just as before and notice changes to the dialog including check boxes that enable/disable the Translate, Rotate, and Scale widgets. The *Pivot* option allows a pivot point to be set for rotation; simply click *Pick* to launch the *Pivot Selection* dialog. Select the desired part in the dialog or directly in the Real-time view and select *Ok* or *Done* to update the position of the Move widget. The *Snap to Pivot* option will automatically move the center of the model or part to the center of the Pivot. 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. Keep in mind that since the bounding box is what's being referenced, the results may not always be perfect. This feature works best when the two surfaces being snapped are parallel to each other.

# New Material Presets and Favorites

KeyShot 6 comes with additional material presets and industry focused favorites to make scene setup even faster. A new Glass>Window folder contains pre-configured window materials for a range of glass types and appearances. Three new Favorites are available that provide a collection of materials, environments, colors, textures and backplates for Architectural, Jewelry and KeyShot Favorites.

### How it Works

To use the new Window materials, go to the *Library, Material* tab and expand the *Glass* folder. Select the *Window* folder, then drag and drop a material onto a model. Alternatively, search for 'window' in the Material tab search bar to see a selection of window materials.

To view the new Favorites, in the *Library* window, select the *Favorites* tab. Three resource collections will appear in the pane and may be expanded to view the materials, environments, colors, textures and backplates within each. Favorites are stored in uniquely generated .xml files stored in the KeyShot Resources folder. New materials, environment and other resources may be added to a favorite by right-clicking on the resource and selecting *Add to Favorite*, then choosing an existing favorite or creating a new one.

# New Material Types

New material types have been added to KeyShot to provide more control over material properties and achieve more accurate results. The *Material Types* drop-down on the *Material* tab is now split into *Basic, Advanced, Light Sources* and *Special* material types. Advanced material types contain more settings for greater control over the material. New Material types include:

**Translucent (Advanced)** - The new *Translucent (Advanced)* material type supports more texture channels than the Basic Translucent, including Surface Color, Subsurface Color, and Translucency. In addition, this new Translucent material now supports the projection of caustics for cases such as a translucent eyeball with a glass lens. This material behaved best when the object it is applied to is a single mesh body. Objects with multiple intersecting meshes work best with the Basic Translucent material.

**Plastic** - The new *Plastic* material type is a simplified opaque plastic that does not have control of transparency parameters.

**Dielectric** - The improved *Dielectric* material type has been optimized to better separate colors of the spectrum for a more accurate appearance of Dispersion.

**Gem** - The improved *Gem* material type has also been optimized to better separate colors of the spectrum for a more accurate appearance of Dispersion.

**How it Works**
Double-click on a part in your scene to edit it's material. The material properties of the part will appear in the *Project* window. In the Material Type section, select a new material from the Material Type drop-down. The color of the part will be retained, but the properties will update to match that of the specific type of material. Adjust the settings as needed. Settings with arrows on the left designate settings that can be expanded to show additional options.

# Occlusion Procedural

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, to create interesting texture effects based on occluded and unoccluded areas.

**How it Works**
From the *Project* window, open the *Material* tab. Select the *Textures* tab and the *Diffuse* texture thumbnail button. From the *Texture Type* drop-down, select *Occlusion* under the *3D Textures* header. Hover over a parameter to view its description.

# Flexible Import Options

For certain file types, KeyShot users have more flexible import options, including the removal of *Size* options with scene units automatically matched with the imported model. KeyShot Import also features new *Materials and Structure* options, including *Group by Material* and *Separate Parts by Material.*

### How it Works

From the *File* menu, select *Import…* to bring up the *Import file* dialog. Select the file to import and select *Open*. Depending on the file type, you will see new options for *Materials and Structure*. The following new options are available:

> **Group by Object** - Using this option will maintain hierarchy and model structure

> **Group by Material** - Using this option will ignore model structure and flatten hierarchy. Multiple objects with shared appearances or shaders applied in CAD will be combined into a single object.

> **Separate Parts by Material** - This option will prepend material names with their respective part name. Using this option with *Group by Material* will only combine objects with shared appearances or shaders within each part, rather than the entire assembly. Using this option with *Group by Material* will have no effect on hierarchy.

# Material Graph (Pro)

Material editing is now more robust than ever before with the KeyShot 6 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.

### How it Works

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*.

> **Menu Bar** - The *Material* menu gives the option to create a *New* material; this will replace the working material and any textures with a basic diffuse material to start from scratch. *Import* allows the import of .mtl files created with KeyShot. Another way of importing is to simply drag and drop a material or texture directly from the KeyShot Library. *Save to Library* will save the working material to a specified folder in the 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 provides the *Align Nodes* command*,* which automatically arranges connected nodes in the work area, the *Zoom to Fit*, *Zoom to 100%*, and texture map preview options. A single node must be selected for the preview options to be available. The *Window* menu gives access to hide/show the *Ribbon*, *Material Properties* window and *Materials & Textures* library.

**Ribbon** - The *Ribbon* provides even quicker 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 include 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 an image file. The *Animation* icon adds a *Color Fade* node. The *Utility* icon adds a *Bump Add* node. Additional buttons allow quick access for previewing texture maps and automatically arranging nodes.

**Materials & Textures Library** - The *Materials & 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 Properties** - The *Material Properties* dialog shows the associated properties for the current node being edited. Double-clicking on a node, allows quick access to its *Material Properties*. While the settings for each material are the same as what you see in the *Materials* tab of the *Project* window, root and parent nodes will take on the properties of their child nodes. All textures will be synced with their siblings unless Sync is unchecked from the Material Properties of the texture.

**Work Area** - The *Work Area* displays all nodes and connectors 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 duplicate, delete, disable, cut or copy that selection. Zoom in or out of the Work Area using the middle mouse wheel and pan using the left mouse button.

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

**Connections -** 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. When a connection is selected, a dashed box will surround it; right click to remove or disable the connection. A disabled connection will be displayed as a dashed line.

**Utility Nodes** - There are several utility nodes that can be used to create a rich variety of effects. For example, *Bump Add* can add two bump maps and *Color Composite* can make a composite of two textures (nodes) that is much like layer compositing in most 2D painting programs.

**Previewing Texture Maps** - To preview the color, alpha or bump of a texture map in the Real-time window, first select the Texture Node in the *Material Graph*. Next select *Preview Color*, *Preview Alpha*, or *Preview Bump* from the *Material Graph, Ribbon* bar. To remove the preview, click the ribbon button again. You can also use the hotkeys "A" for *Preview Alpha*, "B" for *Preview Bump*, and "C" for *Preview Color*.

# Scripting Console (Pro)

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.

**How it Works**
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. If the Ribbon is not visible go to, *Window, Show Ribbon* or press the *'R'* key. Scripts are loaded using the *Scripting, Console* command line, using the format `keyshot -script <path to script> <optional script arguments, ..>`. 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 are located in the KeyShot Assets Folder, e.g. *<install path>\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. Two examples scripts include:

### 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.

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. For more information on this, please see https://keyshot.com/scripting/doc/6.0/luxmath.html

**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.

Example use cases of scripting:

- Render and encode a fluid simulation of images to video.
- Batch process multiple files, like applying materials, environments, backplates, camera information etc., and render results to images, VR or video files.
- Automate workflow by using the -script CLI argument when starting up KeyShot for setting up default values and settings.
- *Add more!*

# Geometry View (Pro)

KeyShot 6 now introduces an entirely new way to setup a scene by using the Geometry View window. This highly responsive secondary display of the Real-time view makes working in KeyShot even faster and more efficient than before. Some benefits of the Geometry View are as follows:

- Animations can be played back at a true 1:1 speed.
- A secondary camera can be used for easier positioning of physical lights in a scene.
- Scene transformations and composition setup are faster.
- Control of Camera Path Animations.

**How it Works**
From the *Window* menu select *Show Geometry* View or simply press the '*O'* key. This window can be left floating, or it can be docked on the left or right side of the Real-time view.

The Geometry View *Ribbon* provides access to options to adjust the viewport. Select the desired *Display Style* options of *Shaded, Flat, Shaded Wireframe, Wireframe*, or *Bounding Box*. Choose a camera from the Camera drop-down from these available options—*Active, Perspective, or Orthographic*. From the

ribbon, select a Display Orientation option of Front, Back, Left, Right, Top, or Bottom. The display of *Ground Grid, Lights*, *Camera Paths, Pivots, and Camera Fov* can be enabled by checking the respective box within the Geometry View Settings window. To change the background color click on the color swatch in the settings window. Enter the *Geometry Editor* by selecting a part with the *Scene Tree* open and clicking the *Edit Geometry* button.

A benefit of the Geometry View is the visualization of cameras. Cameras are identified by a cubed shape model while Viewsets are identified by a sphere shaped model. The respective names are always shown for each camera and Viewset. When a camera or Viewset is selected it's field of view is shown as a wireframe projection.

# Geometry Editor (Pro)

A new *Geometry Editor* brings the freedom of splitting surfaces, calculating vertex normals, separating individual surfaces and closing open boundaries directly inside of the KeyShot through an integrated Geometry View.

**How it Works**
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. Tools in the *Splitting* tab allow for splitting bodies, separating individual surfaces, and merging. Tools in the *Normals* tab allow for evaluating vertex and face normals and for calculating vertex normals based on angle. Tools in the *Closing* tab allow for calculating, closing, and connecting boundary edges.

# Multi-layer PSD (Pro)

When outputting rendered still images and Animation frames as PSD and PSD 32 Bit format, Render Passes and Render Layers will be included as individual layers contained in the Photoshop file.

**How it Works**
In the *Render* dialog, select *Output* from the sidebar. Select PSD or PSD 32 bit from the format selector drop-down. Enable Passes and/or Layers and check the *Add to PSD* box. When the file is opened in Photoshop, all passes and layers will be included.

# Copy to Scene Set (Pro)

KeyShot 6 now provides the option to copy models and parts from one scene set to another.

**How it Works**
In the *Project* window *Scene tree* right-click on a part or model and select *Copy to Scene Set*. In the flyout menu chose to copy to the default Scene Set or any other existing Scene Set other than the one that is

currently active. This will copy the selected object so it exists in both Scene Sets. Keep in mind that the materials will not be linked on the object that is copied.

## Save Active Scene Set (Pro)

The ability to save active Scene Sets allows them to be easily shared with users of KeyShot HD who do not have direct access to Scene Sets in a scene created with KeyShot Pro.

**How it Works**
Right-click the Scene Set you wish to share and select *Make Scene Set Active*, if not active already. From the *File* menu, select *Save Active Scene Set...* to launch the *Save As* dialog. This will save the active Scene Set as a separate .bip file. If the file is intended to be shared it is important to remember to save it as a KeyShot Package file (.ksp) so all scene assets are included. To do this the newly created .bip must be opened separately then saved as a .ksp.

## Real-time Region Rendering (Pro)

KeyShot Pro users can now render any region of their scene in real-time. Only the region enclosed by the bounding box in the Real-time view will be rendered. This can greatly improve workflow efficiency when working with resource intensive scenes, as processing power is not wasted rendering areas outside of the region bounds. Use this feature while dialing in materials to see the areas res up faster than if displaying the entire Real-time view.

**How it Works**
From the *Project* window select the *Image* tab to find the *Region* section. Check the box to enable and resize the region bounds using the input values or by dragging the handles in the Real-time view. When *Region* is enabled in the *Image* tab, it is synced with the *Region* option in the *Render Output* dialog. Taking a *Screenshot* when *Region* is enabled will only output the area enclosed by the *Region,* with the rest of the image shown as a solid black color for easy selection and cropping in Photoshop.

## Material Animation (Pro)

Color Fade and Number Fade animations now make it possible to quickly adjust material colors or settings, change materials opacity or fade lights, through the new Material Graph, eliminating the need to blend frames in post-production.

**How it Works**
Contained in the *Material Graph, Materials & Textures* library is the *Animation* folder that contains the *Color Fade* node and *Number Fade* node. These nodes can be used to animate the properties of the material being edited in the Material Graph. Simply make a connection from the animation node's output channel to the desired material or texture node's input channel. (Learn more about the Material Graph.)

Each animation that is added through the *Material Graph* will show up in the *Animation, Timeline* with its properties shown on the right-hand side when selected. Material properties that have animations applied to them will display an animation icon next to the disabled textbox. To enable this, remove the connector applied to the property in the *Material Graph*.

**Color Fade**
Animate a material or material texture map between two color, across a range of colors or change a material's opacity over a specific duration.

**How it Works**
The *Color Fade* animation may be applied to a material from the Material Graph or to a texture from the *Material, Textures* tab as a *Texture Type* on a *Color*, *Specular* or *Opacity* map.

In the *Material Graph*, double-click or drag and drop the *Color Fade* animation to the work area. Select the *Color Fade* input connector and drag it to a material's input connector. Double-click on the *Color Fade* node to see and adjust its setting in the *Materials Properties, Properties* tab.

In the *Texture* tab, double-click a material and select the *Textures* tab. Select the map to fade, then select *Color Fade* from the *Texture Type* drop-down menu. Double-click the color bar to add a new pin and double-click the pins to change the color. Set the *Start*, *End*, *Duration* and *Motion ease* under the *Time Settings*. The animation can be seen in the *Animation Timeline*. Adjust it as any other animation. Select *Play* to see the color fade animation.

**Number Fade**
Animate material or materials texture properties across a min and max range for a specific duration.

**How it Works**
In the *Material Graph*, double-click or drag and drop the *Number Fade* animation to the work area. Select the *Number Fade* input connector and drag it to a material's input connector. Double-click on the *Number Fade* node to see and adjust its setting in the *Materials Properties, Properties* tab.

# Camera Path Animation (Pro)

KeyShot 6 opens up the ability to create incredibly dynamic camera motion with the new Camera Path Animation. With more control over the camera, smooth path-driven animations can be added in just a few clicks.

**How it Works**
Adjust the Real-time Viewer to the desired view for the camera starting point. From the *Project* window, 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.

# Pivot Point Object Axis (Pro)

The Rotation Animation feature now provides the ability to use the Pivot Point object's local axis, allowing for greater flexibility and more dynamic rotations.

**How it Works**
When a Rotation Animation has been added to a scene, select it in the Animation Timeline to view its properties. Just as before, a custom Pivot Point can be picked in the *Pivot Point* options. To use the local axis of a custom Pivot Point, simply enable *Pivot Point Object Axis* and select *Original Local* for the *Axis Orientation* under the *Rotation* options.

# Depth of Field Animation (Pro)

The new Depth of Field Camera Animation allows for the dynamic change of the camera's focus distance and F-stop values.

**How it Works**
From the *Project* window, navigate to the *Scene* tab. The Scene Tree contains the list of saved cameras. Right click on a saved camera and select *Depth of Field* to add the animation. Select where you want the focus to begin with the *From Focus Distance* slider or choose *Select "Point of Focus"* to pick a starting point. Select where you want the focus to end with the *To Focus Distance* slider or choose *Select "Point of Focus"* to pick an end point.

Note: Adding this animation will enable the *Depth of Field* option under the *Project, Camera, Lens Effects* and saved with the camera being animated. The values entered in the Depth of Field Animation properties will also override the *Depth of Field* value under *Lens Effects*.

# Zoom Animation (Pro)

The new *Zoom* Camera Animation allows for the dynamic change of the camera's field of view.

**How it Works**

From the *Project* window, navigate to the *Scene* tab. The Scene Tree contains the list of saved cameras. Right click on a saved camera and select *Zoom* to animate. Select where you want the zoom to begin with the *From Field of View* slider. Select where you want the zoom to end with the *To Field of View* slider.

Note: Adding this animation will override the *Field of View* setting under the *Project, Camera, Lens Settings*.

## Panorama Camera Animation (Pro)

The new Panorama Camera Animation allows the creation of first-person, rotation animations using the camera itself as the rotation pivot.

**How it Works**
From the *Project* window, navigate to the *Scene* tab. The Scene Tree contains the list of saved cameras. Right click on any saved camera and select *Panorama* to add an animation to the Timeline. Simply set the desired degrees of rotation to control the Panorama. Use a positive value for left-to-right rotations and a negative value for right-to-left rotations.

## Interior KeyShotVR (VR)

The new 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**
In the *KeyShotVR Wizard* or the KeyShotVR *Render* dialog, is the option to *Pick KeyShotVR Rotation Center*. Use *Camera* as the rotation center to enable the Interior KeyShotVR. Depending on the desired outcome, *Horizontal Environment Rotation* may also be enabled 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.

## Preserved Image Quality (VR)

If zoom-in is enabled, 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.

# Responsive KeyShotVR (VR)

A KeyShotVR is now responsive by default with improved embed capability. With this, the KeyShotVR automatically resizes to fit browser width.

**How it works**
After generating a KeyShotVR, the browser will open, showing the KeyShotVR with instructions for use on a website. After the KeyShotVR is uploaded to a website, it may be embedded on a webpage. To embed the VR, simply copy and paste the code provided into the html of the webpage. Ensure that the url in the iframe tag matches the location of the KeyShotVR file.

# Additional Features

**Additional KeyShot 6.0 features**

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**Redo function**—The *Redo* function is located in the *Edit* menu or may be activated with *Ctrl+Y* on Windows or *Command+Y* on Mac.

**Save Reminder Notification** - In *Preferences, General,* set a *Save Reminder* notification to display after a specified amount of time.

**LiveLinking Improvements** - Models that are linked to the 3D modeling software through LiveLinking now updates Instances, i.e. Patterns, and Scene Sets.

**New PANTONE Colors** - Updated PANTONE color library to include the new PANTONE+ Extended Gamut Coated.

**Comprehensive Tool Tips** - Hover over a function or parameter to view that item's description.

**Add Camera/Viewset Buttons on Ribbon** - Add Cameras and Viewsets directly from the Ribbon.

**Normal Projection for Textures** - Use *Normal Projection* as the assigned mapping type for textures.

**Opacity Mapping Improvements** -  When an *Opacity* map is applied to a material, the *Opacity Map Mode* selector is activated in *Material Properties* under *Texture & Label Control*. Options for *Alpha*, *Color* (darker colors are more transparent) or *Inverse Color* (lighter colors are more transparent) are available.

**Cylindrical Mapping Improvements** - Cylindrical maps now have the one-click option to fit X,Y,Z.

**Updated Render Dialog** - The *Render* dialog now has a more efficient organization of items. The sidebar contains three items: Output, Options, and Queue.

**Resolution Presets** - In the *Project, Image* tab, under *Resolution, Presets* drop-down, new *Portrait* resolution presets are available with the ability to create *Custom* resolutions.

**Scene Tree Filter and Search** - From the *Project*, *Scene* tab, use the *Show* drop-down menu to filter what's being displayed in the Scene Tree. Choose from the options to display All, Parts only, Lights only, Animations only, and Render Layers only. This selection controls what is being filtered by the Search bar. Click the Search drop-down icon in the Search bar to see available options.

**Vignetting Color** - Color selection is now available for *Vignetting*. From the *Project* window, select the *Image tab* to find the *Effects* accordion. Check the box to enable *Effects* to enable vignetting. Increase Vignetting Strength to the desired value. Click the *Vignetting Color* swatch to open the Color Selection dialog. Vignetting color is also available in the Render output window in the *Effects* accordion of the *Adjustments* panel.

**Edit Label** - Right-click on a label in the Real-time view and select *Edit Label* to display the corresponding label properties.

**Material List View** - New list view mode in the *Project, Material* tab, below the *Materials* palette, shows all project materials in a list, sortable by name and type.

**Material Node View** - New hierarchical view mode in the *Project, Material* tab, below the *Materials* palette, shows and provides quick access to nodes added through the *Material Graph*.

**Project Materials Filter** - The *Project, Materials* tab which displays all scene materials at the bottom, can now be filtered *By Scene Set* or By *Visibility*.

**Save a viewset with each screenshot** - A new checkbox in *Edit, Preferences* under *General, Screenshot* options to *Save a viewset with each screenshot* is available.

**IES Light Improvements** - An IES light profile preset will now be set automatically when the *Point Light IES Profile* material type is selected, instead of requiring selection of an IES profile. Additionally, there are now more IES lights included in the Library.

**Lux Power Control** - In addition to Watt and Lumen, there is now an option to control the Lux of an Area Light Diffuse or Point Light Diffuse material by selecting Lux from the Power dropdown. Lux is the measurement of Lumen per unit area.

**Real-Time Render Time and Samples** - The Heads-up Display now shows how long the Real-time view has been rendering and how many samples it has used.

**SolidWorks Import** - A new importer for SolidWorks files including SolidWorks 2016 files that allows the setting the tessellation and retrieving the NURBS geometry. Mesh geometry import remains available as an *Cached geometry* checkbox option in the Import dialog.

**ZPR Import** - In addition to export, import of the 3D Systems ZPrinter (formerly ZCorp) .ZPR format is now supported.

**PVZ Import** - PTC Creo View import is now supported, along with import of .pvs, .ol, .ed, .edz and .c3di.

**Add Scene Sets to Render Queue (Pro)** - In the *Render* dialog select *Queue* from the sidebar. There is now a button for *Add Scene Sets* that opens a dialog allowing the selection of one or more Scene Sets to be added to the Queue for processing.

**Compression for .HDZ files (Pro)** - .HDZ files saved from the HDRI Editor are now smaller in file size.

**Select Parts by Animation (Pro)** - Right click on an animation in the timeline to *Select Groups/Parts by Animation* in the Scene Tree.

**GUI License Manager for Mac (Pro Floating)** - Easily setup and manage KeyShot Floating Licenses on Mac OS X through a configurator.

**Network Rendering Email Notification Service (NR)** - This will inform the customer about expiring licenses (2 months before, 1 month before, and once a day during the last 2 weeks), and when a job has finished or failed. If any error occurs the admin will get an email notification.

**Automatic Database Migration (NR)** - The Configuration Wizard and Master program will automatically migrate the database to the newest version if needed (such as when moving from v4 or v5 to v6).

# Notes on User Interface Changes

- The *Scene* tab adds an additional filter drop-down for *Parts, Lights, Animations and Render Layers*.
- In the *Scene* tab, text searches now filter for matches in both *Parts* and *Materials* column by default.
- In the *Material* tab, the *Save to Library* button has been renamed to *Add to Library*.
- In the *Material* tab, the *Material Type* drop-down has been split into *Basic, Advanced, Light Sources* and *Special* material types. Advanced material types contain more settings for greater control over the material.
- In the *Environment* tab, the *HDRI Editor* is now accessed by a separate button below the Environment preview area.
- A *Lighting* menu and *Lighting* tab have been added between *Environment* and *Camera*.
- In the *Camera* tab, *Add new camera* and *Add new viewset* have been changed from a drop-down menu to two separate buttons and also added to the Ribbon menu.
- In the *Camera* tab, *View Orientation* has been renamed to *Standard Views*. *Standard Views* keyboard shortcuts are available with *Ctrl + Alt + 1-7*.
- On the *Ribbon*, the *Camera* and *Scene Set* buttons are now dropdowns that contain a list of saved Cameras and Scene Sets.
- The *Settings* menu and *Settings* tab is now called *Image,* retaining options for *Resolution,* and *Adjustments* for *Brightness* and *Gamma*.
- *Resolution Presets* are now grouped into *Landscape, Portrait* and *Custom* menus.
- *Effects*, including *Bloom Intensity, Bloom Radius* and *Vignetting Strength* has been moved (from the *Camera* tab) to the *Image* tab, adding an additional option for *Vignetting Color*.
- *Performance* and *Quality* options (originally under the Settings tab) have been replaced with *Lighting Presets* located on the *Lighting* tab/menu.
- Slider settings for *Ray Bounces, Indirect Bounces* and *Shadow Quality* along with checkboxes for *Self Shadows, Global Illumination, Ground Illumination* and *Focused Caustics* (originally under the Settings tab) are now located in the *Lighting* tab under *Settings*.
- *The Render NURBS* checkbox (originally under the Settings tab) is now located solely on the Ribbon and in the Render menu.
- The *Motion Blur* checkbox (originally under the Settings tab) is now located on the *Animation Timeline* toolbar between the *Loop* and *Preview* buttons.
- In the *Render* window, options for *Region* and *Passes* (originally in separate sections) are now included in the *Output* section.

- In the *Render* window, the *Quality* section has been renamed to *Options* and now combines setting for both *Mode* and *Quality*. *Open Network Queue* (originally under Network) in now located in *Options*.
- Material Templates UI Update - The Material Templates window is now dockable and provides several new features including *Search* (by template name, material name, and part name) and the ability to add an author and description.
- Render Layers UI Update (Pro) - Render Layers are now easier to work with in KeyShot 6. In the *Project* window *Scene* tree select a part that you wish to assign to a layer and right-click. You will now see an option for *Render Layers* in the right-click menu. In the flyout menu select *Add to New Layer* or select an existing layer to assign it to. You can also add a selection to a layer by clicking the add layer icon under the *Properties, Render Layer* options or by checking the box of an existing layer. When an object is selected a check will identify which layer it is assigned to. By default, all objects are assigned to the *Default* layer. Right-click on any existing layer and choose *Select Parts by Layer* to highlight the parts in the scene tree.