

KeyShot 4

What's New Guide



Welcome to KeyShot 4

Highlights

Powerful new features, and the rendering speed you need.

KeyShot 4 introduces simple updates to the most remarkable user interface for rendering. With inventive new approaches to illuminate your products and scenes, more material and color options than ever before and enhancements that completely integrate visual production within your product development process, this release of KeyShot focuses on four main areas:

- Introducing processes and features to speed up model import cycles and create variations of 3D model visuals to save time in the product design workflow.
- Enhancing the user's ability to create and adjust lighting with the widest array of options and most flexible process in the industry.
- Improving and refining existing materials, object interaction and visual output to provide the most fluid process in visual creation workflow.
- Updating the user interface to maintain the simplicity of creating rendering, animations and KeyShotVRs in KeyShot.

Top Enhancements

The top enhancements for KeyShot 4 incorporate new capabilities across every area of the KeyShot experience, from import and applying materials to model updates and file output.

Featured enhancements included in **KeyShot 4.0**:

- [Live linking between KeyShot and Creo, Solidworks or Rhino](#)
- [Physical lights](#)
- [Pantone® and RAL colors](#)
- [Mold-Tech® textures](#)
- [Rounded edges](#)
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- [View and model sets \(Pro\)](#)
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- [Improved import](#)
- [Scene tree enhancements](#)
- [Additional 4.0 features](#)

Featured enhancements included in **KeyShot 4.1**:

- [Procedural textures](#)
- [Focused caustics](#)
- [Toon shading](#)
- [Color management](#)
- [iBooks support \(KeyShotVR\)](#)
- [GrabCAD integration](#)
- [Additional 4.1 features](#)

Live linking

Direct model updates for 3D data from Creo, SolidWorks & Rhino

Live linking allows seamless model updates between the modeling software and KeyShot, without having to reassign materials, set up animations again, or update settings. Transfer your design from Creo, SolidWorks, or Rhino to KeyShot. Assign materials and animations. Continue modeling. Click “Update” and push over the changes to KeyShot. All changed parts will be replaced and updated with the new parts and all materials and animations will be maintained.

How it works

Live linking only requires KeyShot 4 and an updated plugin that is available from the KeyShot website (www.keyshot.com/plugins). After installing the plugin, start your modeling session by loading an existing model or begin a new design from scratch. At any point in time you can transfer your model to KeyShot by selecting the render button from the toolbar of the 3D modeling system. The current model will be transferred without any further interaction. With the model transferred to KeyShot, you can:

- Assign materials
- Set up lighting
- Adjust camera angles
- Add part and camera animations

At any point in time you can go back to your modeling software and continue to refine your model. Make any changes you like, either small, by modifying aspects of the designs, or large, by changing the overall geometry, causing parts to move or configurations to update. You may:

- Make color modifications to break out separate parts and surfaces
- Make design changes on the part level
- Move parts in the assembly
- Add or change assembly features

Once you are satisfied with your changes, simply click on the “Update” button from the KeyShot toolbar menu. Your design inside KeyShot will be updated and everything will be preserved. New parts added to the scene will import as well and can then have material assigned to them. Live linking will also work when you close down both your modeling software and KeyShot then return to the project a day, week or month later. Simply, load the model into your modeling software and load the KeyShot scene with the same model to be instantly connected.

Physical lights

Beautiful, physical lighting created with the power of Luxion's lighting technology.

In addition to the accurate environment lighting you already have in KeyShot, KeyShot 4 introduces physically correct lights that turn any geometry into a local light source. It's a completely different approach from traditional rendering applications. Simply apply a light source to any objects you like. Import new geometry or use existing geometry as a light source. Move. Control. Animate. It's local lighting done right, adding greater flexibility to your workflow by allowing you to easily control multiple, identical light sources simultaneously. All without forcing you to import and place additional objects in the scene.

How it works

With KeyShot lighting, any object may become a light source. Options include the import of studio light presets, 3D model primitives or any 3D data and the ability to apply a lighting material to the geometry, turning into a light source within KeyShot that can move, adjusted and animated just like any other object. When assigning a "light material" to an object, KeyShot will identify the light source by adding a light bulb icon next to the object. Simply double-click on the material applied to the object, select *Type*, and choose one of the following three light sources from the list.

Features include:

- **Area light:** 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:** 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.
- **IES light:** 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.

Pantone[®] and RAL[®] Colors

Choosing the perfect color has never been easier.

With a new partnership, the entire Pantone[®] and RAL[®] color systems come to KeyShot helping you communicate color to designer, manufacturer, retailer and customer. With KeyShot's all new color library you can search by color, number or with the color picker. Drag and drop colors onto your objects completely independent of the material. Even add your own colors with a click of the mouse or the import of a file.

How it works

The new color palettes are available through the KeyShot Library window. The color tab contains all preset color libraries and custom color libraries with the same searchable folder-based directory structure as you have with the Materials. Colors are applied in the same way as Materials with a simple drag and drop of the color onto the object. Add your own color with the KeyShot Color Picker or import a list of colors using .csv file.

Features include:

- Add your own colors by right clicking into the library
- Import your own color libraries using a .csv file
- Color proximity search: type in "red" to find all colors that are close to "red"
- Search for color names

Mold-Tech[®] materials

More textures to achieve a level of realism that can't be matched.

In another first for the CGI industry, Luxion becomes the only source for accurate representations of Mold-Tech textures inside a rendering application. With hundreds of textures and all the options to refine your appearance, KeyShot brings a level of realism to your visuals that can't be matched.

How it works

A sample of Mold-Tech plastics are included with KeyShot. Simply drag and drop the material onto the part or object. KeyShot will automatically adjust the scale of the grain based on the units of the model in the scene. More materials are available at www.keyshot.com/mold-tech.

Features include:

- Core material is plastic
- Change color, roughness, scale, depth
- Grains scale accurately with the size of the model

Rounded edges

Capturing the detail when engineering can't.

A lot, if not all, designs are built for engineering and manufacturing, not visualization. Perhaps you are in the early concept stage or received a part that is missing crucial fillets simply because it will be added in the manufacturing process? Avoid the time involved in adding small fillets and radii to the edges and corners of your 3D geometry. KeyShot can do it all for you. Control the size of the rounds to complement the lighting. The effect is completely visual, with no addition to file size or rendering time. It's just one more way KeyShot speeds up the visual creation process.

How it works

From the scene tree, select a part. On the Properties tab, you have the option to add a fillet based on minimum angle. Simply move the slider until you get the fillet size and the highlight you desire. The fillets will be applied to all edges of the part that fall under the specified minimum angle criterium.

Features include:

- Control min angle of edges that should be rounded
- Set a fillet on sharp edge using an interactive slider or numeric input
- Note: Use values less than 0.1 for best results

Translucent material enhancements

Deeper, richer subsurface scattering.

The improved translucent material in KeyShot 4 delivers more accurate subsurface scattering. With support for specular maps, caustic illumination and scientifically correct interaction with physical lights, KeyShot translucent materials are being called the best in the industry.

How it works

You can start with one of the predefined translucent material from the library or define your own by setting the material type in the editor to "translucent". With this material type, you can quickly achieve amazing results by simply changing the surface and the subsurface color. With the interactive translucent slider you can determine in real time, how much light should penetrate the surface.

New features include:

- Improved subsurface scattering algorithm delivers better results faster
- Support for specular maps
- Works with physical lights and emissive materials

View sets (Pro)

Manage your photo shoot from a single KeyShot scene.

When the camera angle changes, the lighting most likely needs to change. This can be done in seconds. However, managing the different angles and lighting setups required the user to save individual files--one for each angle. Not anymore. With KeyShot 4, you can add "Viewsets" to your camera tab. These will save all your camera settings and all your environment settings, including your backplates. It even works if you decide to use a completely different environment. Now you have all your shots, no matter how different they may be, in one single file.

How it works

Set up the shot like you would normally do--camera angle, environment, rotation, height, contrast, brightness, backplate. Now, go to your camera tab and save a "Viewset". Do the same for the next shot. And the next. And the one after that. There is no limit. Need to make a change? Simply "edit" the view set in the camera tab and make change to the camera as well as the environment. Done. If you don't want the shot, just delete it. And, once it is all done, wow your audience by simply toggling through the individual view sets using a hotkey.

Features include:

- Save all environment settings including different environments along with back plates with a camera angle, and other camera setting like focal length and depth-of-field.
- Save all your environment settings with your camera.
- Edit the environment setting by editing the view set.
- Use Shift+N to toggle through saved cameras and saved view sets.

Model sets (Pro)

Manage design configurations in a single KeyShot file.

To manage design alternatives, whether it's shape, color, features, options, etc., you want to have it all at your fingertips, not spread out across several locations on your hard drive. Now, for the very first time, KeyShot gives you this ability to have access to design iterations in a single file. Simply import new configurations or parts into your scene and add them to individual model sets. Turn what you need to see on and off--It's all saved in the model set.

How it works

Import your model or parts of it just as you always would. Paint it, animate it. Then import another model or duplicate a model right inside KeyShot. Materials and animations will be maintained. Using the "Properties tab" you can add one or multiple models to a view set. Once all of your configurations are set up, and the model sets have been defined, lean back and toggle through the model sets using a hotkey.

Features include:

- Works on model level only
- Duplicate existing model or import new model
- Models not part of a model set will always be shown
- Use model sets to quickly toggle through iterations and configurations
- Use shift+M to toggle through model sets

HDRI light editor improvements (Pro)

Editing your Environment in real time just got better. KeyShot 4 introduces the ability to tilt and blur your environment and add highlights with a simple click on the model in the real-time window. Create your own HDRI's or modify an existing HDRI by editing the pins that have been placed in the scene.

How it works

From inside KeyShot, all you need to do is click the EDIT button inside the ENVIRONMENT tab. This will open a separate window with your HDRI flattened. From here, you can make changes to the image by change the overall image appearance, and add new light or modify existing light source inside the image.

Features include:

- Tilt environment
- Blur environment
- Add highlight by right clicking on the model inside the real-time window. You can further modify the pin that has been placed in the scene by dragging it inside the scene to find the right position, changing its shape, color, brightness and fall-off.
- Move any existing pin interactively inside the KeyShot scene

Render Passes and Layers (Pro)

KeyShot 4 introduces new rendering options to aid in post production as well. Quickly render out a Depth, Normal or Clown pass along with the full resolution rendering. The Render layer option allows you to easily assign parts to a layer to be rendered out separately.

How it works

Inside the scene tree, simply select a part, subassembly or entire model to be part of a layer. Right now we give a total of 10 layers. When rendering out layers, all parts on the layer will receive the reflections and shadows from the environment and other parts that are not part of the layer. Also, if a part is partially hidden by another part, then the part on the layer will only show what is visible. This makes for composing and tweaking the final image inside PhotoShop a breeze.

Features include:

- Depth pass
- Normal pass
- Clown pass
- Render each pass separately in addition to the image.
- Add single or multiple parts to a single layer.
- Render out all layers at once.

Stereoscopic viewing (Pro)

Run KeyShot in stereo-mode and view your models in 3D right on your screen. KeyShot extends the visual experience with support for stereo capability allowing you to work on your renderings and animations or present them to others in a virtual 3D setting.

How it works

From inside the VIEW menu, simply tell KeyShot to run in stereographic mode through a simple checkbox. As long as your graphics card is setup to run in stereo mode, all you need to do is restart KeyShot. Now you can review your renderings in 3D, in realtime.

Requirements:

- Stereo capable graphics card
- 3D monitor or TV
- stereo glasses based on monitor (or TV)

Improved import

Importing your geometry. It's the most basic requirement and KeyShot brings in more options to import accurate data and keep that data updated throughout your workflow. Choose to keep the original size of the model or to update the model with a click of a button, while maintaining all materials and animations.

How it works

The enhancements to the importer, you now have the option to work with the original size as well as the original location of the model from when it was stored in the modeling application. New capabilities include:

- **Keep original:** Ability to keep the original size, units and location of the model. This will not scale the model, but adjust the environment and camera accordingly.
- **Update Model:** Update the entire model with a simple button push and maintain all materials and animations, as well as transformations of parts and objects.
- **Working with real world units:** Now that you have the option to keep the original size and location of your CAD model, you automatically are working with the exact same units that you used in your modeling software. Most native file formats support this. If you end up not using the original units, or end up with a file format the doesn't support units as part of their data structure (e.g. OBJ), then you can still set the units after the fact by simply telling KeyShot what units to use. This function is located in the "Edit" menu.

Scene tree enhancements

The scene tree is an important part of the KeyShot scene, allowing to perform many functions directly on the model. With KeyShot 4 we made the interaction with the models in the scene even more powerful, and more streamlined to further enhance the user experience.

New features include:

- All new filter function to search for parts or materials
- Objects have a properties and position tab
- Animations only have a property tab
- In-scene materials are only available under the material tab

Procedural textures

In addition to applying an image map as a color, bump or specular texture, all materials now have the option for a procedural texture. Procedural textures are patterns based on geometric algorithms that map seamlessly across surfaces by following the contour of the surfaces. Various options and settings are available for each providing extensive flexibility in achieving different appearances. In KeyShot 4.1 the following patterns will be available:

- Granite
- Leather
- Marble
- Noise (fractal)
- Noise (texture)
- Wood

How it works

From the *Project*, *Material* tab inside the *Textures* tab, choose the procedural texture type you want to use from the *Texture Type* pulldown. Select to either apply an image based map, or a procedural map for any or all of the mapping options. Tweak the parameters to your liking. You can copy and paste the textures (image or procedural) between the individual maps by holding down the CTRL key (Windows) or the CMD-key (Mac).

Focused caustics

KeyShot accurately displays focused caustics by taking into consideration the refraction index of the material, the color, and the dispersion. The algorithms that have been developed are the fastest, most realistic and the most advanced in the industry, unmatched by any other solution available, including iray, Maxwell, Aeron, etc.

How it works

From the *Project*, *Settings* tab, simply enable “Focused Caustics” from the *Quality* options. While caustics will work with HDRI lights, you may get the best and strongest results by setting a physical light source such as an area, point or IES light. In addition, select *Add Ground Plane* from the *Edit* menu or insert other geometry to provide additional detail to the caustics effect. The caustics will be calculated immediately in real-time.

When using the *Advanced control* in the *Quality* settings of the *Render options*, use the *Caustics* slider to further refine the resulting focused caustics.

Toon shading

Non-photorealistic rendering is now available in KeyShot. Hello Technical Publications, Documentation, IP drawings - here we come. The toon material is a material type and not a render mode, so it can be used just like any other material, or in conjunction with any other material in the scene. You have full control over base color, contour color, contour width, inner contours including angle control, and also whether you want to display shadows on the object or not.

How it works

You can use the toon material like any other material. Simply drag and drop a predefined toon material from the library onto the part or object, change the color by dragging a predefined color from the library onto the material, or edit it by double-clicking on it. You can also create it from scratch by double-clicking on the applied material, and selecting “Toon” from the *Material Type* pulldown menu under the *Project, Material* tab.

Color management (Pro)

Catered to image professionals, KeyShot introduces support for ICC color profiles in KeyShot 4.1. Color profiles can be loaded into KeyShot to ensure that the colors display correctly inside KeyShot. This is used with advanced monitors which can be calibrated to be absolutely accurate, and thus match the colors in Adobe PhotoShop or any other imaging software.

How it works

Inside KeyShot, select *Edit, Preferences...* and choose *Color Management*. Click on *Enable Color Management*. Browse to the location where your color profiles are located, and load the color profile of your choice.

iBooks Support

Apple recently updated iBooks with the ability to create HTML widgets. With this you can now take your KeyShotVR content and embed it into an iBook using iBook Author. With KeyShot 4.1, we have taken it a step further and allow you to create the widget automatically when you render your KeyShotVR.

How it works

Set up your KeyShotVR like you normally do. Before you hit the *Render Now* button in the last step, click on *Render Options*. Under *KeyShotVR Output*, select the *Create iBooks widget* checkbox. This will automatically create the necessary widget that you can take and embed into your iBook using [iBooks Author](#).

GrabCAD integration

With KeyShot 4.1 we introduce integration with GrabCAD. This plugin allows you to load models directly from GrabCAD into KeyShot, and upload renderings directly to your GrabCAD Project or Workbench. With this release, you will be able to upload renderings from inside KeyShot. With an active account and Project on grabcad.com you can in a future release.

How it works

Download your model from GrabCAD or use any of your own models and import them into KeyShot. Set up the materials, lighting, and cameras. Render the image. After rendering the image, open the render tab in the library, and find the image you just rendered.

- Right click on the image (or select multiple images)
- Select “Publish to GrabCAD”
- Log into GrabCAD when prompted
- Select a Project or Workbench
- Click “Publish”

Your image will now be uploaded. Done.

Additional updates and features

Additional KeyShot 4.0 features

Color picker - Gamma corrected color when using color picker, including support for Cie La-b colors and Kelvin Color Temperatures (Indoor).

Selection - Box select multiple objects in the real-time window using a mouse box-selection.

Ground plane material - Add a special material called “ground plane” to a plane that you imported, or add it directly from the EDIT menu. The ground plane material supports: transparency, clipping, control of shadow color, control of amount of reflectivity, support for bump map.

Material gloss instead of roughness - Instead of “Roughness” users can now use “Gloss” to determine the material finish. Gloss follows a perceptual scale and it is possible to obtain measurements of gloss (gloss-60).

Textures on Dielectric Material - You can now add a texture to a dielectric material, in addition to bump and opacity maps.

Improved texture mapping - Drag and drop image from texture to bump map, specular map etc. Improved box mapping gives better texture line-up at seams. The improved cylindrical mapping now makes it much easier to place a label or texture onto an object.

Labels - Ability to duplicate selected labels.

Duplicate parts / objects - Duplicate individual parts and subassemblies in addition to entire objects.

Updated import libraries - Support for SolidWorks 2013, Support for CATIA V6, Improved importers for SolidWorks, Creo, Inventor, CATIA, NX, Parasolid, IGES and STEP.

Shared libraries - Support for multiple library paths allowing users to point their library paths to various library locations.

Camera - Switch between spherical and absolute camera coordinates. Absolute camera coordinates include: Position, "Look at" direction, orientation.

KeyShotVR - UI cleanup, Automatic upload to FTP server, new tumble mode in wizard, PNG output (in addition to jpeg).

Dockable Windows - Ability to run KeyShot in a single Window mode where the library, project and timeline window become part of the real-time window.

Export to OBJ (Pro) - Ability to export to OBJ from within KeyShot. All parts and colors will be maintained.

Additional KeyShot 4.1 features

Radius for lights - IES and point lights now have a radius feature that will determine the actual size of the light. This will allow control of the softness of the shadow that is being cast by the object in the scene.

HDR Editor - The HDR Editor UI has been completely revamped making it possible to rename your pins. Placing the highlight is also much more intuitive.

Material templates - The Material Templates UI has been completely revamped making it possible to populate the template by part name, not just by materials.

Render layers - Unlimited render layers. Create as many layers as you want, name and rename them any way you like.

Color names - Materials remember their original color names by hovering over the color swatch in the material editor. The name will pop up as a tool tip.

Color editing - You can edit all colors except for RAL and Pantone colors directly inside the library. Colors that have been tweaked as part of material edits can be saved to the library, independent of the material.

Duplicate objects / parts - Select multiple objects / parts and duplicate them in one step.

KeyShotVR - the following improvements have been made:

- Rendering animations - KeyShotVR has been expanded to allow for rendering animations directly to a KeyShotVR using the VR wizard. You still have control over the number of frames by setting the FPS in the wizard.
- Custom load icon - Load your custom "loading" icon through the wizard.
- Integration with iBooks - KeyShotVR allows you to output a widget that can be inserted into iBooks so VRs can be displayed and interacted with inside an iBook.
- When generating a KeyShotVR, we now provide detailed information in a separate file for embedding KeyShotVR into an existing web page.

Animation - While there is no new functionality there are fixes for animations that contain moving pivot points. In addition, the order in which animations have been created is now respected. To change the order you can dynamically drag and drop the animation into different locations in the scene tree.

Importer improvements - All importers have been significantly improved and are now even more robust.

Rhino import - Maintain order of layers and sublayers for files created in Rhino 5 and prior.

ALIAS import - Support for ALIAS 2014

Maya import - Support for Maya 2011. The importer will now maintain the exact order and naming of the model outliner as it is found in Maya.

STL import - In KeyShot 4.1 you can now import STL data directly, with control over the units you are using upon import. STL is similar to OBJ except that it has no structure nor any color information. It is not really a format suitable for visualization, since it is just a "blob" (single material) when imported, but it is useful for scanning and other rapid prototyping companies that want to quickly visualize their scanned models.

Obj import - Support for missing normals. If you import an OBJ file that doesn't contain any normals, KeyShot will calculate them upon import.

Customizable sliders - The sliders for camera distance and environment size can now be adjusted to have its own custom range. Any reasonable value that is being entered will become the midpoint of the new range. Other sliders will be updated in future releases.

General UI improvements - The UI has been polished in various areas to make the use of KeyShot more intuitive. Some improvements include:

- The in-project material library has been moved back to the *Scene* tab.
- The HDR Editor is now easily accessible by clicking on the HDRI representation in the environment tab.
- The right mouse button menu in the real-time window as well as the scene tree has been made more accessible by grouping common functions into categories. While this may require an occasional extra click, it is ultimately easier to navigate the ever growing dialogs.