

# The Beginner's Guide



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# Lighting & Renders

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## *The Beginner's Guide to* **Lighting & Renders for Daz Studio**

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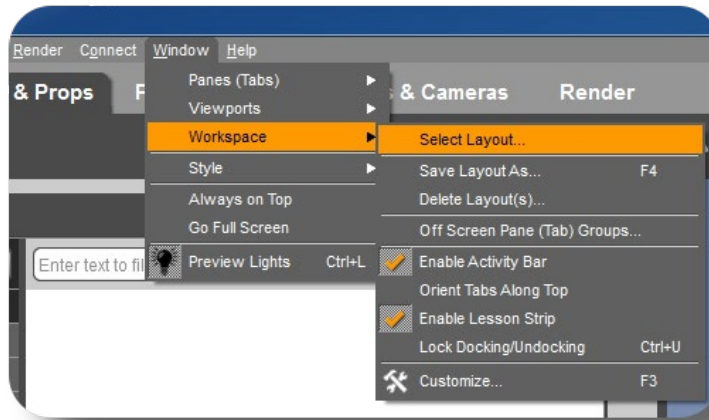
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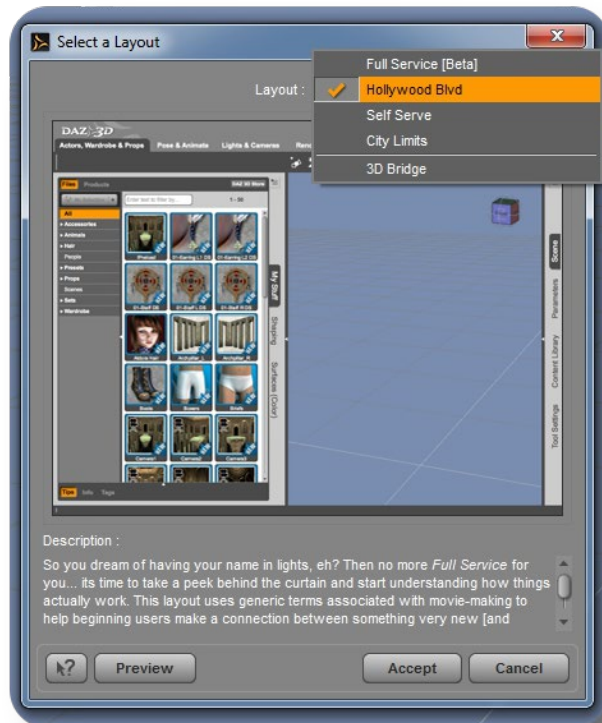
# Chapter 1: Introduction



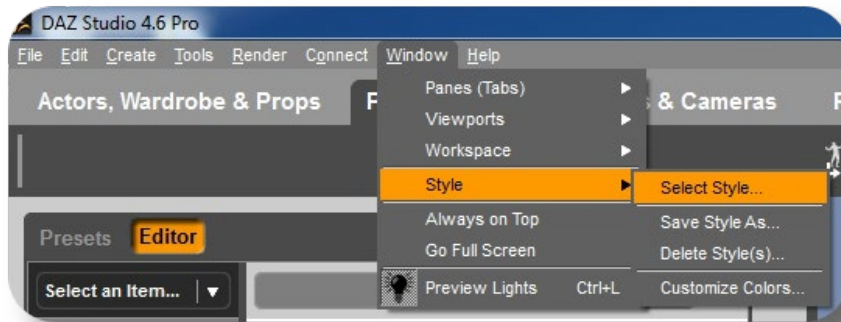
There are multiple layouts that you can use in DAZ Studio. To find them and change your settings, go to **Window->Workspace->Select Layout**.



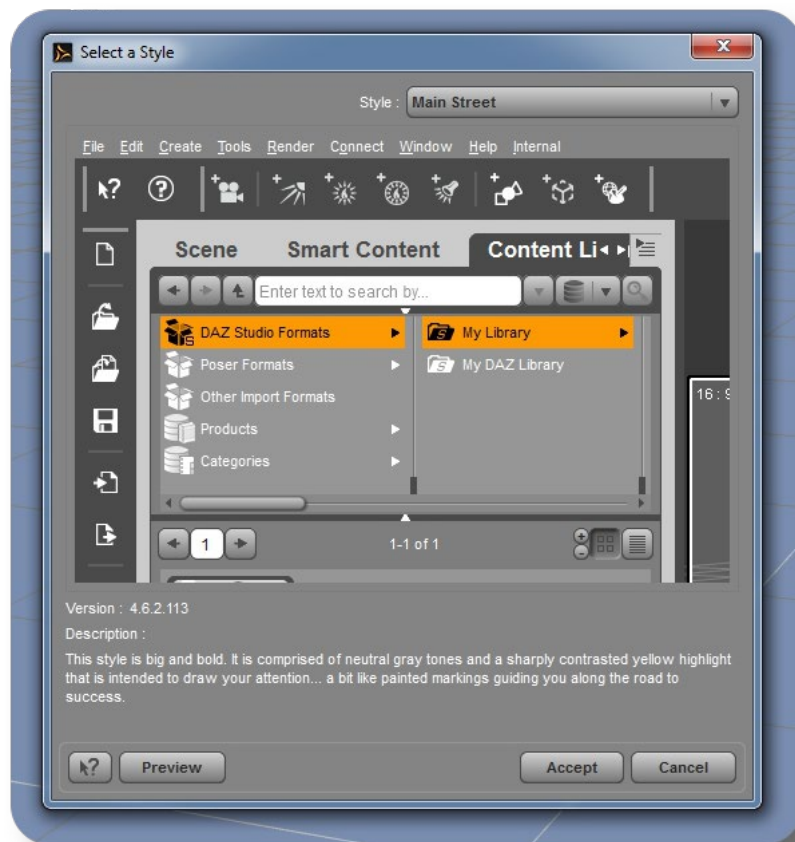
This tutorial will be using the '**Hollywood Blvd**' layout. Choosing the same layout setting will make it much easier to follow along.



In DAZ Studio, there are multiple styles that you can use. To find them and change your settings, go to **Window->Style->Select Style**.



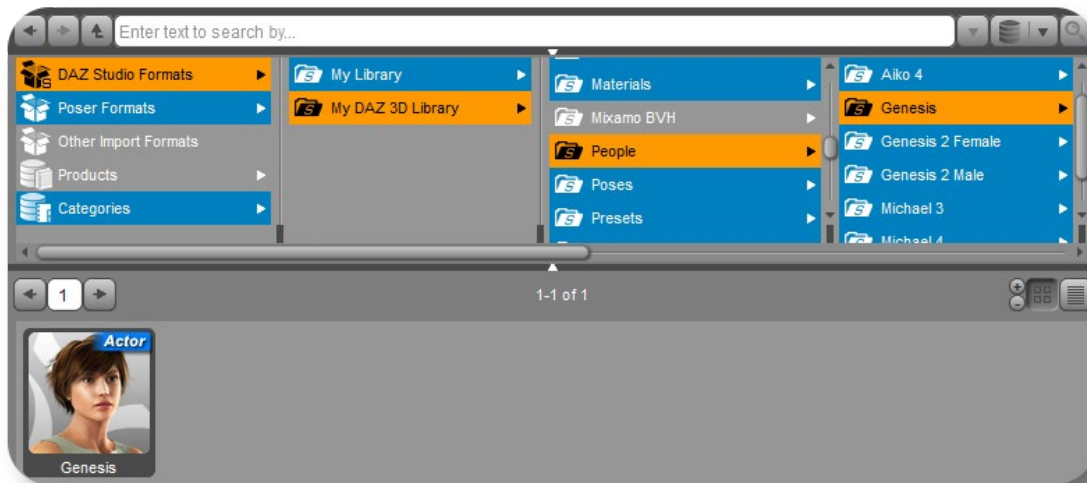
A style window will popup. Select the '**Main Street**' style, then hit '**Accept**' in order to use the same style that we use in this tutorial.



In this tutorial we will be covering lighting and renders in DAZ Studio. You'll see how to add your own lighting and see how it can change the outcome of your renders.

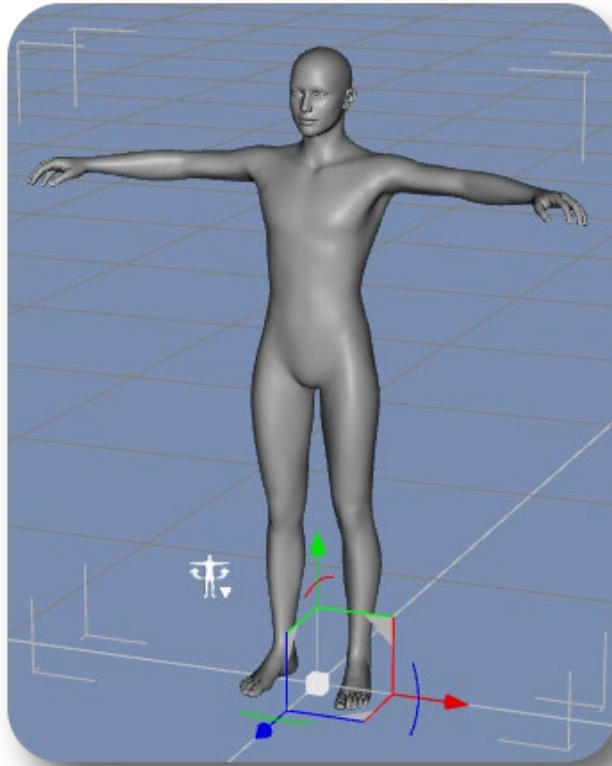
Initially DAZ Studio uses a default light to light up your scenes, let's take a look at that.

Add the **Genesis** figure to your scene.



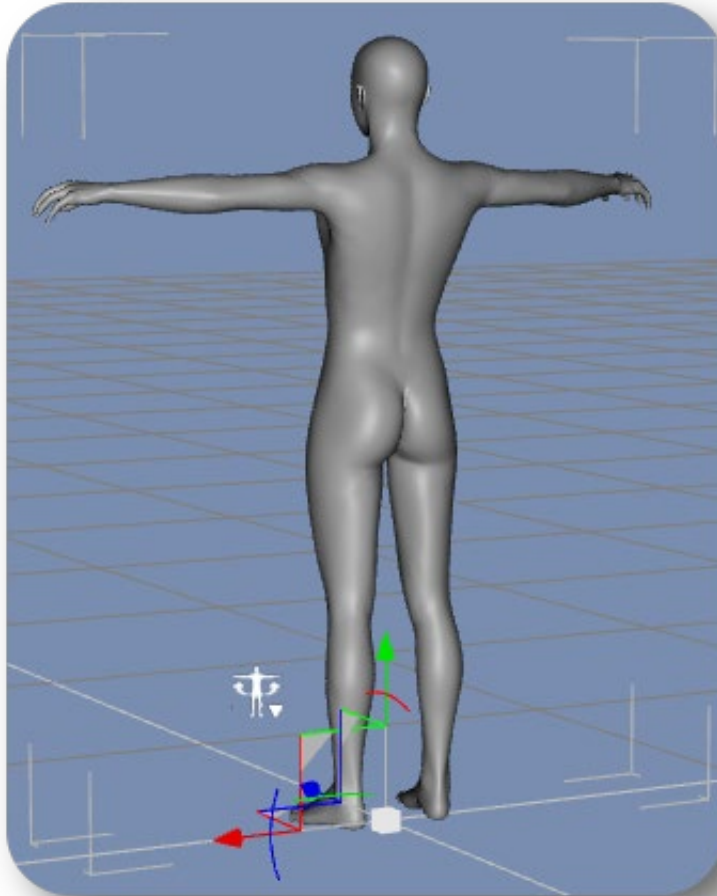
*Content Library Location*

When you look at your figures, you see light reflecting off of them. This is the default lighting when starting a new project in DAZ Studio.



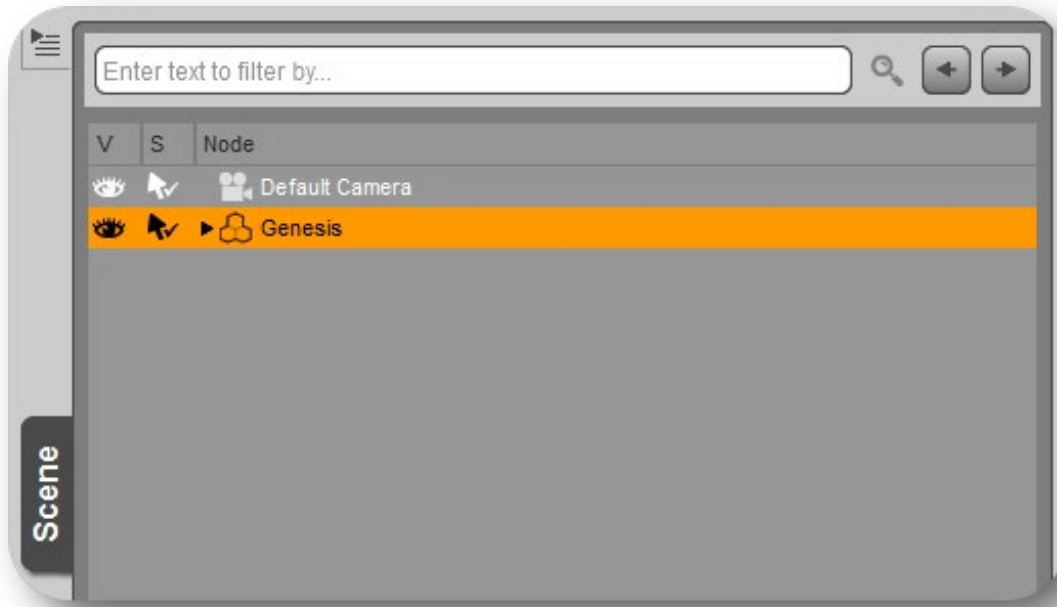
*Genesis Figure with Default Lighting*

On the previous image, the back seemed darker, but when we rotate it around, we notice that now the front now looks like it is darker. This is because the default lighting will light up what you see of the figure in the viewport and applies any shading accordingly.

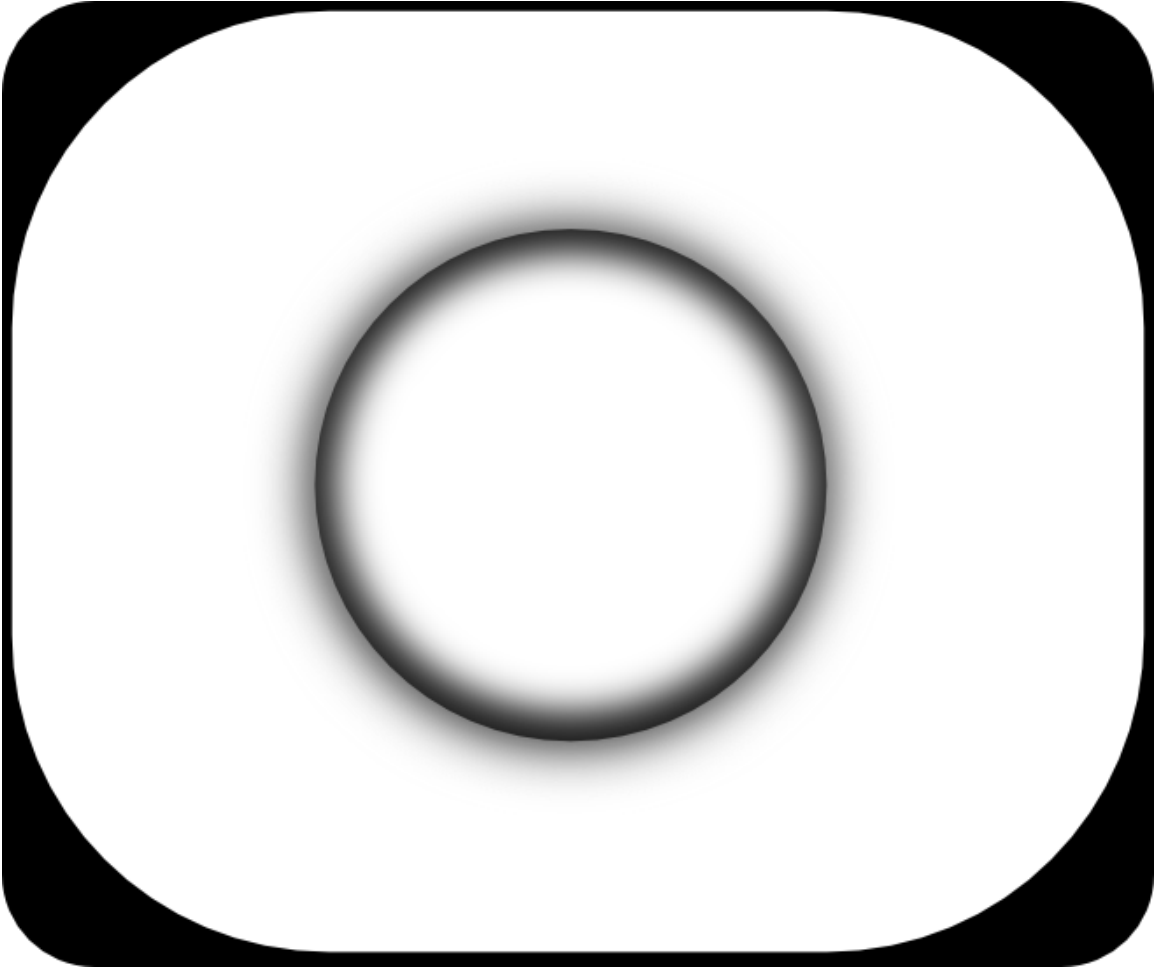


*Genesis Figure Backside*

The default lighting does not show up in your **Scene** tab, so there isn't a way to edit this type of lighting in your project. However, to customize any lighting used in your scene, you'll need to add your own lighting object to it, and I'll show you how to get that done.



# Chapter 2: Light Objects



# *Types Of Lights*

---

There are 4 different light objects you can use when lighting your scene with each having it's very own purpose and usefulness:

**Distant Light** - This light object is used for covering an entire scene, it's good for providing the look of natural sunlight.

**Spotlight** - This light object is used to emphasize certain objects or parts of an object in your scene; use it to shine on specific portions of objects in your scene.

**Point Light** - This light object is a sphere of light that gives off light all around it; use this light in places where a source of light would be in your scene such as a lamp.

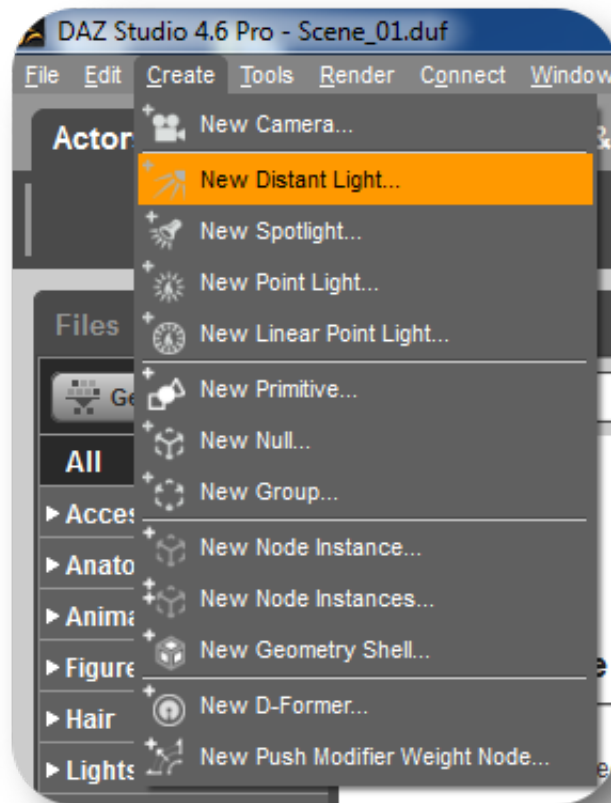
**Linear Point Light** - This light object is similar to the Point Light, but provides some various options for further lighting refinement.

# *Distant Light*

---

The first light object we will be talking about is the **Distant Light**. The distant light is an abstract light that blankets your entire scene, coming from a specified direction such as the light from the Sun.

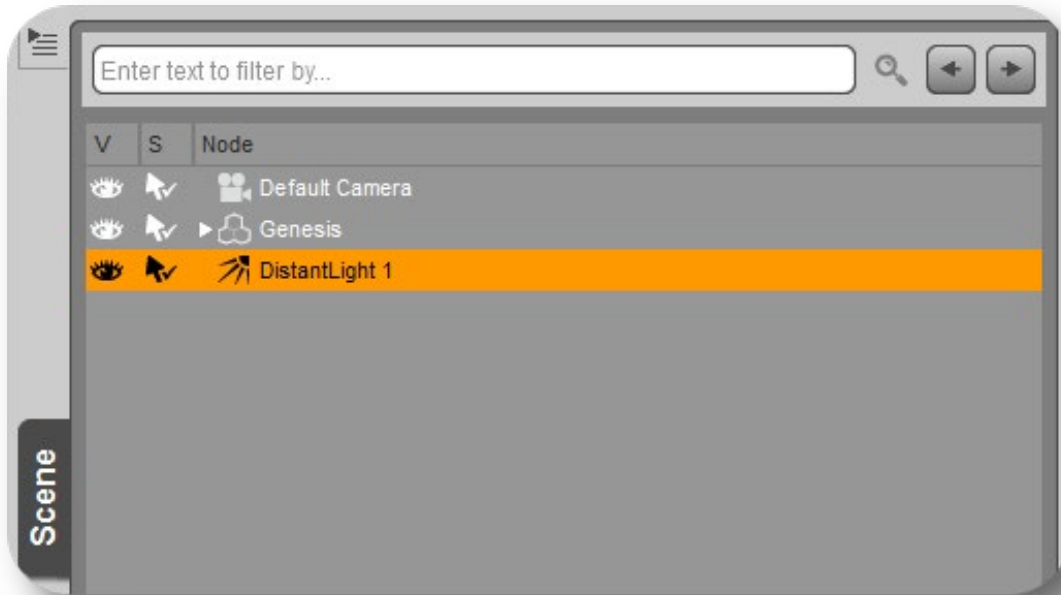
To make a Distant Light, go to: **Create -> New Distant Light**



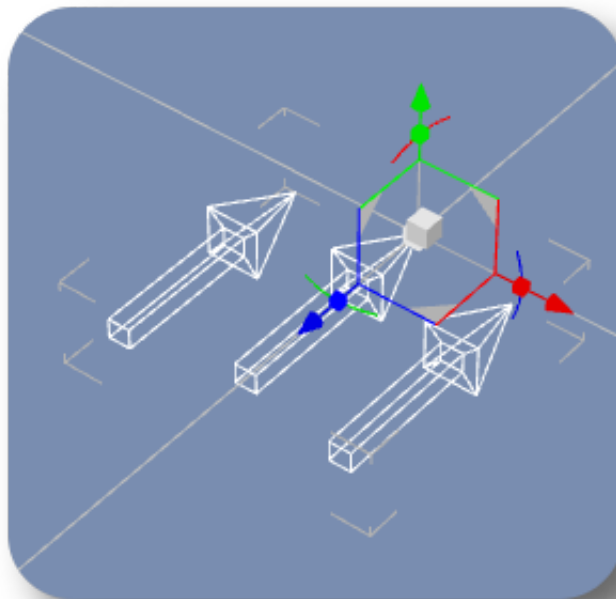
A popup will appear where you can name the new light object. You can give this new light object a custom name or use the default name. Once you are done, hit the '**Accept**' button to create the light.



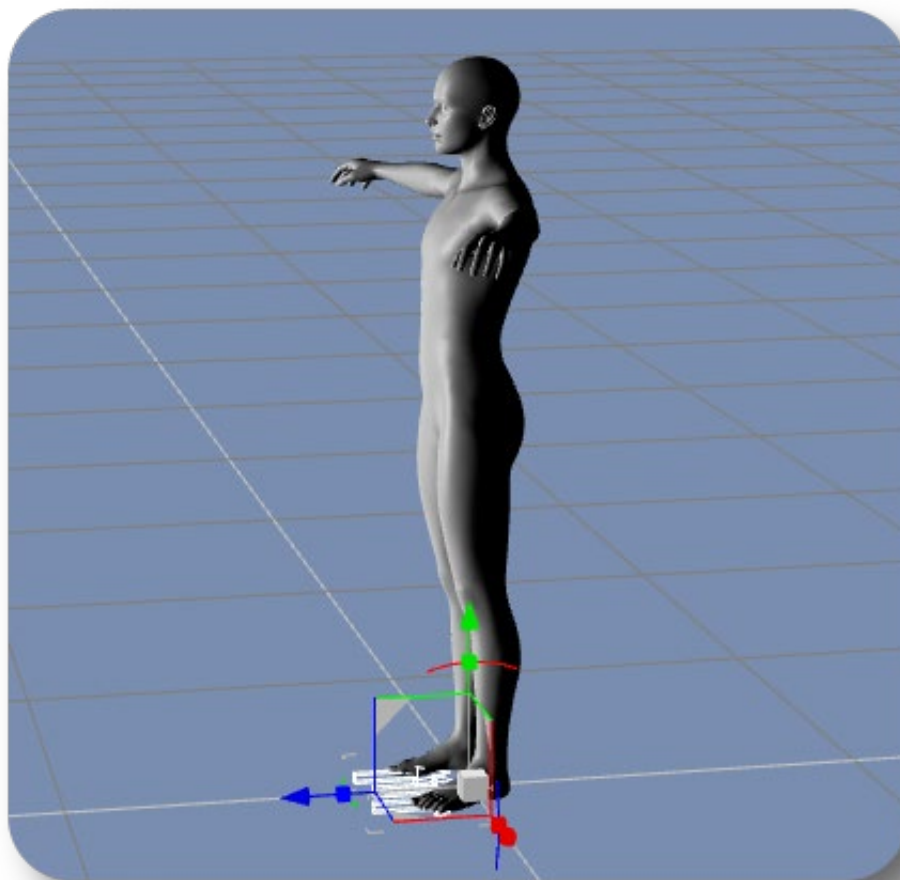
Like other objects, when you add these light objects to the scene, they can be found in the '**Scene**' tab.



When you add the Distant Light to the scene an object will appear. This object can be manipulated like other objects, it can be **Translated**, **Rotated**, and even **Scaled**.

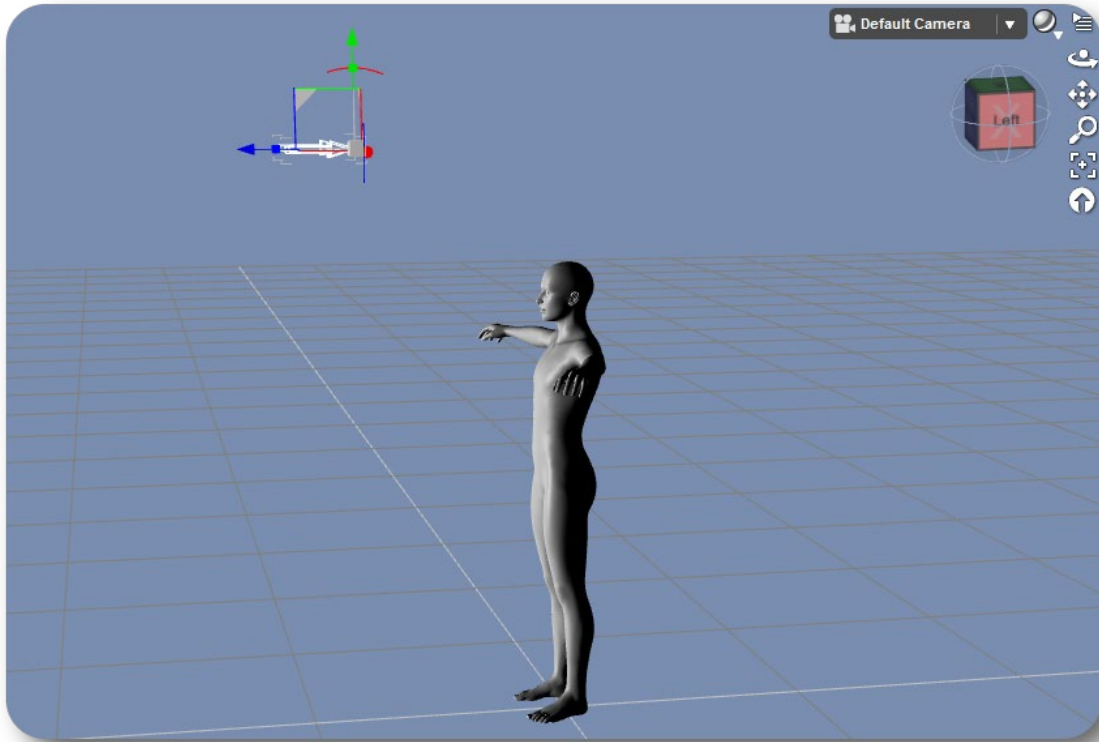


When you look at your figure with the new **Distant Light** added, you can see that the direction the arrows are facing on your **Distant Light** object, is the same direction that the light is hitting your figure.



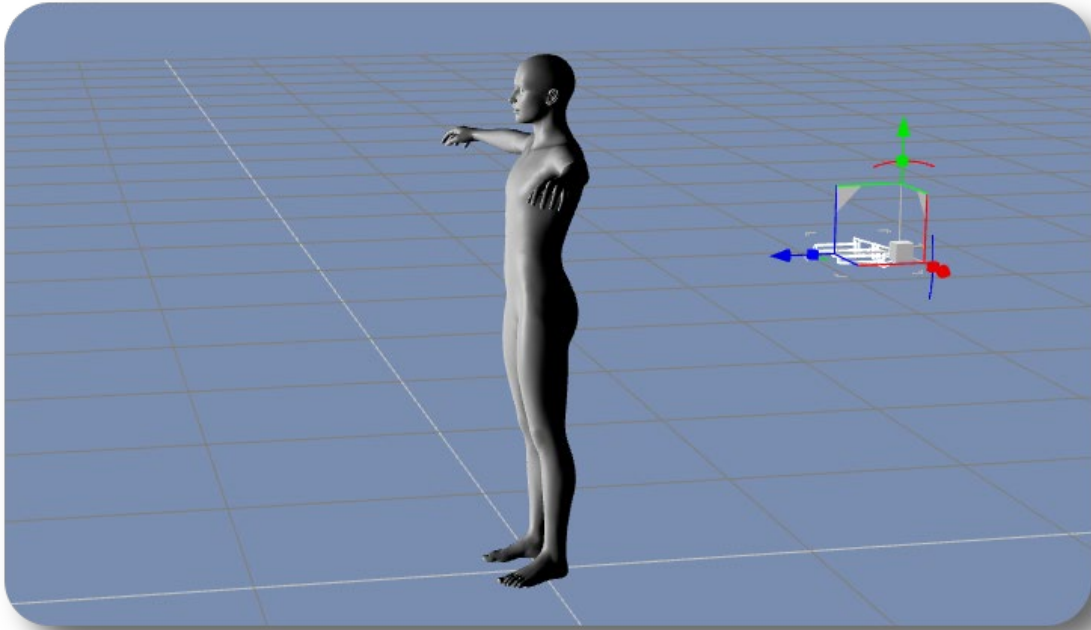
*Distant Light Emitting Toward Genesis Figure*

One important thing to realize with the **Distant Light** is that the object itself is not the light source. Because of this, just translating the object does not seem to affect the lighting on other objects at all. As shown below, I translated the **Distant Light** object upwards, and nothing seems to have changed.



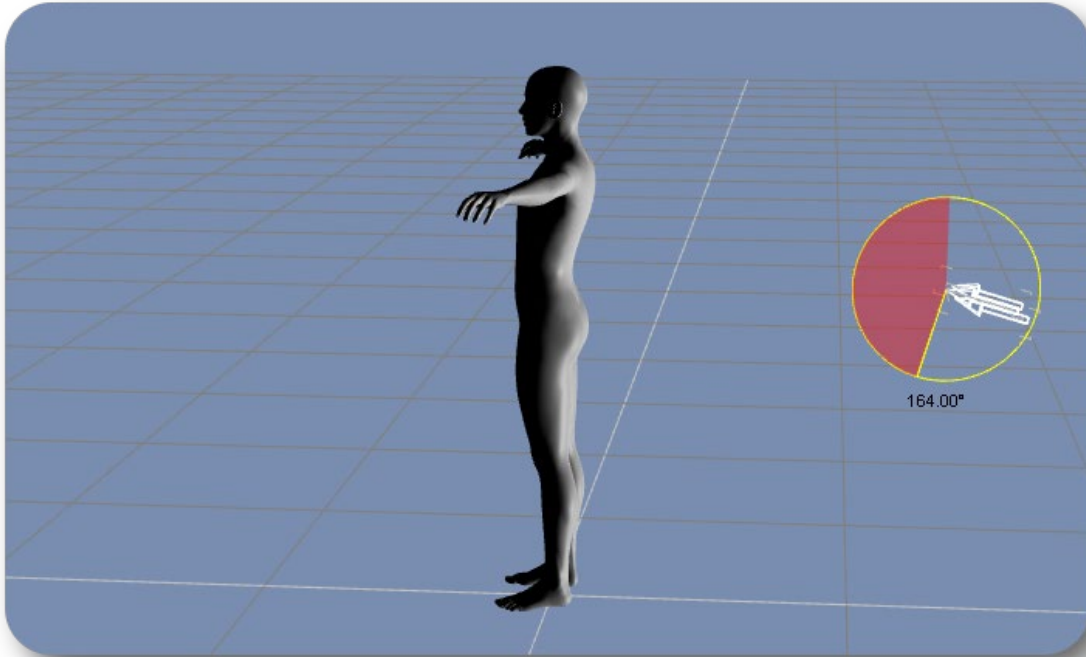
*Distant Light Object Above Genesis Figure*

As a better representation, I moved the **Distant Light** object behind the Genesis figure and the light appears to still be the same.

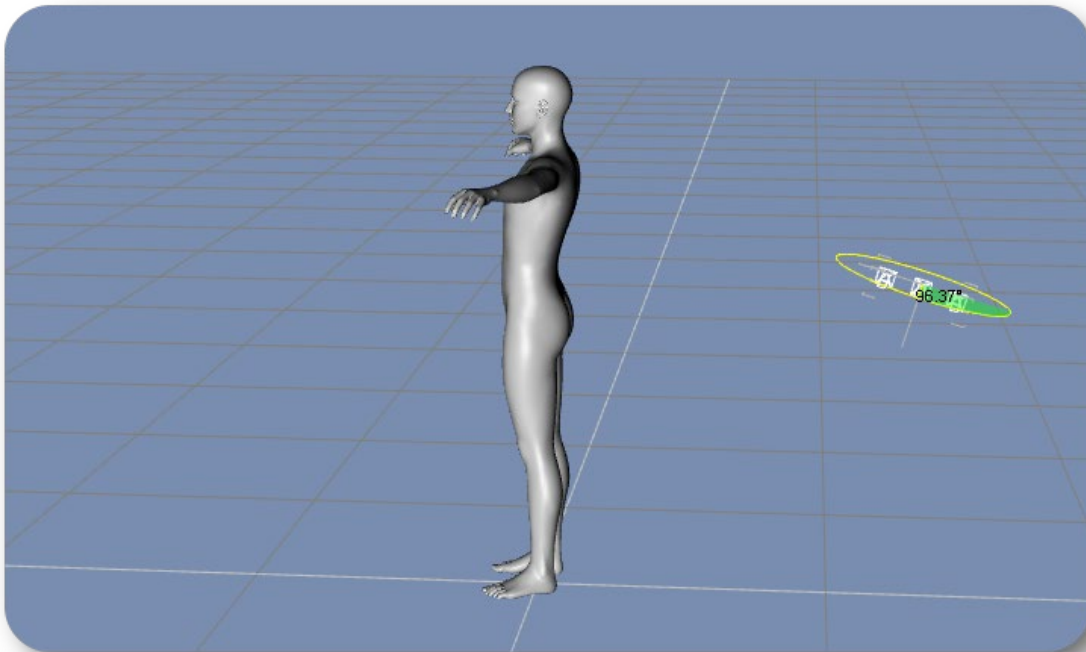


*Distant Light Object Behind Genesis Figure*

For **Distant Lights**, Translating and Scaling the object won't affect the lighting in the scene. Only rotating the light object will change how the light hits other objects in the scene.

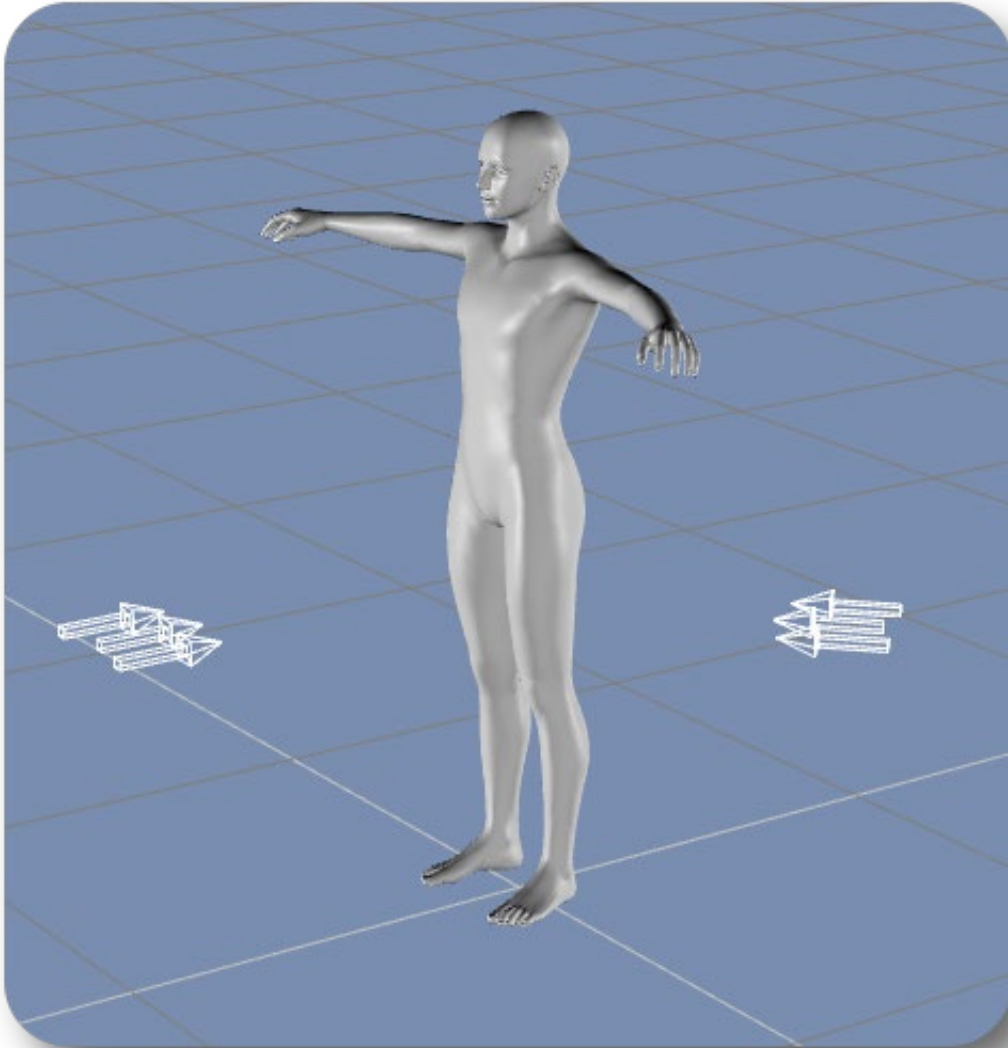


*Distant Light Object Rotated Around X-Axis*



*Distant Light Object Rotated Around Y-Axis*

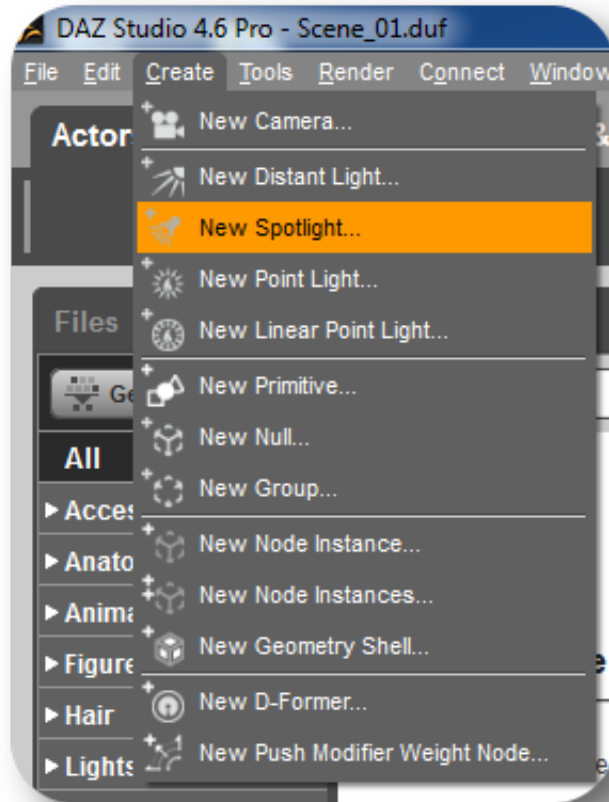
Another useful thing to keep in mind is to create multiple Distant Lights in your scene. You can position them using Rotate to give more interesting light effects onto your objects.



# Spotlight

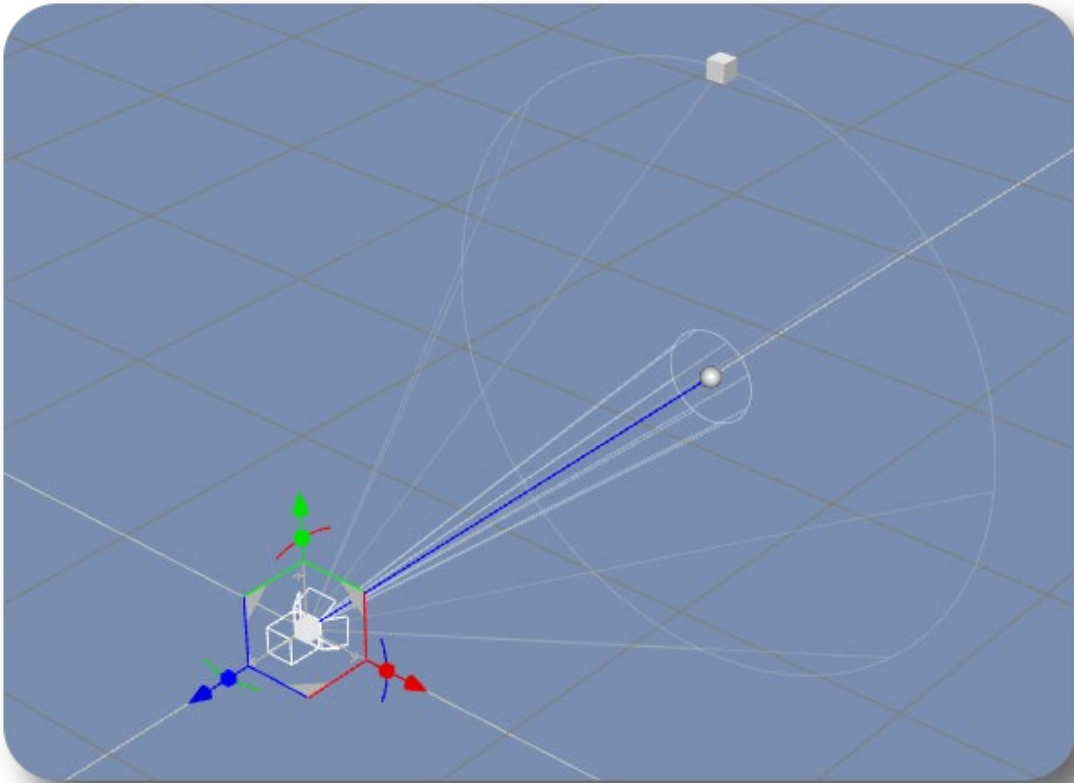
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Next we will go over the **Spotlight**. The spotlight lights up a region that it is pointing at. To make a Spotlight, go to: **Create -> New Spotlight**



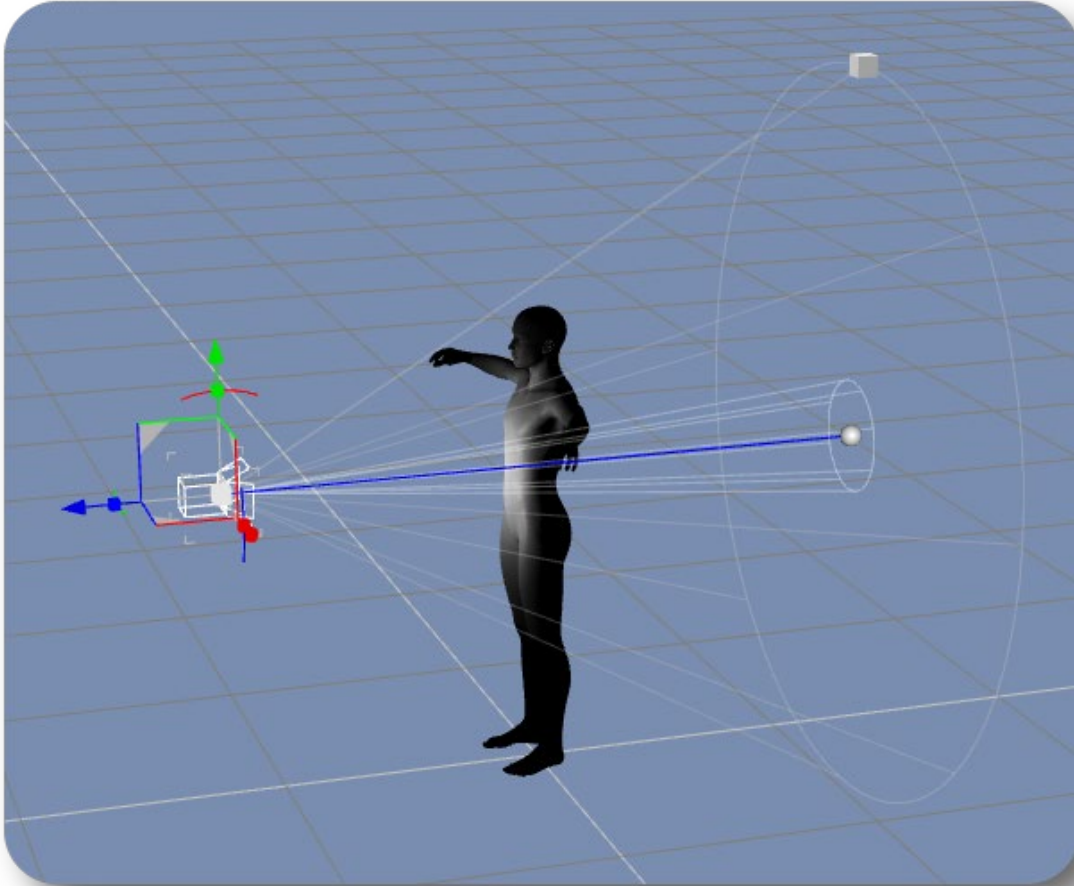
*Create New Spotlight Object*

Once you make your **Spotlight**, a new object like shown below will appear in your scene.



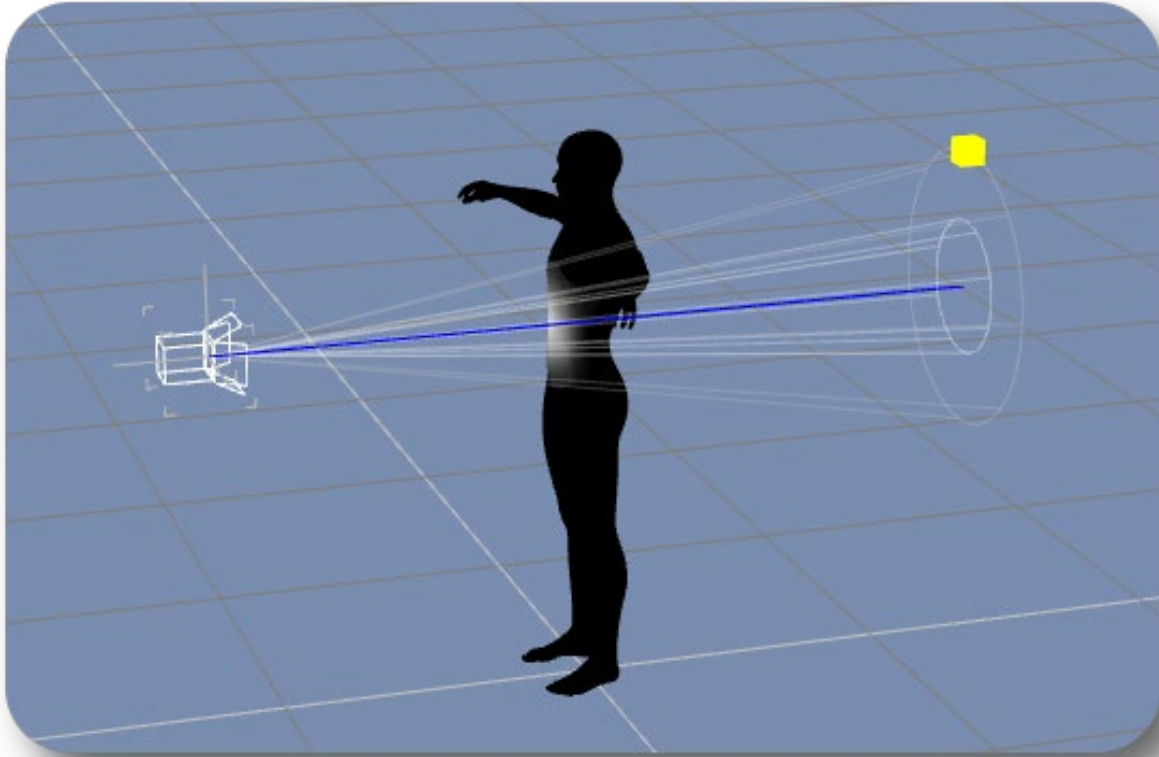
*Spotlight Object*

You can see that when pointing it at a figure, it gives the same effect a spotlight does, bright in the center and fades at the edges of where it's pointing.



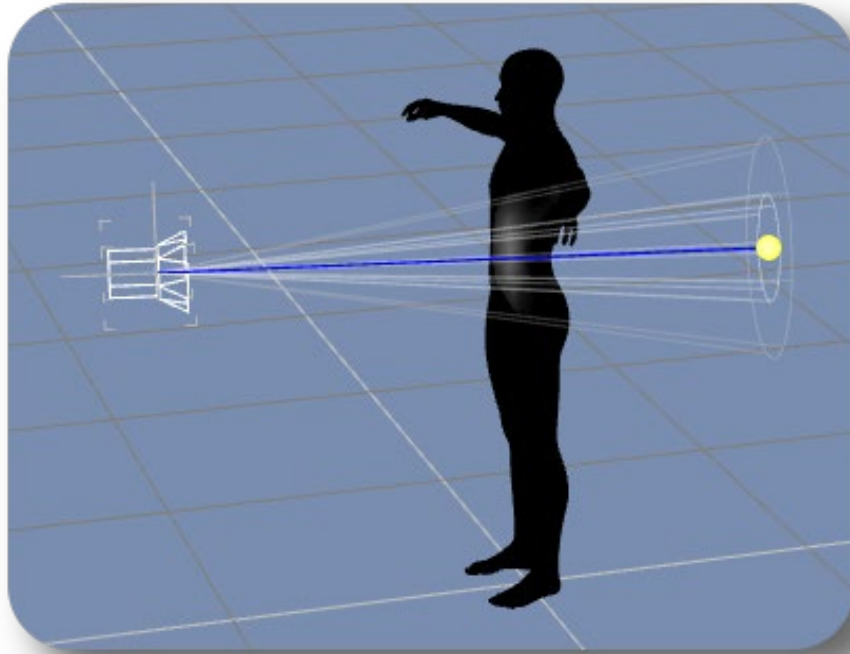
*Spotlight Object Pointing At Figure*

You can change the size of the area lit by the Spotlight. You can change the **Spread Angle** of the Spotlight by left-clicking on the cube located inside the Spotlight object and dragging your mouse.



*Adjusting Spread Angle*

You can also change the **Direction** that the Spotlight is pointing by using the sphere found at the end of the center ray coming from the Spotlight. Left-click and drag it to rotate the Spotlight on its plane of axis. Moving the sphere closer to/farther from the Spotlight also changes the **Spread Angle**.

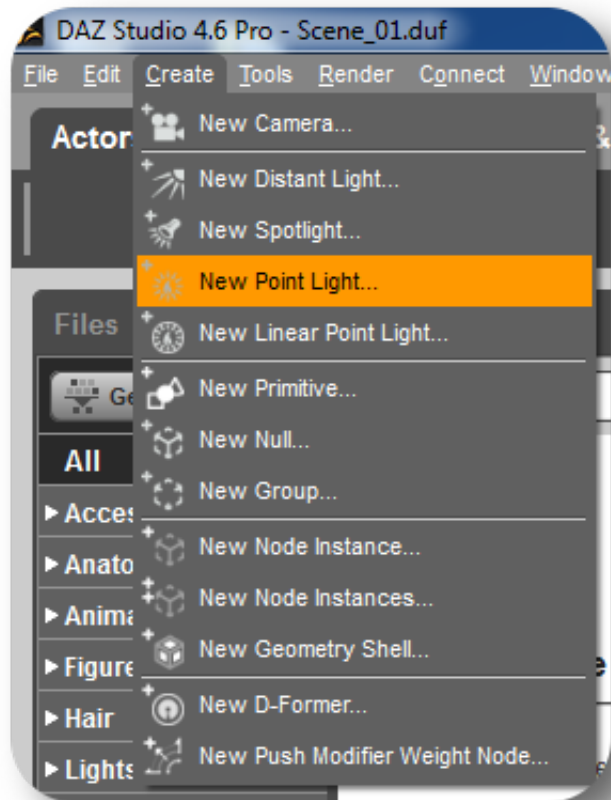


*Adjusting Direction and Spread Angle*

# Point Light

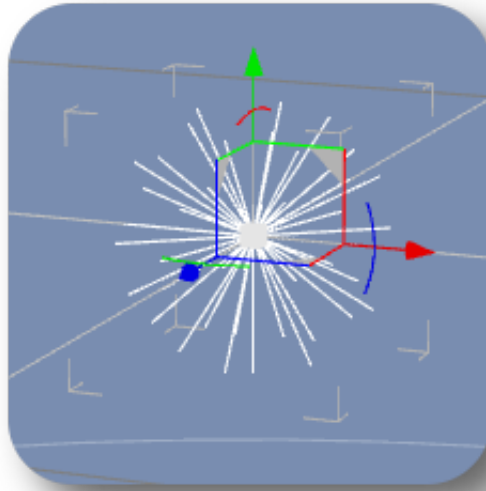
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The next light object is the **Point Light**. The point light is a spherical light source that produces light all around it. To make a Point Light, go to: **Create -> New Point Light**

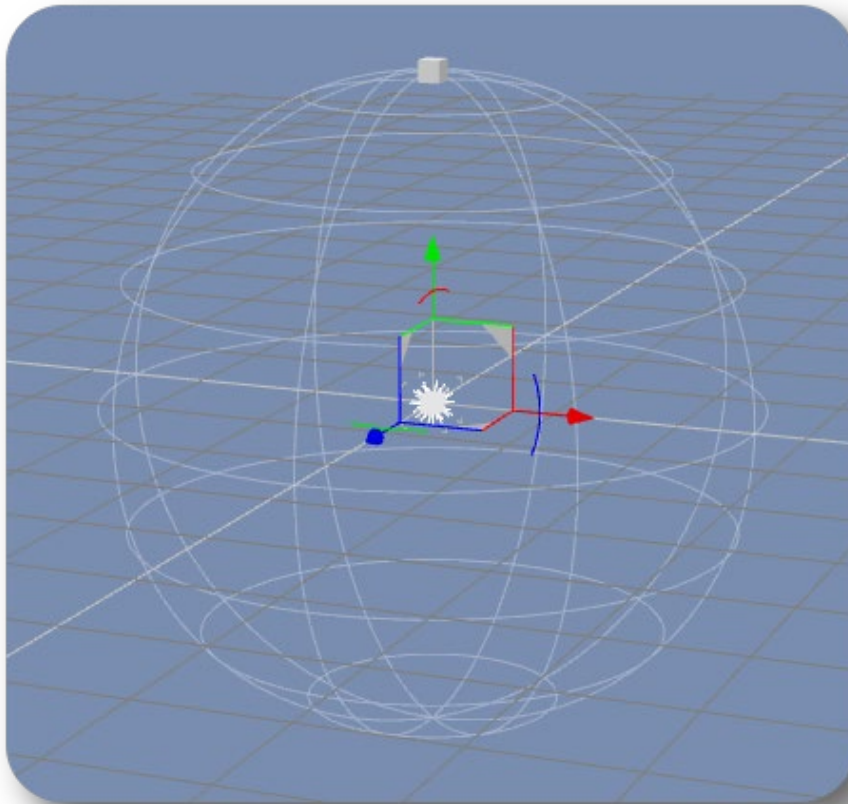


*Create New Point Light Object*

This is what the Point Light object looks like close up.

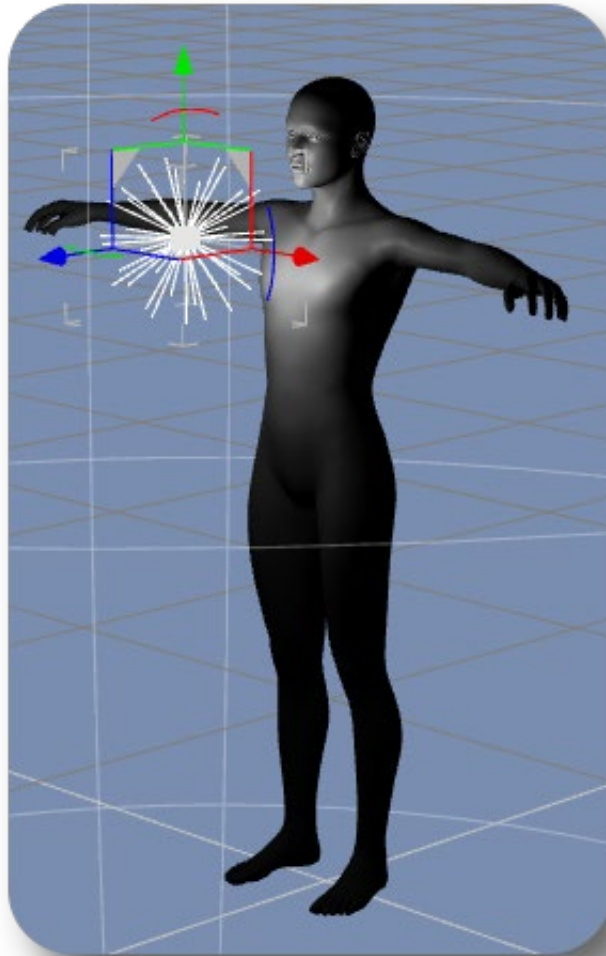


If we expand our view by zooming out, we can see a big sphere of influence where the Point Light produces light.



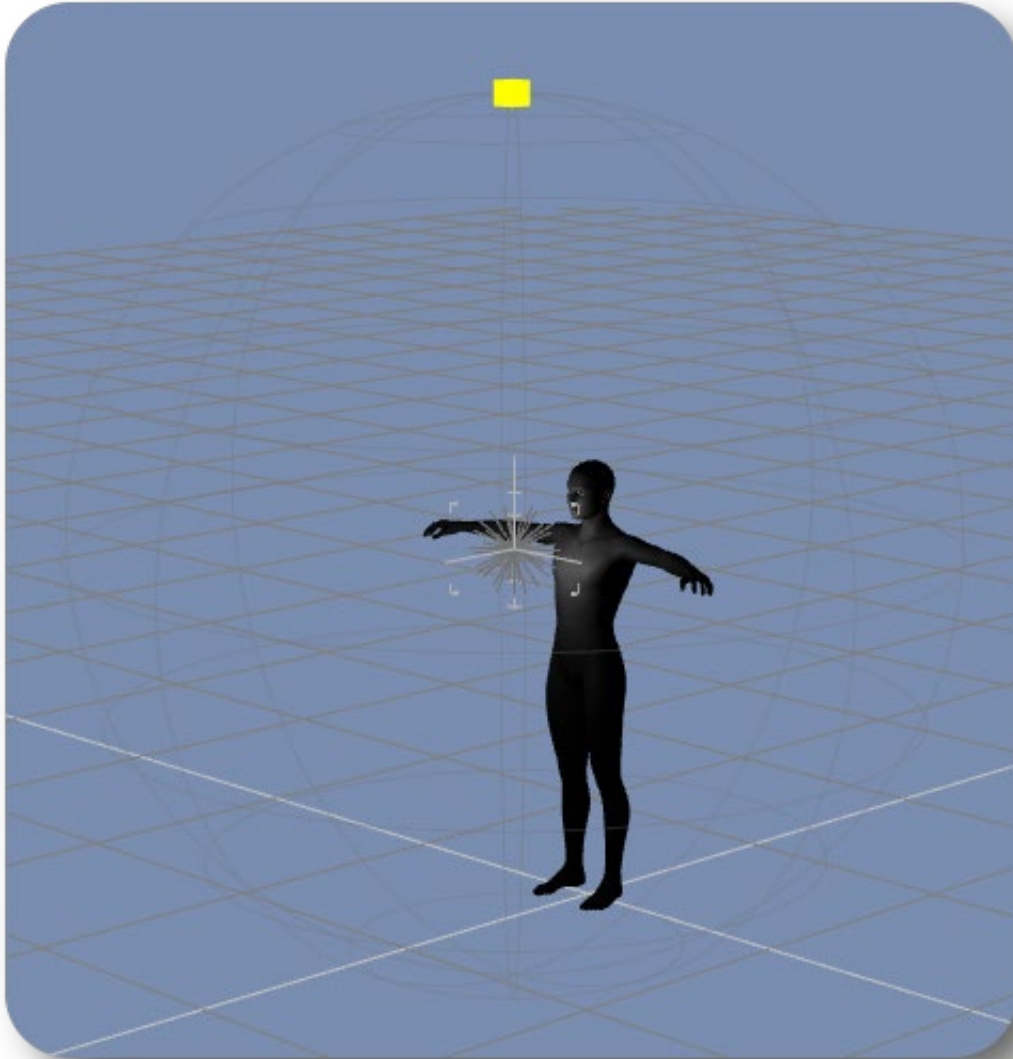
*Sphere Of Influence*

When we put the **Point Light** near our figure, we can tell the Point Light acts like a source of light just like a lamp would in real-life.



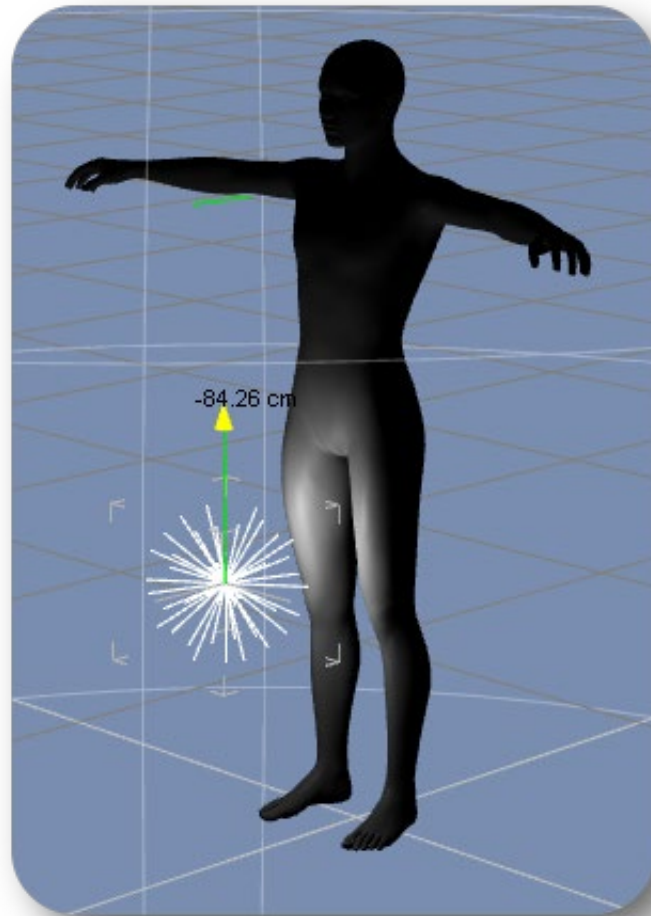
*Effect Of Point Light*

Just like our Spotlight, we can scale down the intensity of the light by left-clicking and dragging our mouse on the cube control at the top of the sphere of influence for the Point Light object.



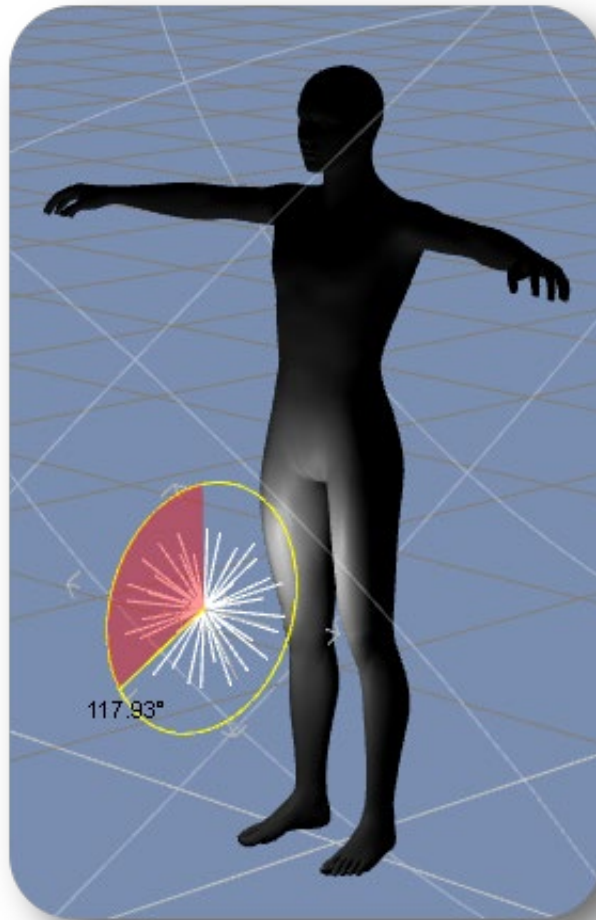
*Adjusting Point Light Intensity*

We can Translate (move) the Point Light, to give us different areas affected by the light.



*Moving Point Light*

Rotating the Point Light does not change how the light acts; it still produces light equally in all directions.

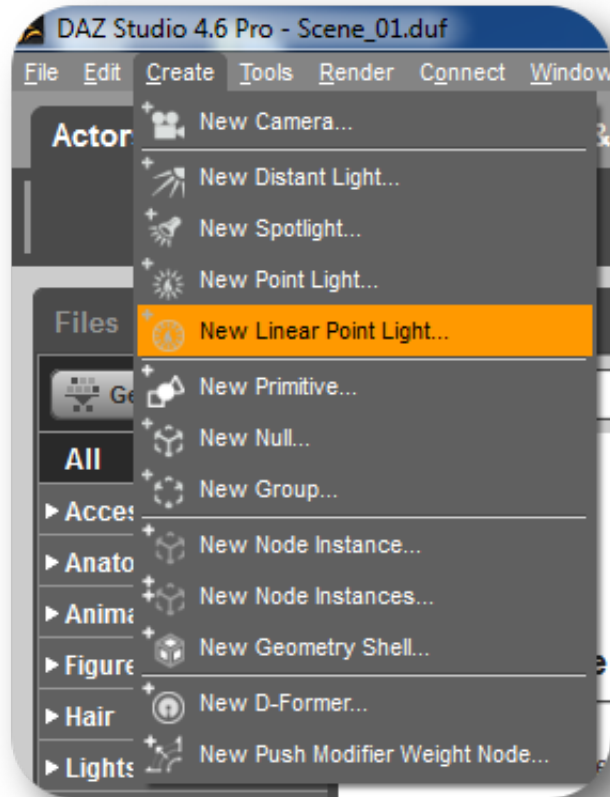


*Rotating Point Light {No Affect}*

# *Linear Point Light*

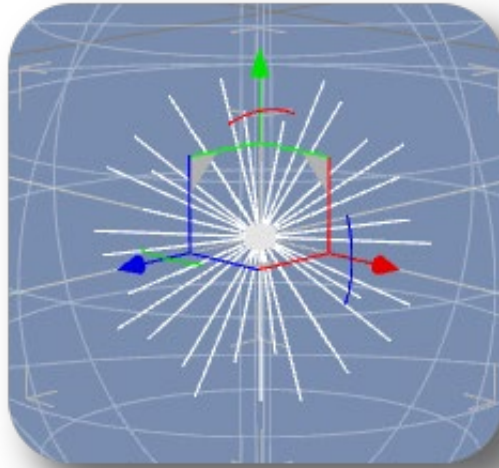
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The final light object is the **Linear Point Light**. This light object is the same as the original **Point Light** object, but has some minor advances that we won't be covering in this tutorial. To make a Linear Point Light, go to: **Create -> Linear Point Light**



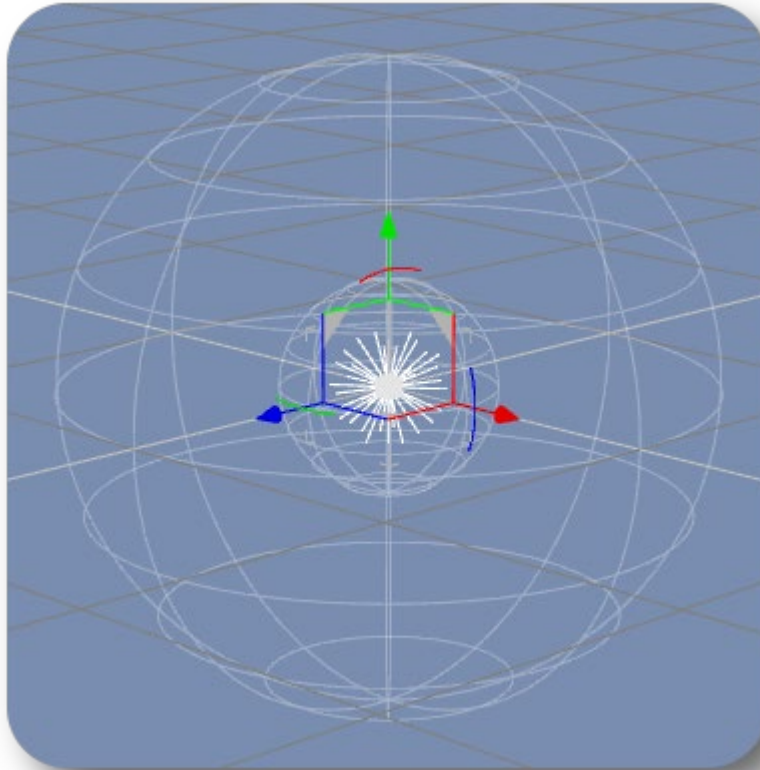
*Create New Linear Point Light Object*

The **Linear Point Light** looks similar to the Point Light.



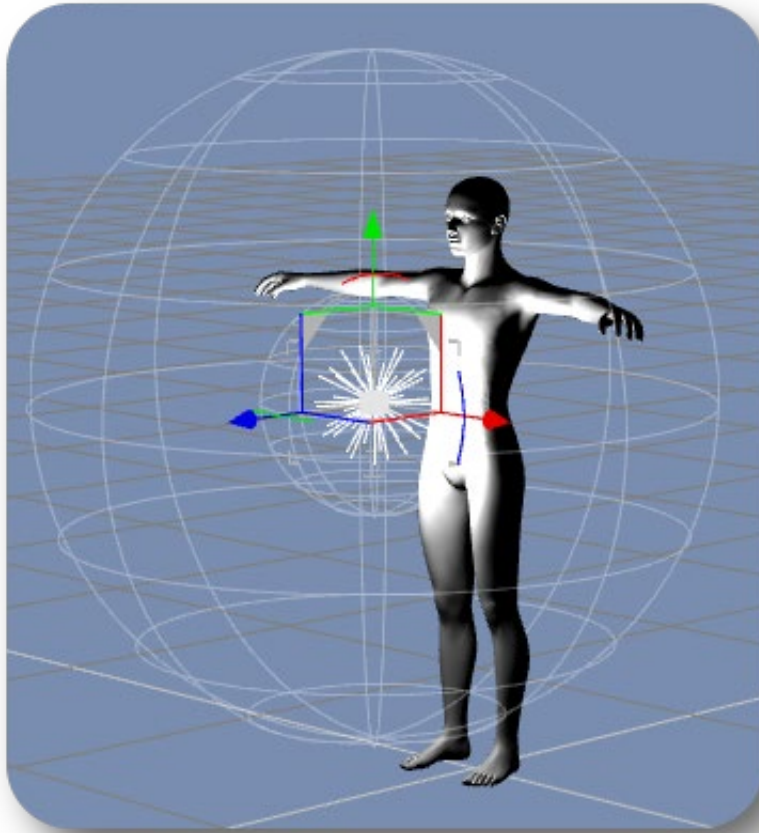
*Linear Point Light*

It also has a visible sphere of influence that is a tad smaller.



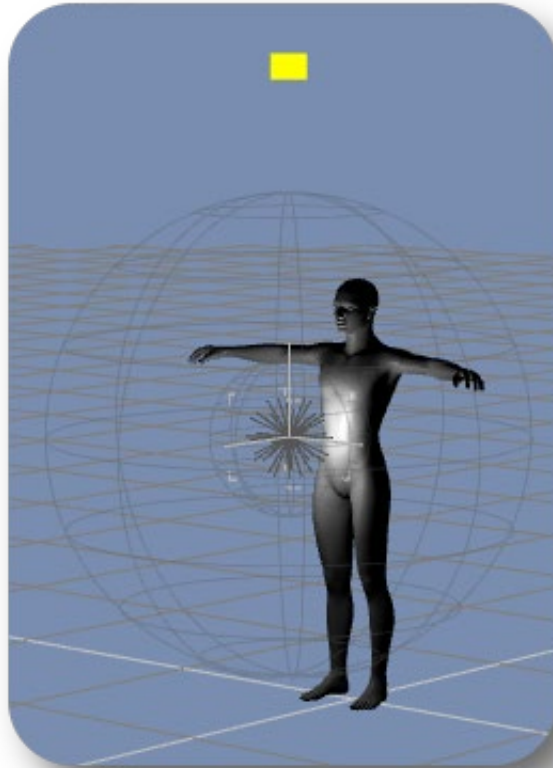
*Sphere of Influence*

The **Linear Point Light** has a much brighter default intensity.



*Linear Point Light Intensity*

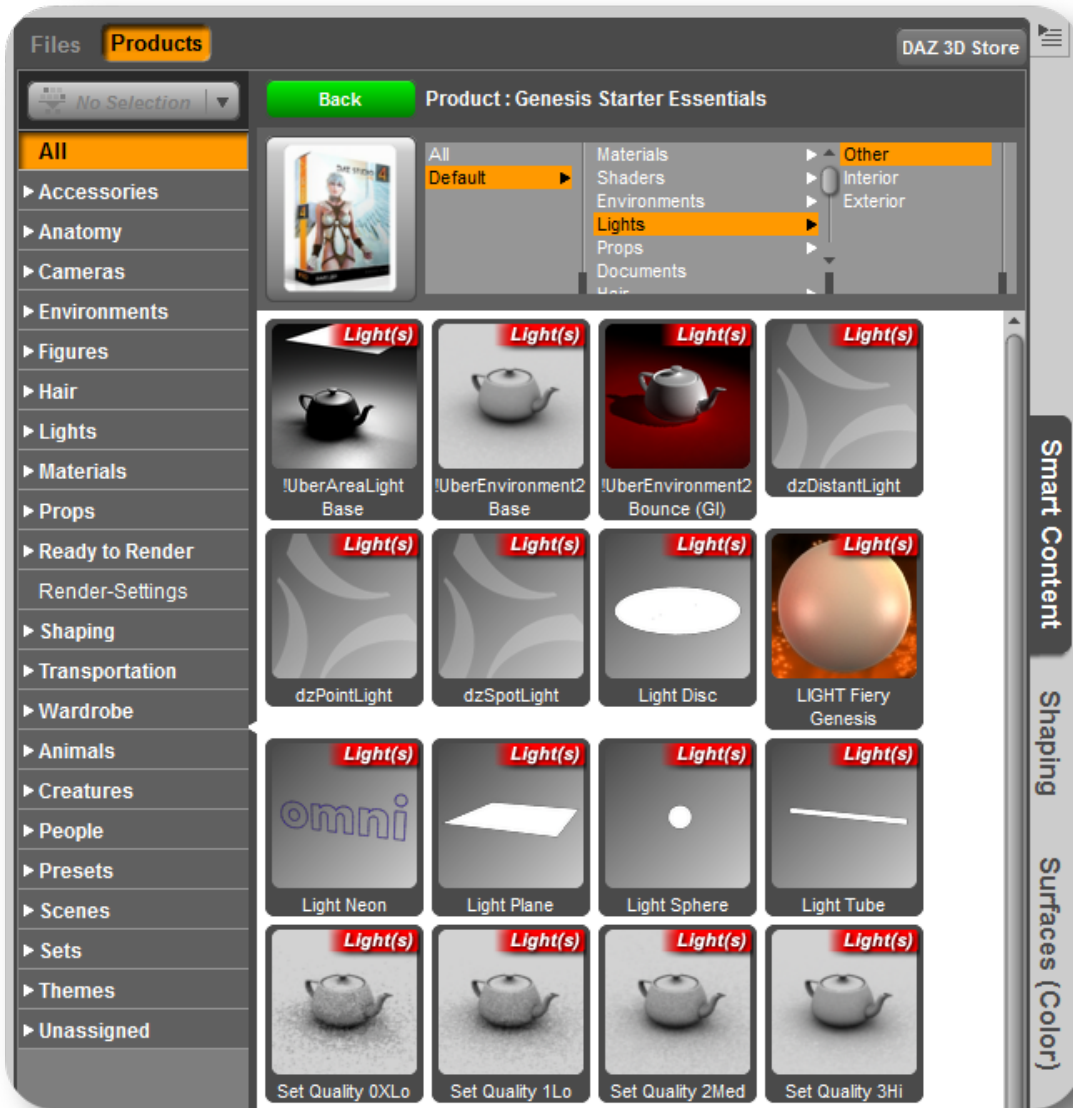
You can also scale down the intensity using the cube control attached at the top of the sphere of influence by left-click and dragging it.



*Adjusting Intensity*

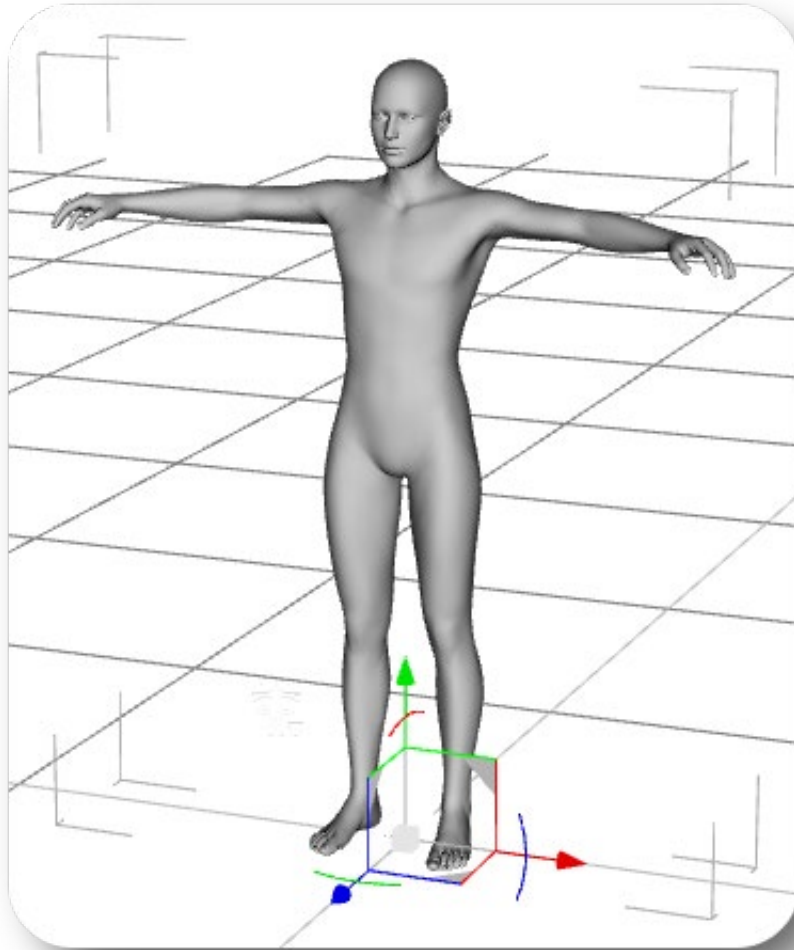
# Uber Light Sets

Besides the default lights that you can use in DAZ Studio, the Genesis Starter Essentials kit also contains Light Sets, specifically **Uber Light Sets**. You can use these to quickly create interesting light effects in your scene.



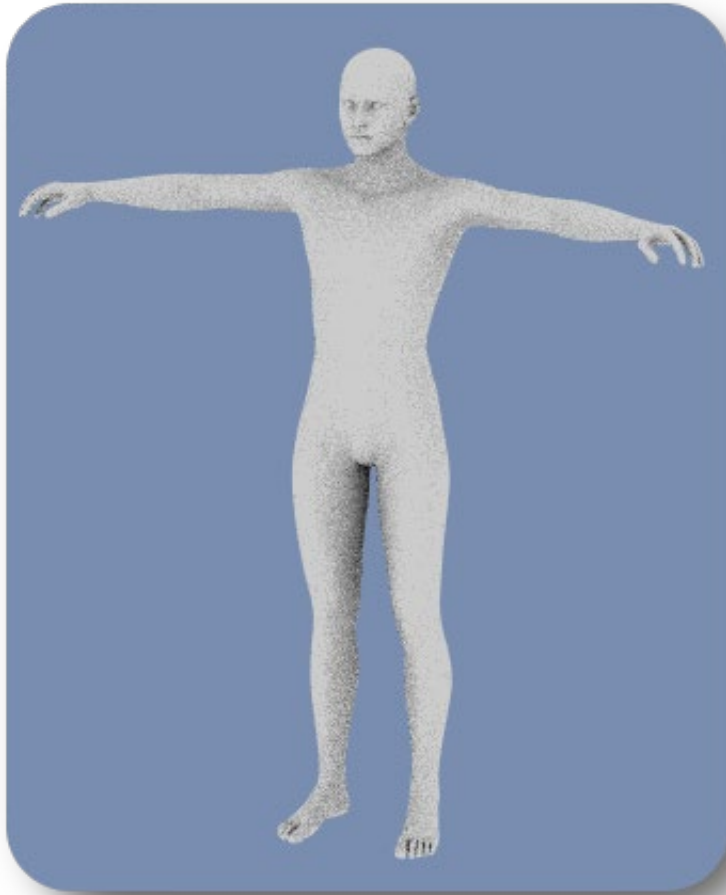
*Light Sets In Genesis Starter Essentials*

For instance, add the '**!UberEnvironment2 Base**' Light to your scene by double-clicking it or dragging into the scene viewport.



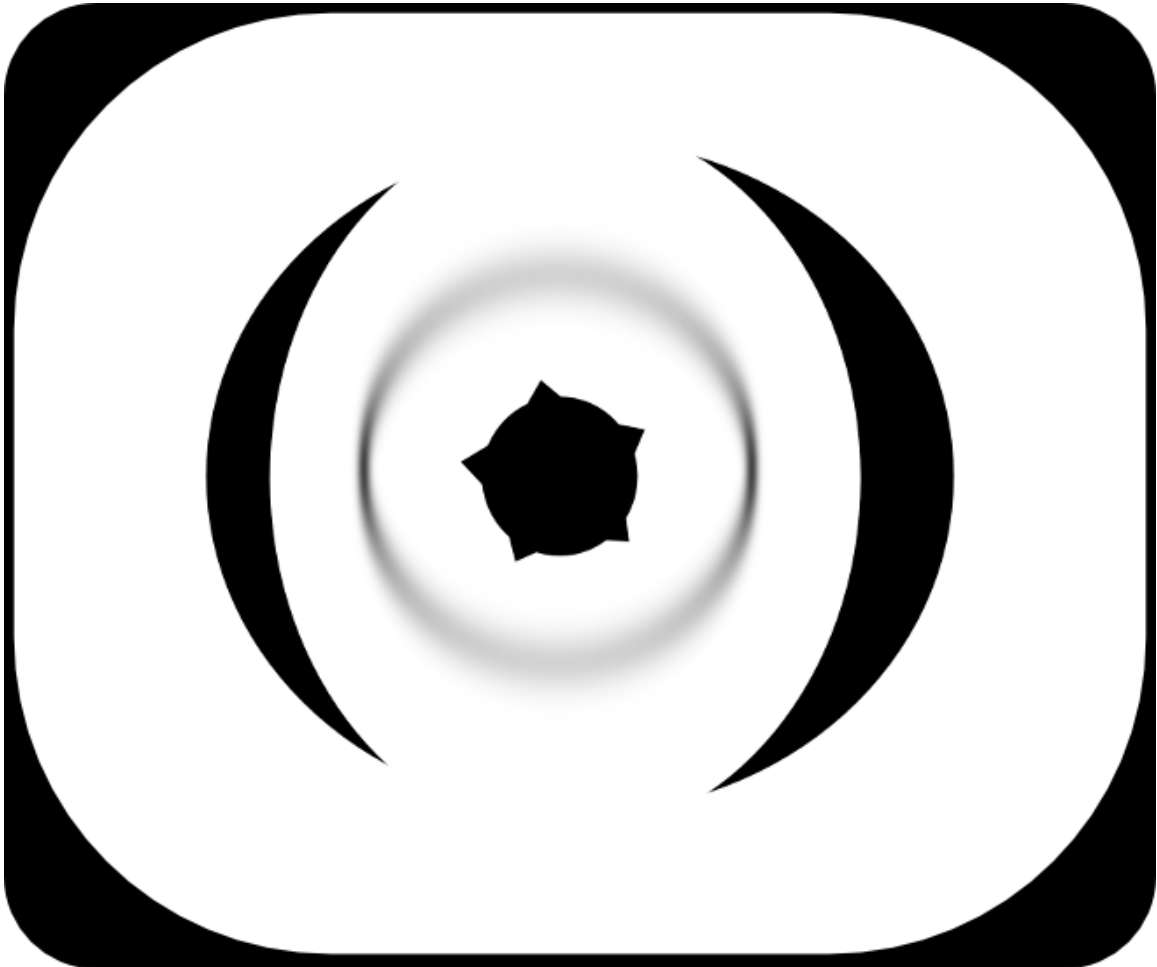
*Genesis Figure With Default Lighting*

The light cast by this Uber set creates an interesting and unique look onto your figure.

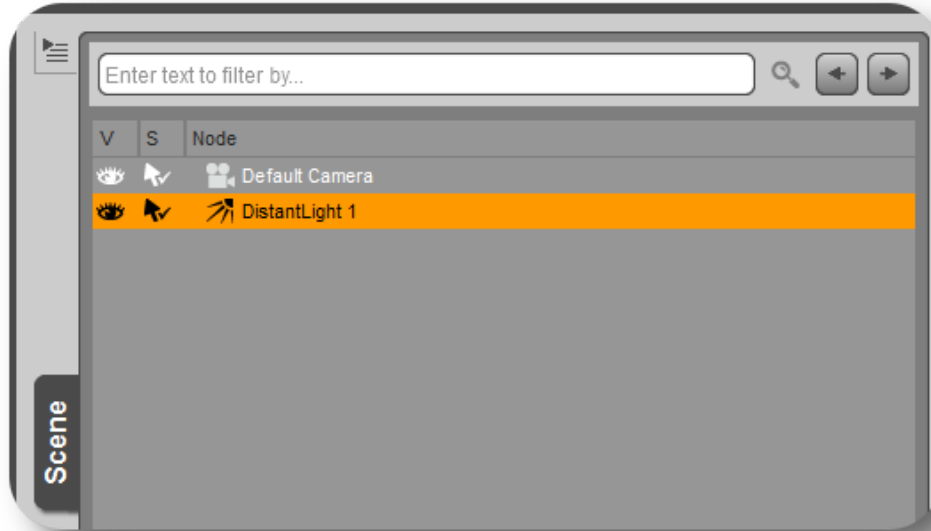


*Genesis Figure Lit By !UberEnvironment2 Base*

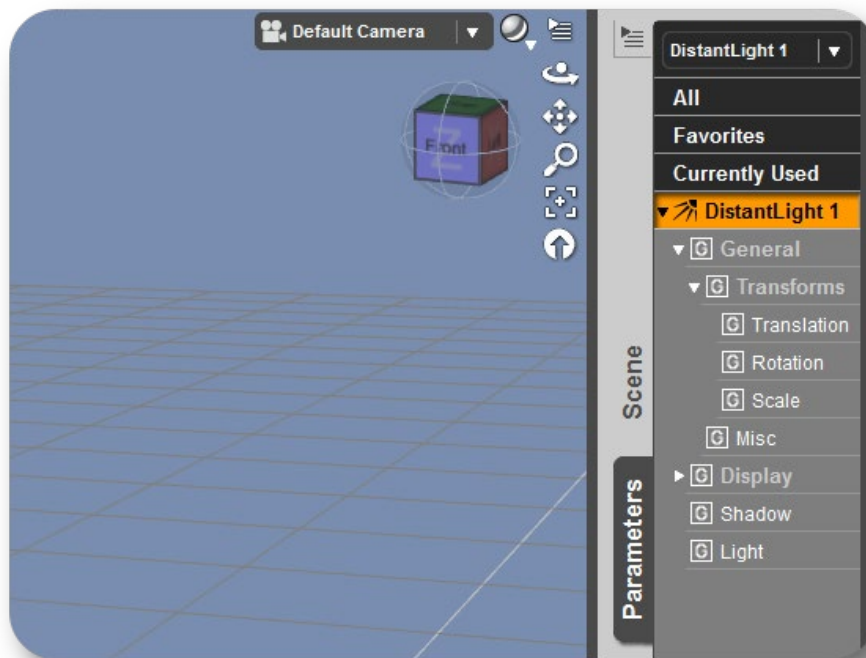
# Chapter 3: Light Parameters



Now we are going to be looking at **Light Parameters**. You can adjust your light object's settings to refine the outcome of your renders and how they look. First off, make sure your Light Object is selected in the Scene tab.

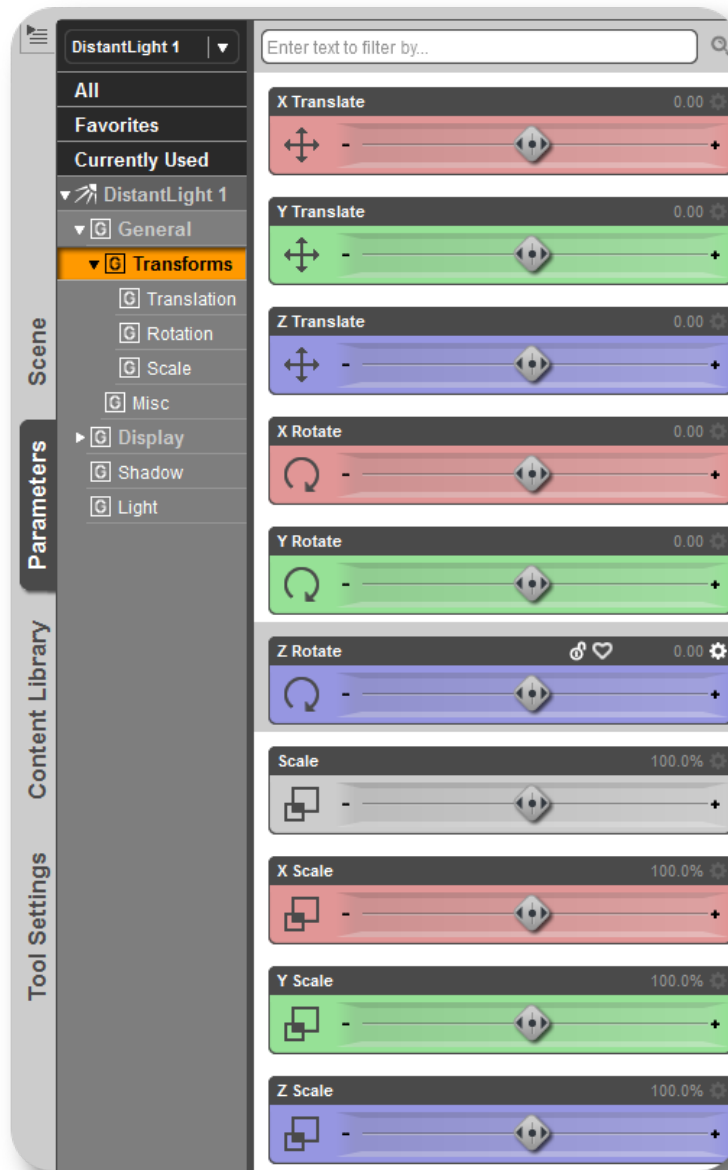


If you go to the **Parameters** tab right underneath the **Scene** tab, you will see categories of options available for refinement for the selected Light.



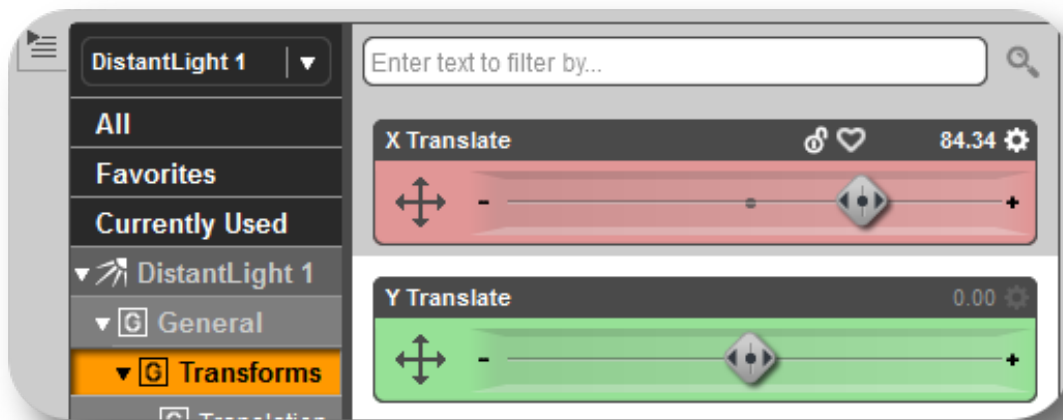
# Transforms

The first parameter that you can change is the **Transforms** section under General. In this section you can **Translate**, **Rotate**, and **Scale** your light object.

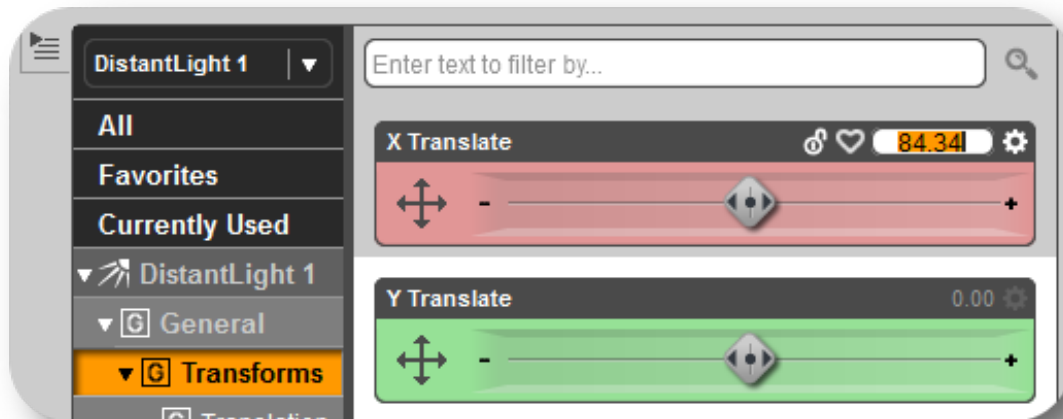


*Light Transforms*

You can adjust these values by dragging the slider to the left or right.

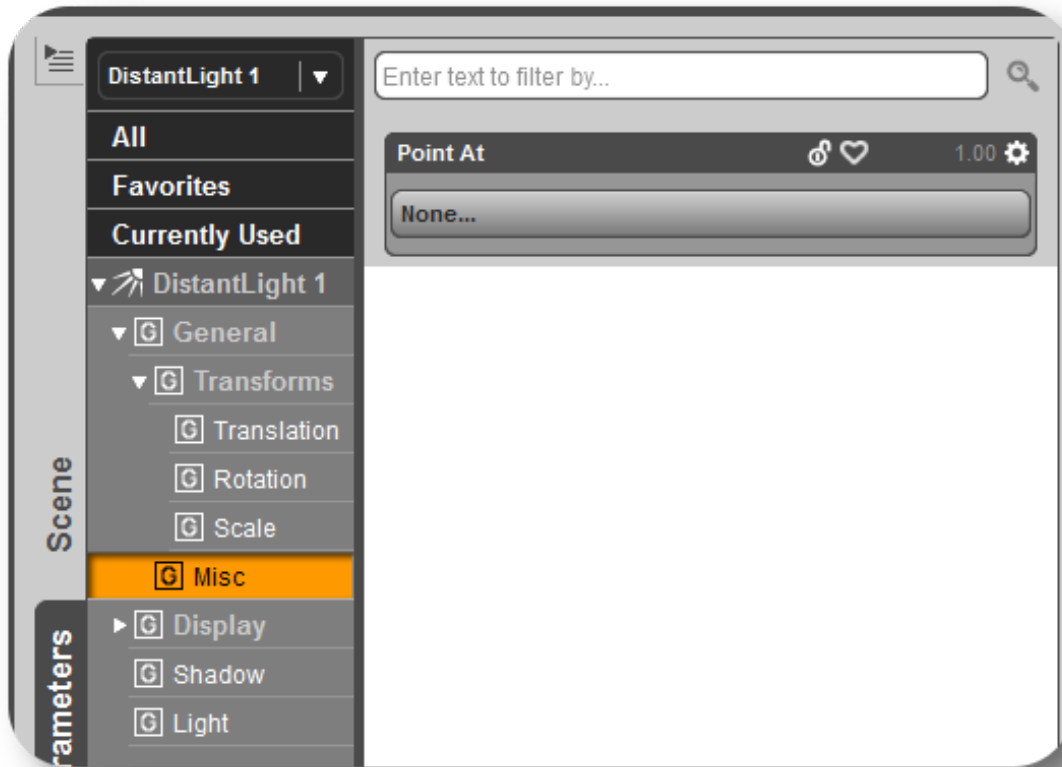


Or by inserting the exact value you desire into the chosen parameter field.

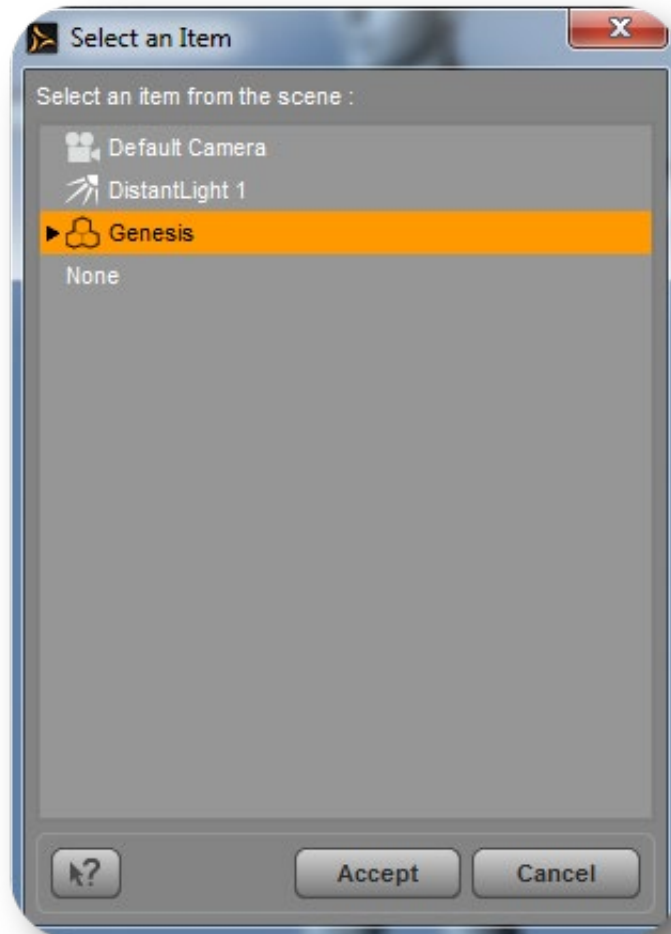


# Point At

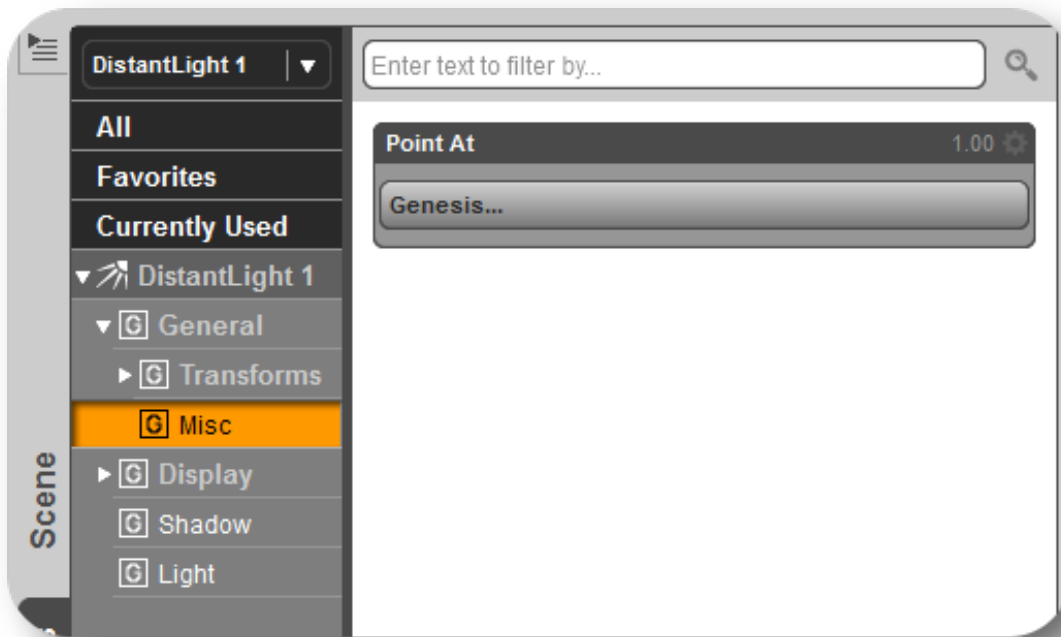
The next parameter we will talk about is the **Misc** section. The only option you'll find in this section is **Point At**.



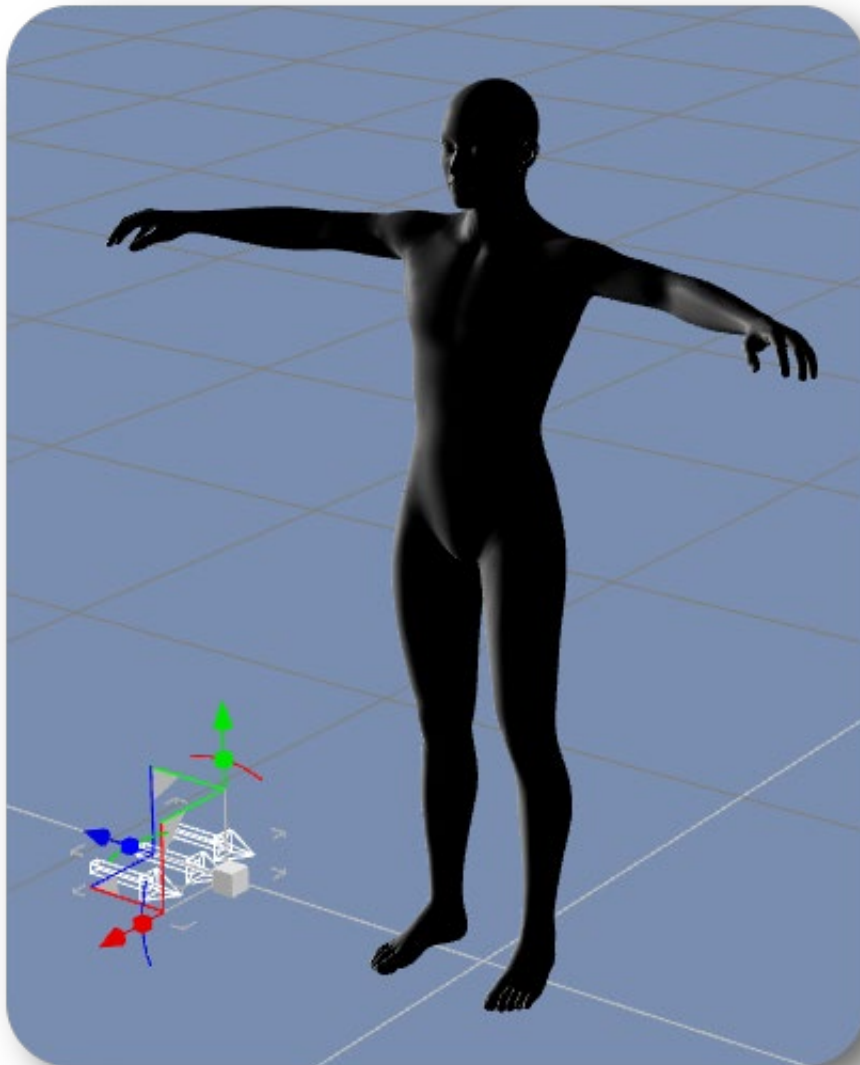
If you click on the button currently showing '**None...**', you can select an object from those currently in your Scene that will force the light object to point at it, then click the Accept button. A light object that is pointing at an object will continue to point itself at that object, no matter how it is manipulated in the 3D space.



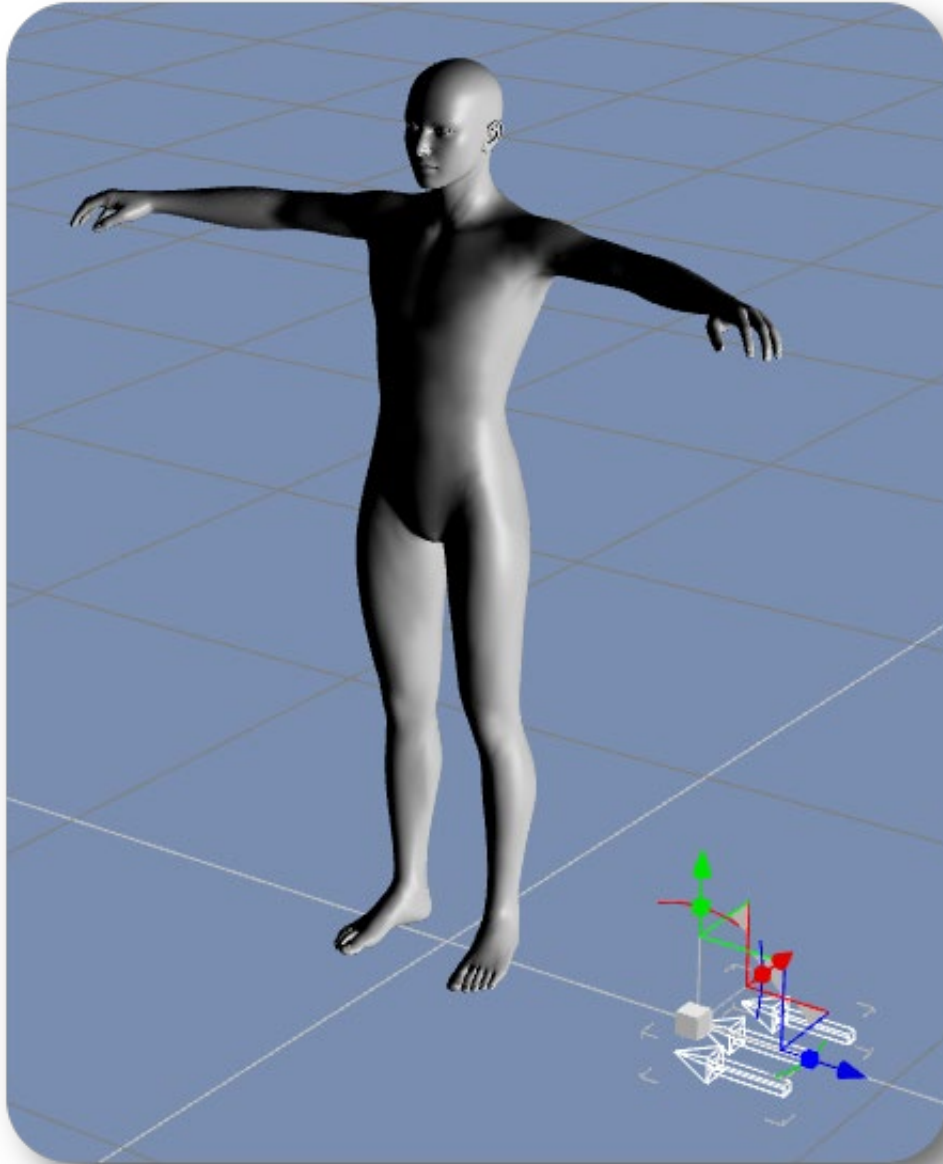
Let's set our Distant Light to **Point At** our Genesis figure.



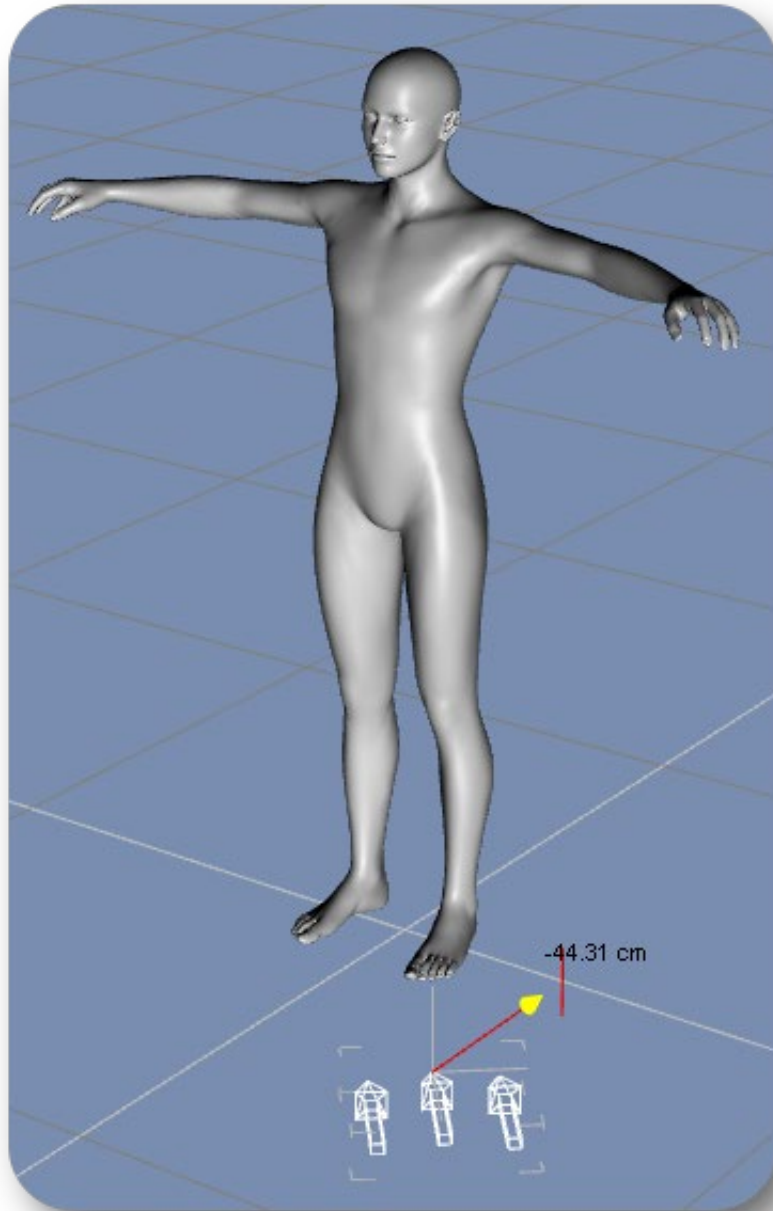
It will be pointing at the **Genesis** figure's base.



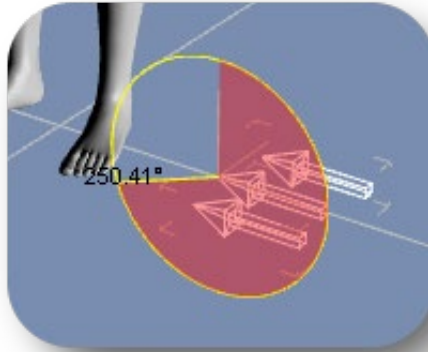
If we translate the **Distant Light** object to the other side of the Genesis figure, you'll notice it switches its direction to ensure it's still pointing at the **Genesis** object.



Translating your light object parallel to the figure will show this interaction much clearer. It will rotate itself to ensure it's still pointing at the object.

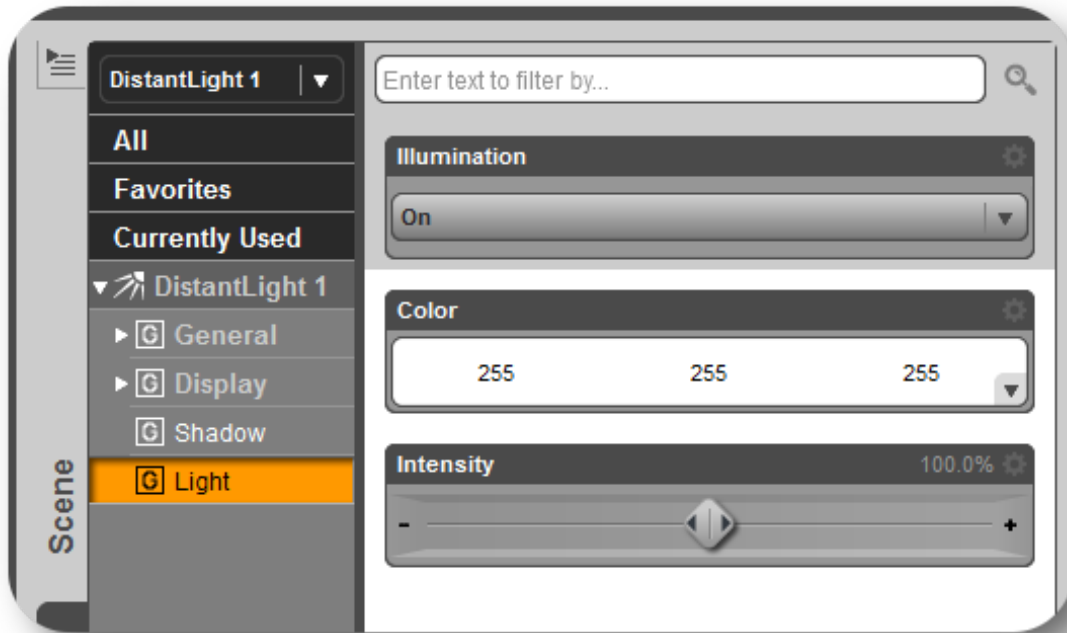


On the flip side of that, you cannot rotate the light object anymore, because doing so would make it's orientation not point at the selected object. See below, the light object won't budge.



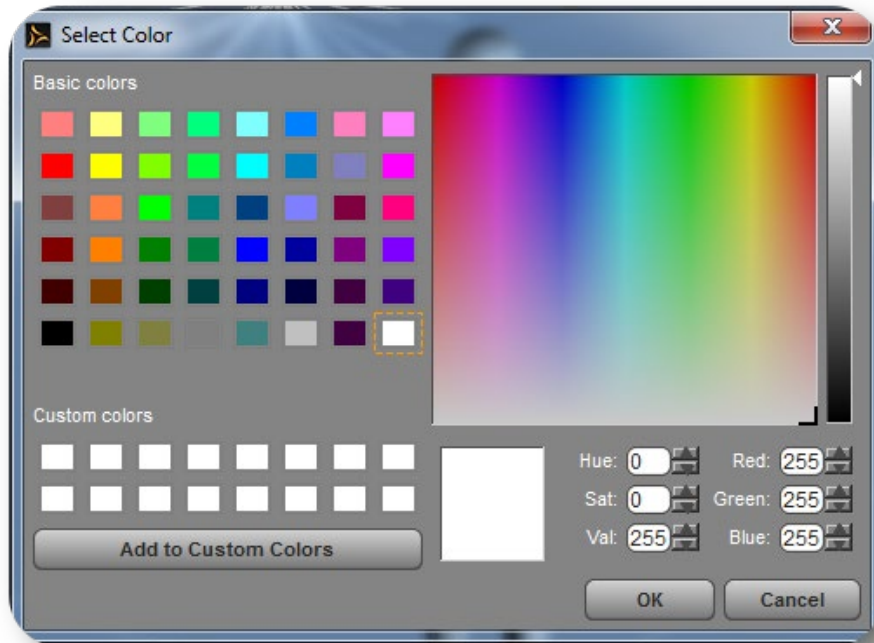
## *Light Color & Intensity*

If we look at the **Light** section, you can see we can change the **Color** of the light as well as the **Intensity** of the light.

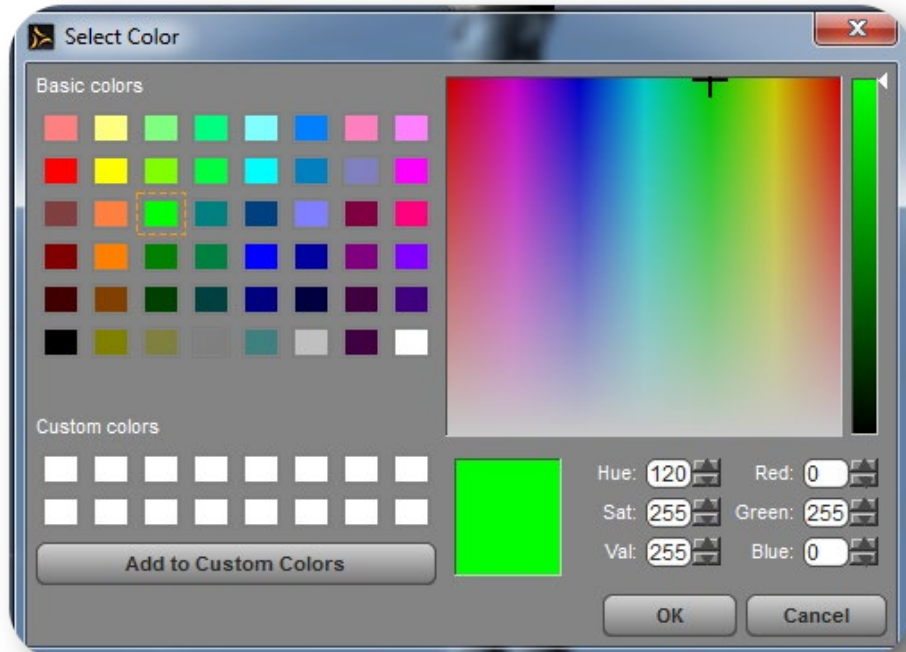


*Light Color & Intensity*

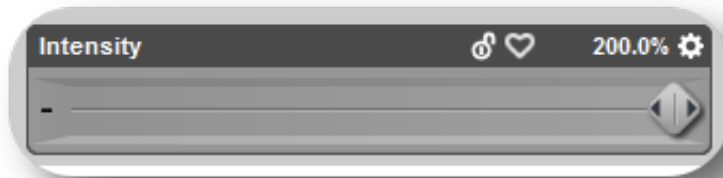
If you left-click on the **Color** option drop-arrow, a popup will appear for you to change the light's color from a color dialogue.



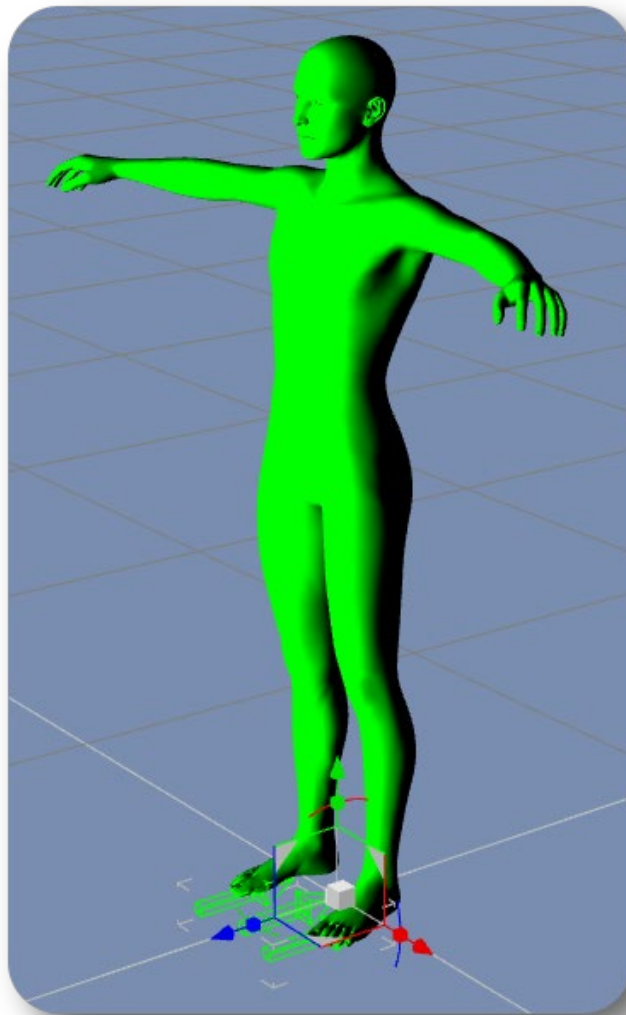
Select a color, such as light green, then click the '**OK**' button.



You can then change the Intensity by dragging the slider to the left or right to the desired value. For this example, we have doubled the intensity.

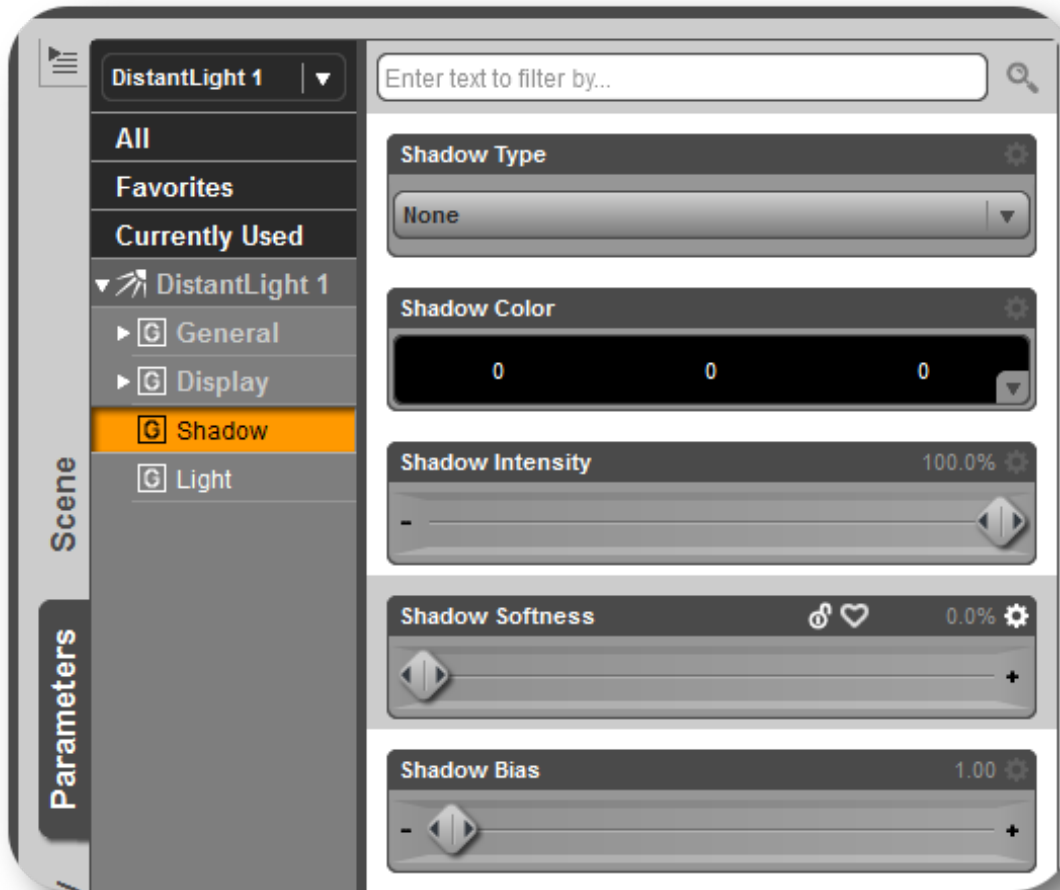


Now you have a bright green light effect. Use these combination of options on your light objects to create neat effects for your scene.



# Shadows

Shadows are an important topic to touch on because shadows can make your scene look much better. As you see, for the Distant Light, the default Shadow Type is **None**. So by default there won't be any shadows when using this light.

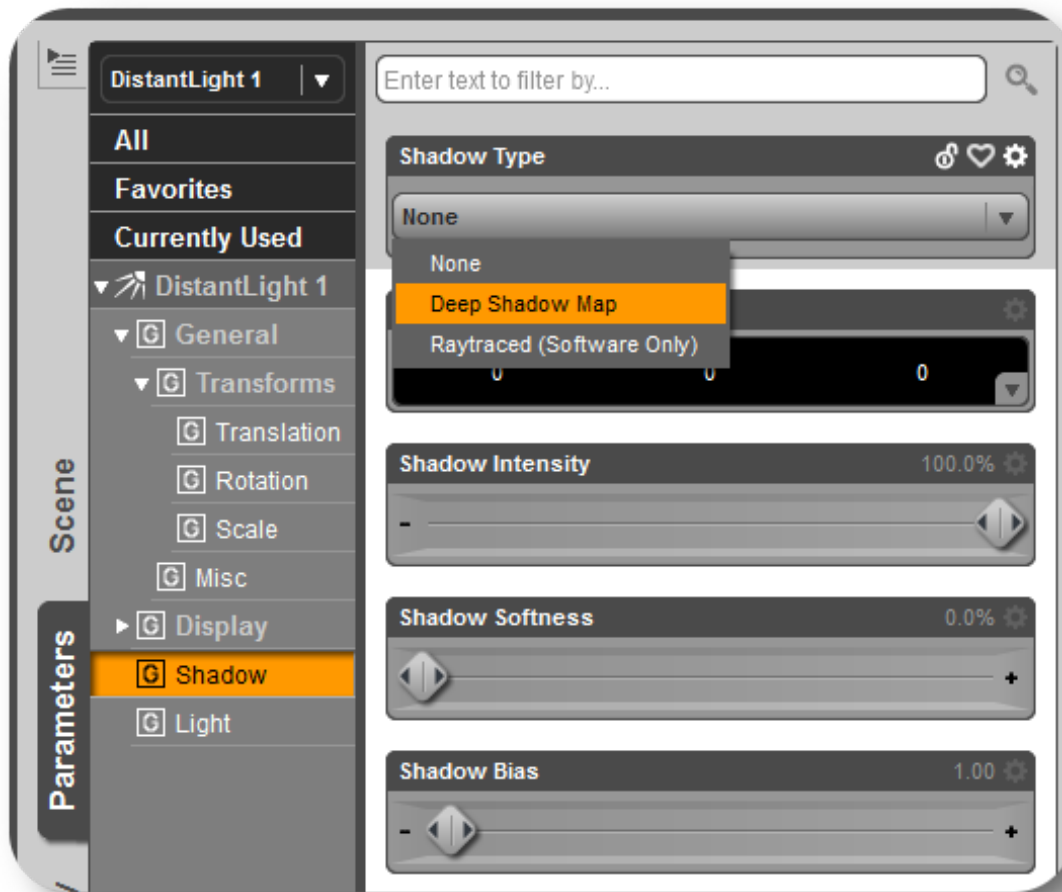


If we take a look at our Genesis figure with a floor underneath, we cannot see any shadows.



*Default No Shadows*

If we now add a **Shadow Type**, in this case the '**Deep Shadow Map**', we will cast a shadow with our Distant Light.



*Shadow Type Choices*

Now if you look at a Render, you'll be able to see the Genesis' shadow on the floor.



*Genesis Figure With Shadow*

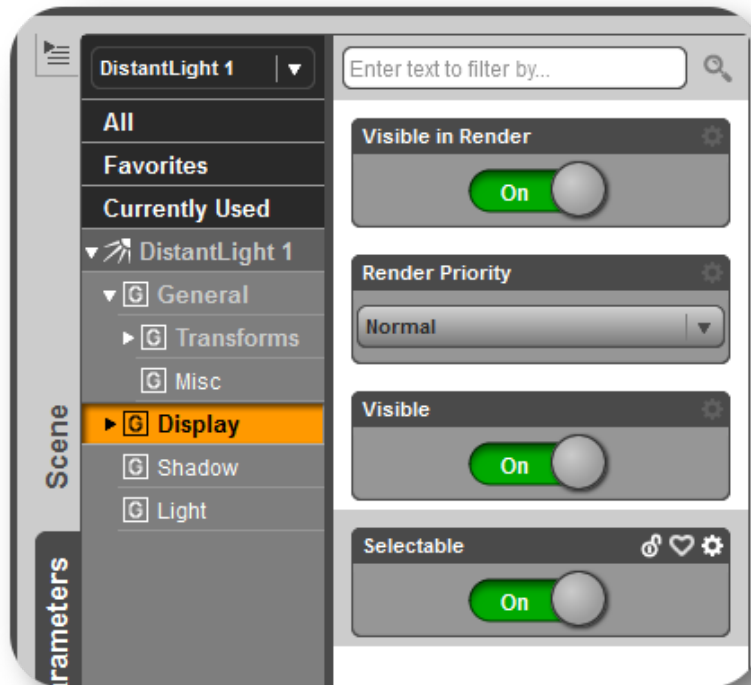
# Display

Another section to mention is the **Display** section.

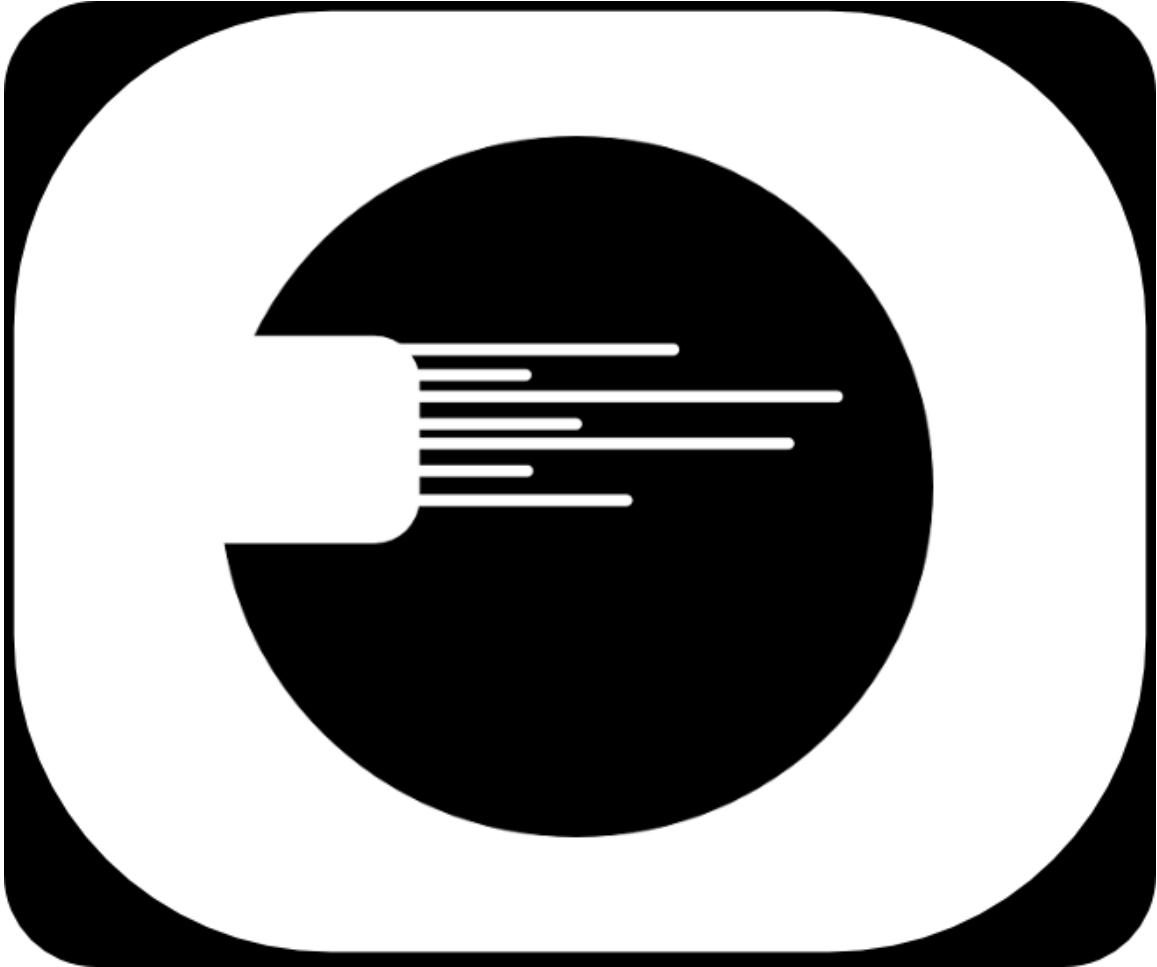
**Visible in Render:** This option determines whether or not the Light Object will be used in the rendered image. By default it's On.

**Visible:** This option determines whether or not the Light Object is visible in the Scene and Render (the same as the 'eye' icon in the Scene tab).

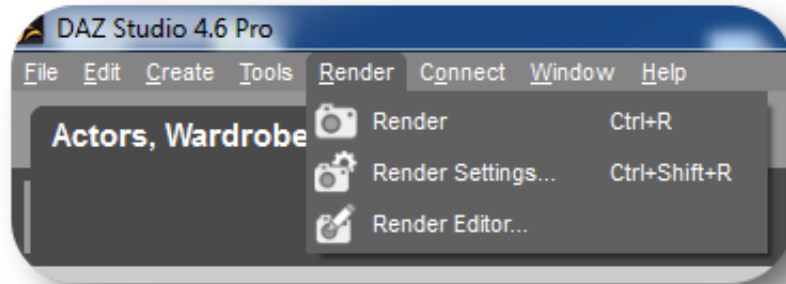
**Selectable:** This option is useful to turn off if you have setup your lights to be a certain configuration and do not want to accidentally adjust them.



# Chapter 4: Rendering

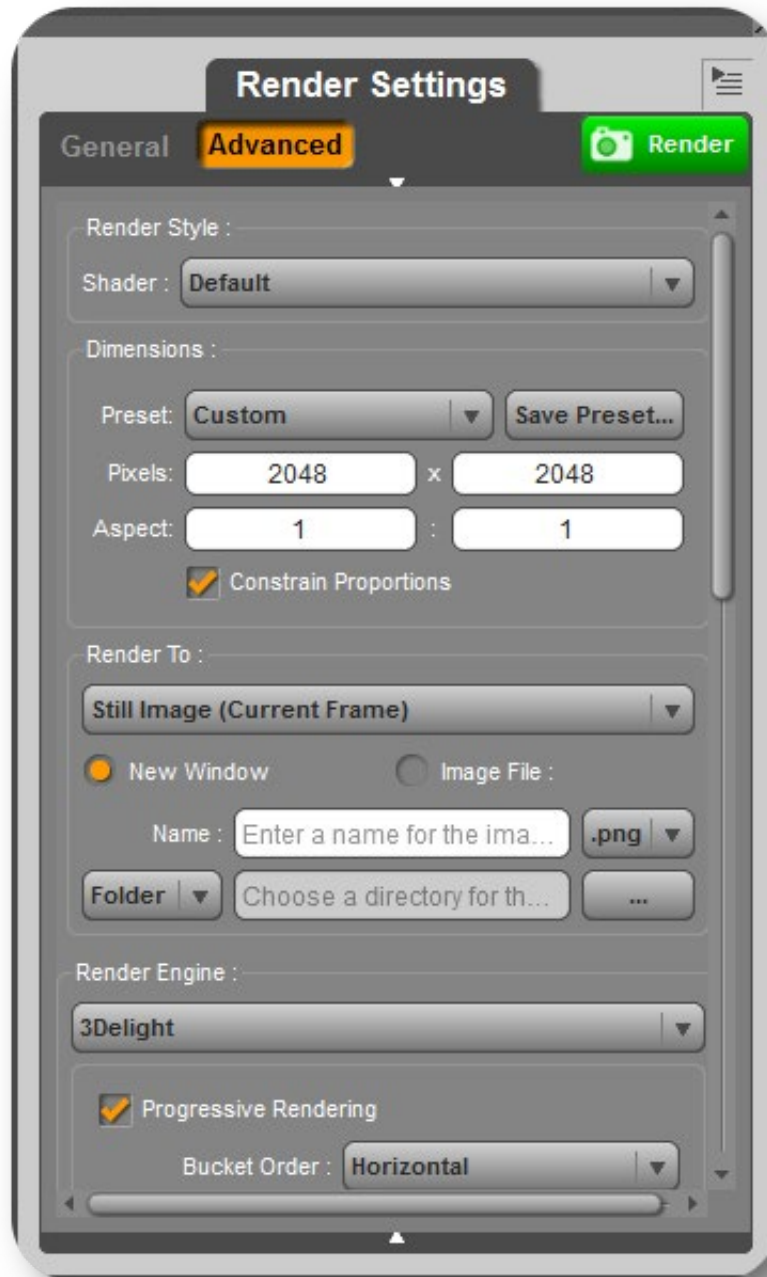


You can start rendering your scenes using the menu bar under **Render**. The **Render** option immediately renders the scene, whereas the **Render Settings** option brings up a popup to refine your render parameters. You can also make a quick render by pressing '**Ctrl + R**' on the keyboard.



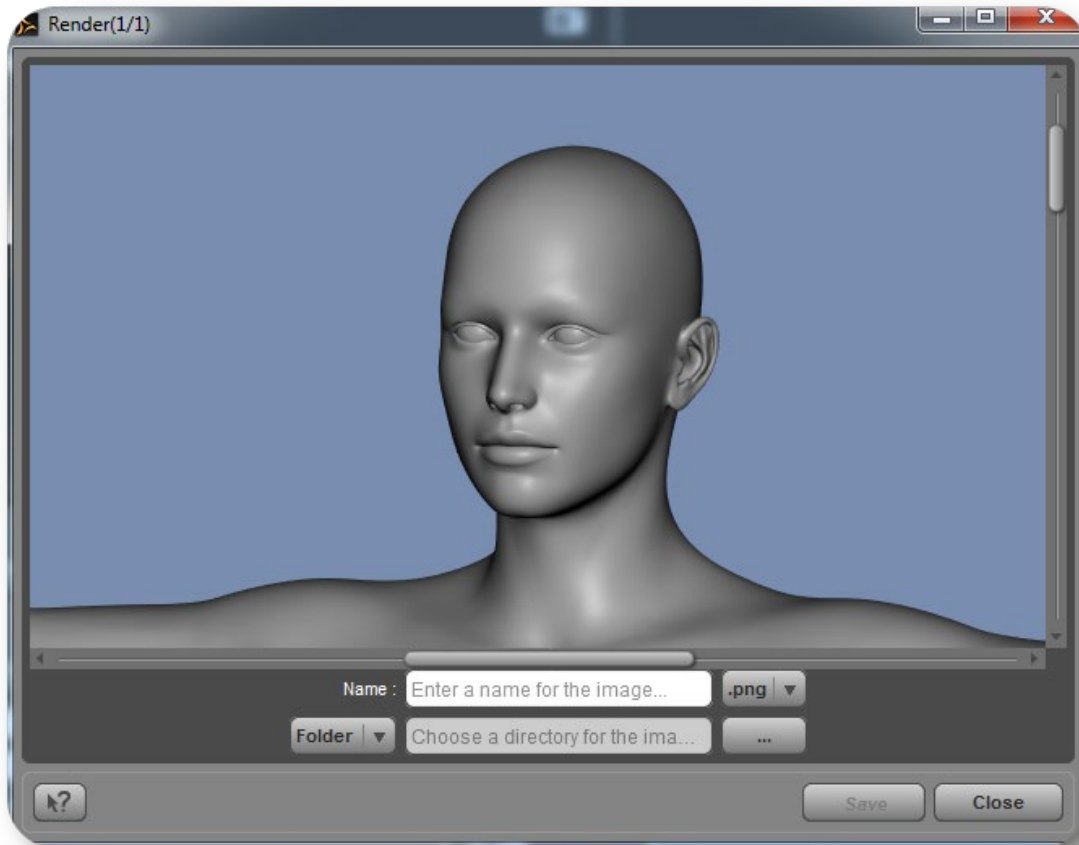
*Render / Render*

This is the **Render Settings** popup. Once you are done configuring it, you can hit the big green '**Render**' button to render your scene from here.



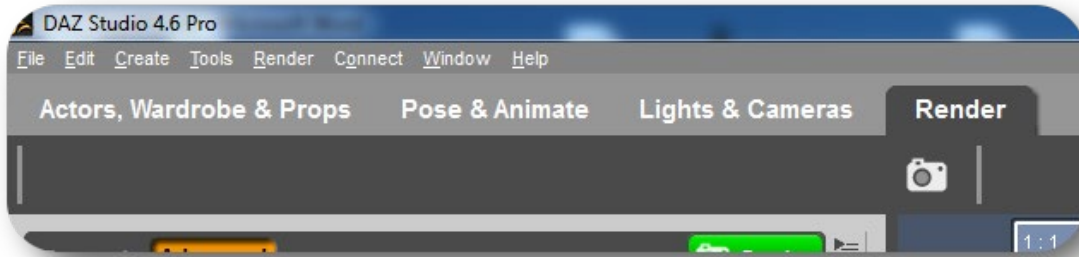
*Render / Render Settings / Render*

By default, a new popup will appear after you started rendering your scene. Once it's finished rendering, you can save the rendered image anywhere you like.

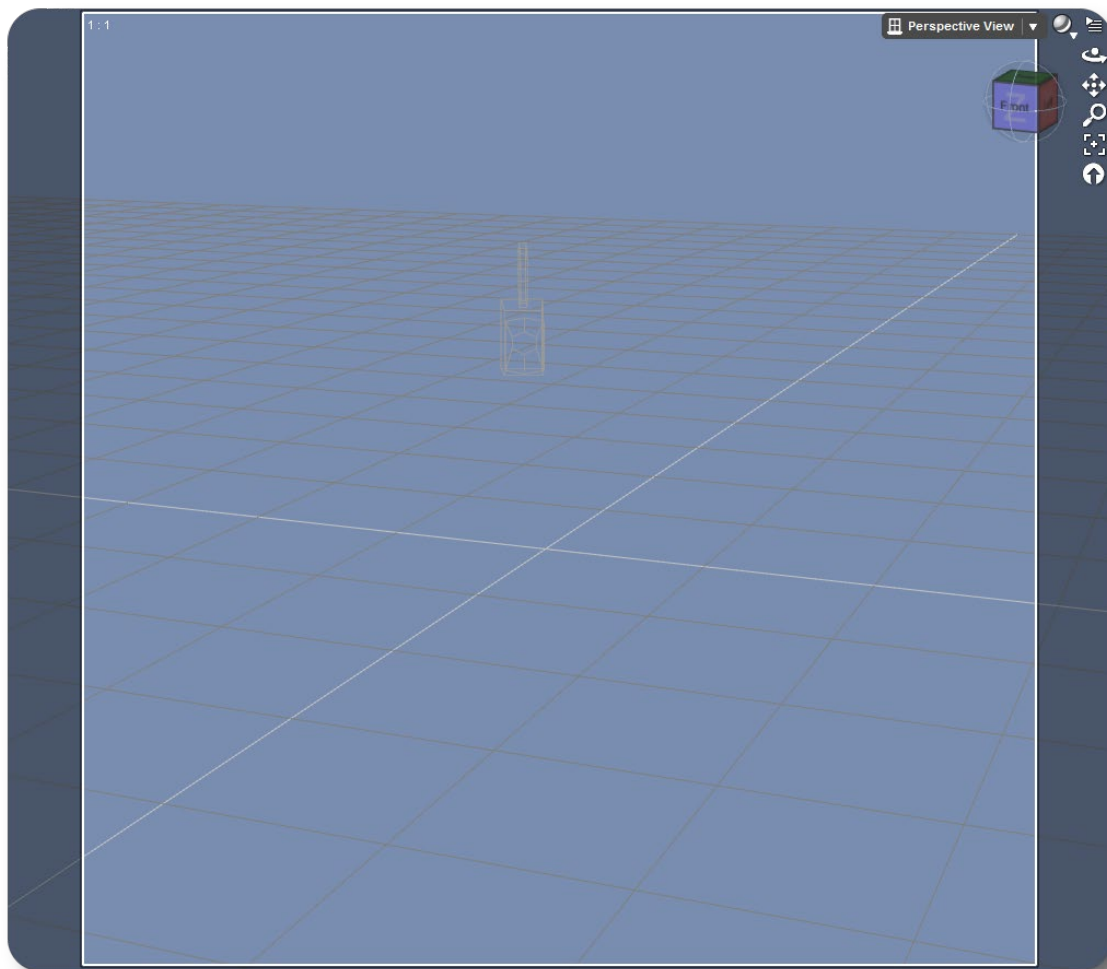


*Rendered Scene To Be Saved*

You can also go to the **Render** Activity tab at the top of DAZ Studio.



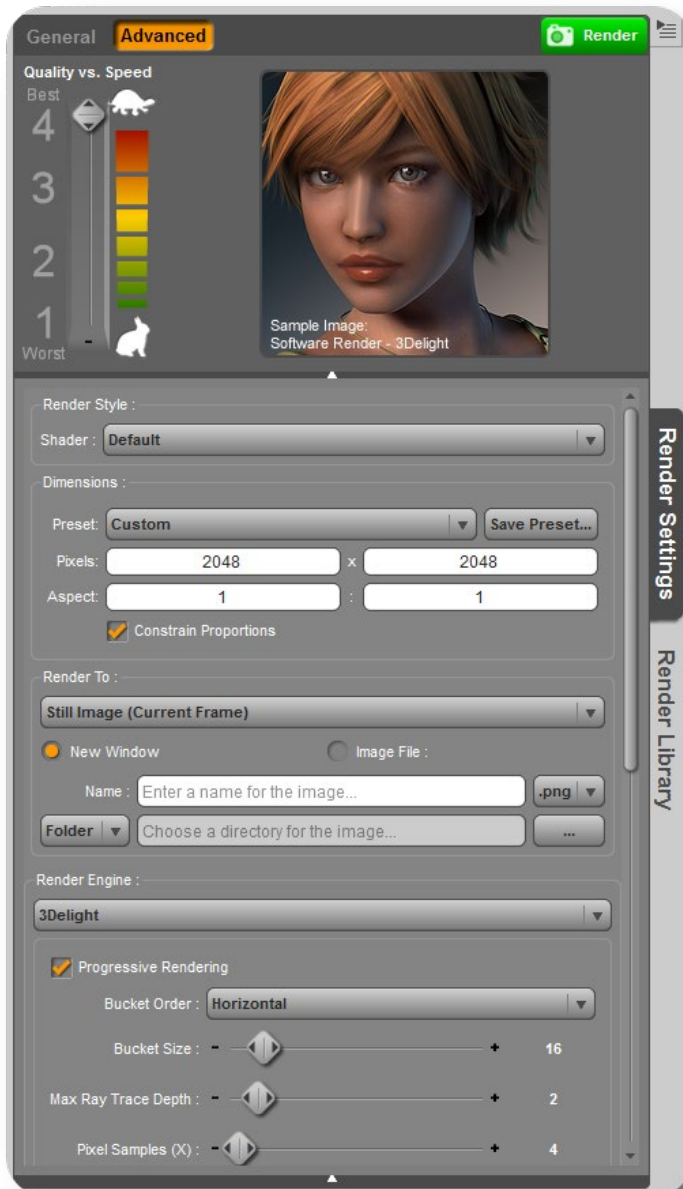
When you click on the **Render** tab, you will have your scene framed with the **Aspect Frame**. This frame is useful for telling exactly what will be shown in the Render, anything inside the frame is captured in your Render.



*Aspect Frame Mode*

# Render Settings

On the left side of the viewport, you will see the **Render Settings** tab. It looks just like the **Render Settings** popup.

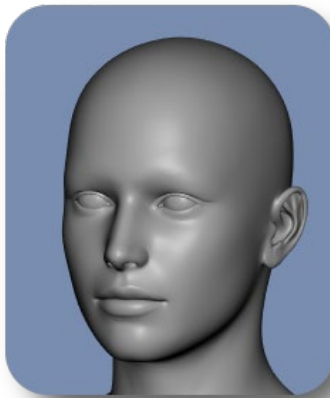


*Render Settings Tab*

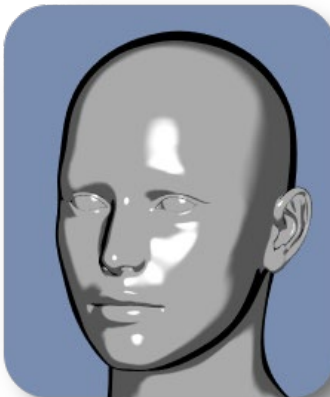
# Render Style

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In Render Settings, you can change the **Render Style** using the **Shader** type. You can switch between the **Default** shader or the **Cartoon** shader by using the drop-down menu.



*Default Shader*

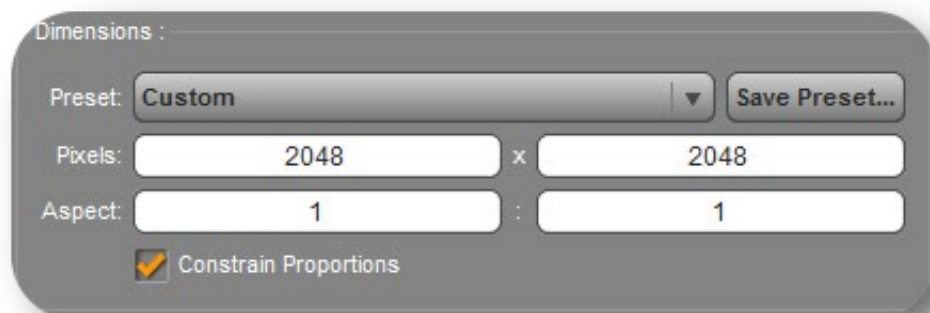


*Cartoon Shader*

# Dimensions

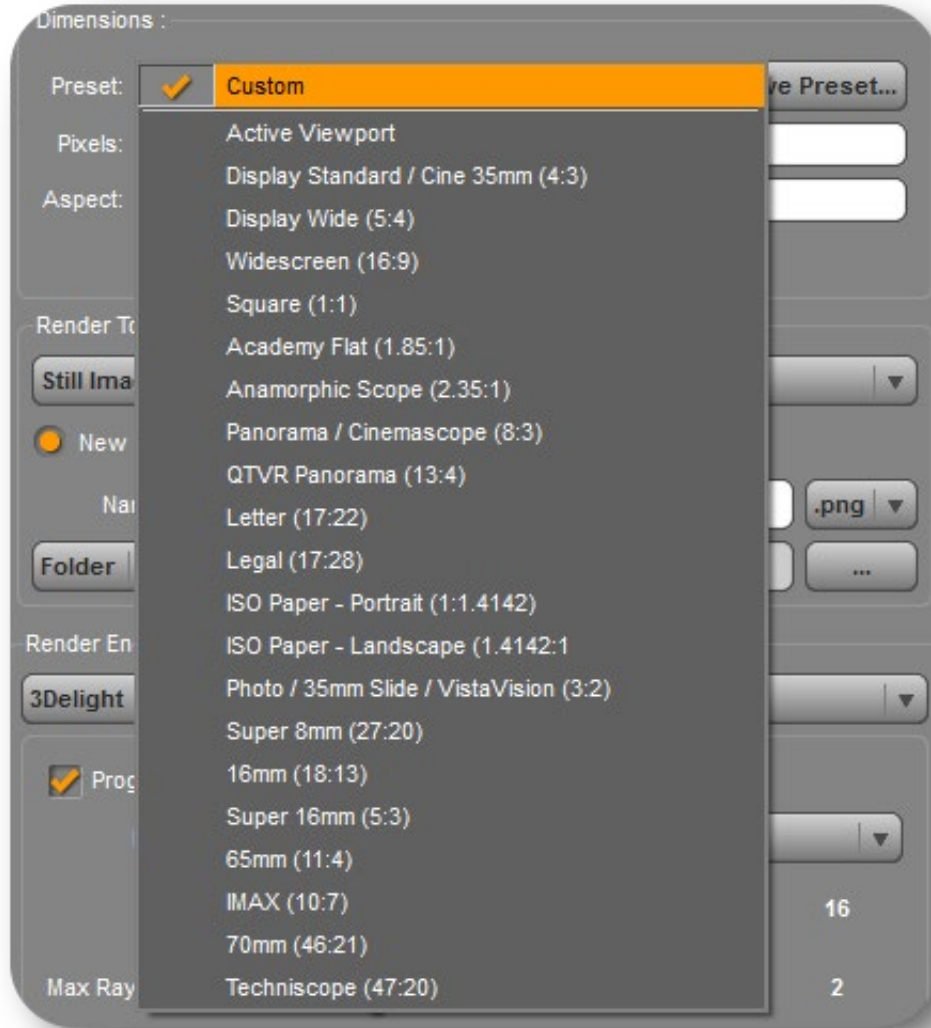
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You can change the dimensions of your **Aspect Frame** and rendered image so that it captures at a different resolution. Currently the Dimensions are 2048x2048 and the Aspect is 1:1, which means your Aspect Frame will be a square shape.



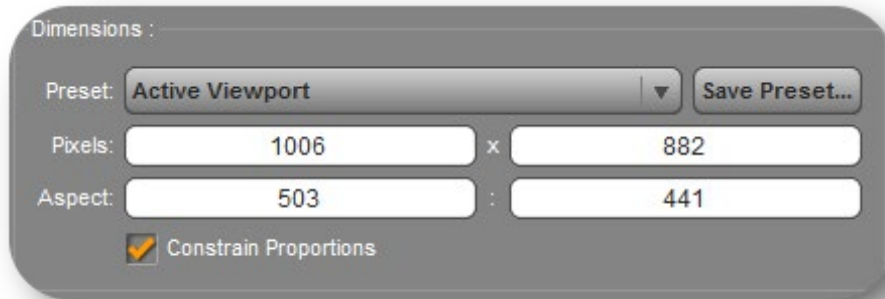
The image shows a 'Dimensions' dialog box with a grey background and rounded corners. At the top left, it says 'Dimensions :'. Below this, there is a 'Preset:' label followed by a dropdown menu showing 'Custom' and a small downward arrow. To the right of the dropdown is a button labeled 'Save Preset...'. Below the preset section, there are two rows of input fields. The first row is labeled 'Pixels:' and contains two text boxes, both with the value '2048', separated by an 'x' symbol. The second row is labeled 'Aspect:' and contains two text boxes, both with the value '1', separated by a ':' symbol. At the bottom of the dialog, there is a checked checkbox labeled 'Constrain Proportions'.

You can change the aspect of your render by left-clicking the **Preset** drop-down menu and selecting from the list. The height will automatically change to match the selected aspect ratio from the width value.

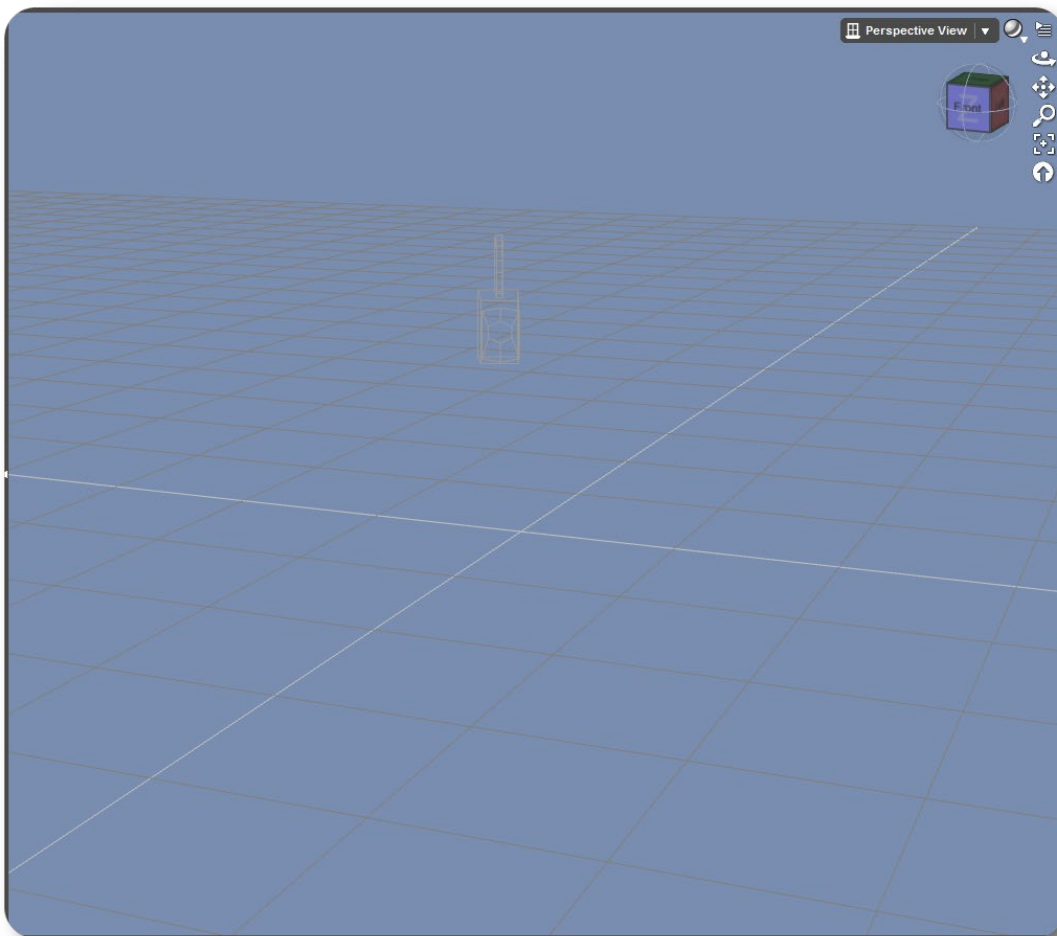


*Aspect Ratio Presets*

An important Preset to take a look at is the **Active Viewport** Preset. This preset captures the entire area you currently see in your scenes viewport.

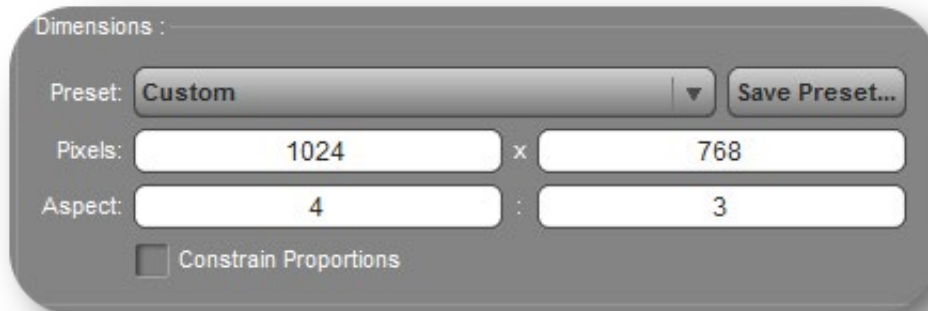


As you can see, the Aspect Frame is gone because the Render will now capture everything you see in the viewport.

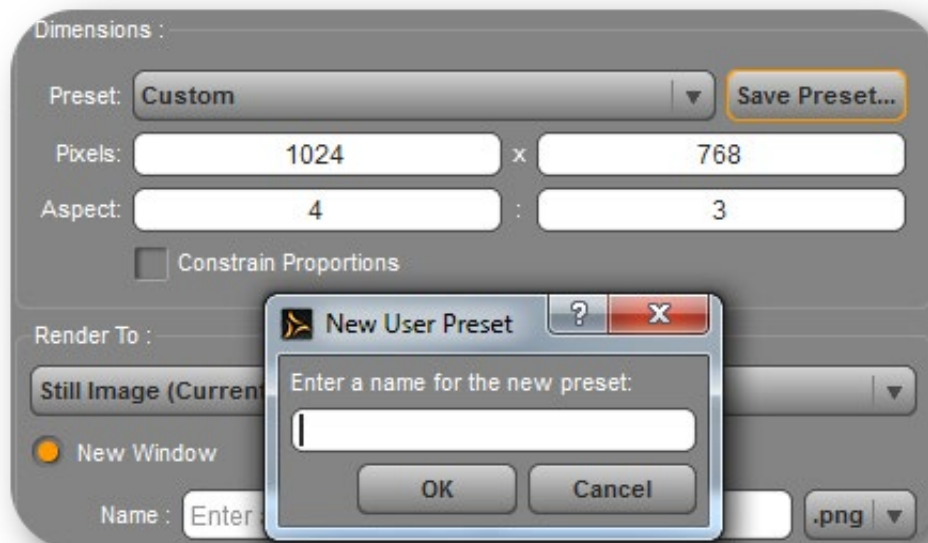


We can also select **Custom** Preset to use your our width and height values. With **Constrain Proportions** checked, when you change one value the other will automatically change to match the displayed ratio. You can turn off the **Constrain Proportions** checkbox in order to input any values you wish.

**NOTE:** If you change the Pixel fields, the Aspect values will change, and if you change the Aspect fields, the Pixel values will change.



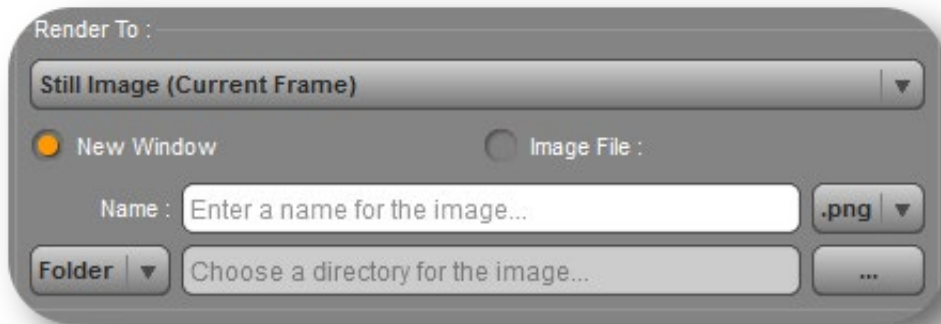
You can also save your new Custom Preset by clicking the **Save Preset** button, then you can name it with the popup that appears.



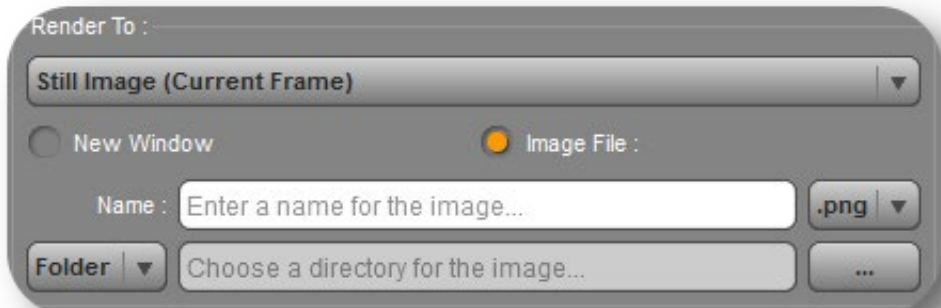
# Render To

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The default setting is for your Render to popup in a **'New Window'**. You can watch it being rendered then you can save it to your computer.

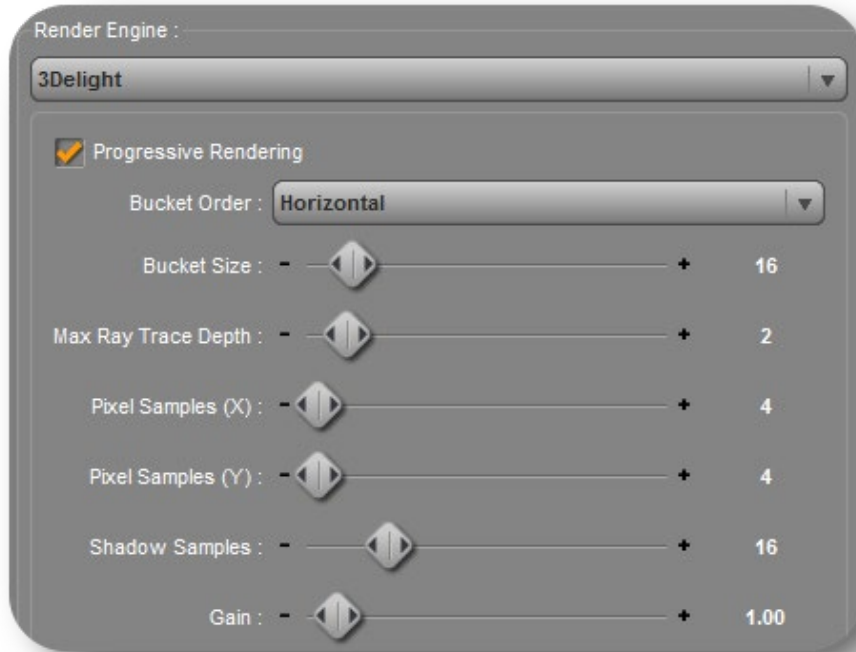


You can instead select **'Image File'** and set where you want the Render saved to. If you don't select a destination, a new window will popup for selecting a destination when you hit the Render button.

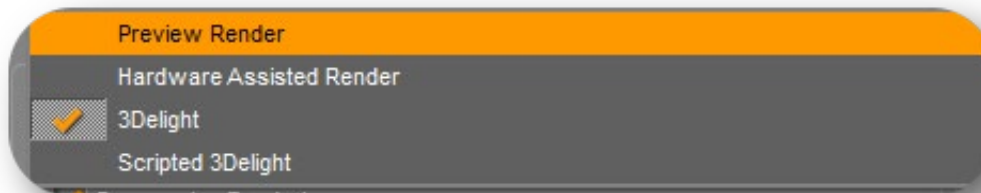


# Render Engine

You can choose which render engine to use for your Renders. Initially DS uses the **3Delight** engine which will process your scene for the Render.

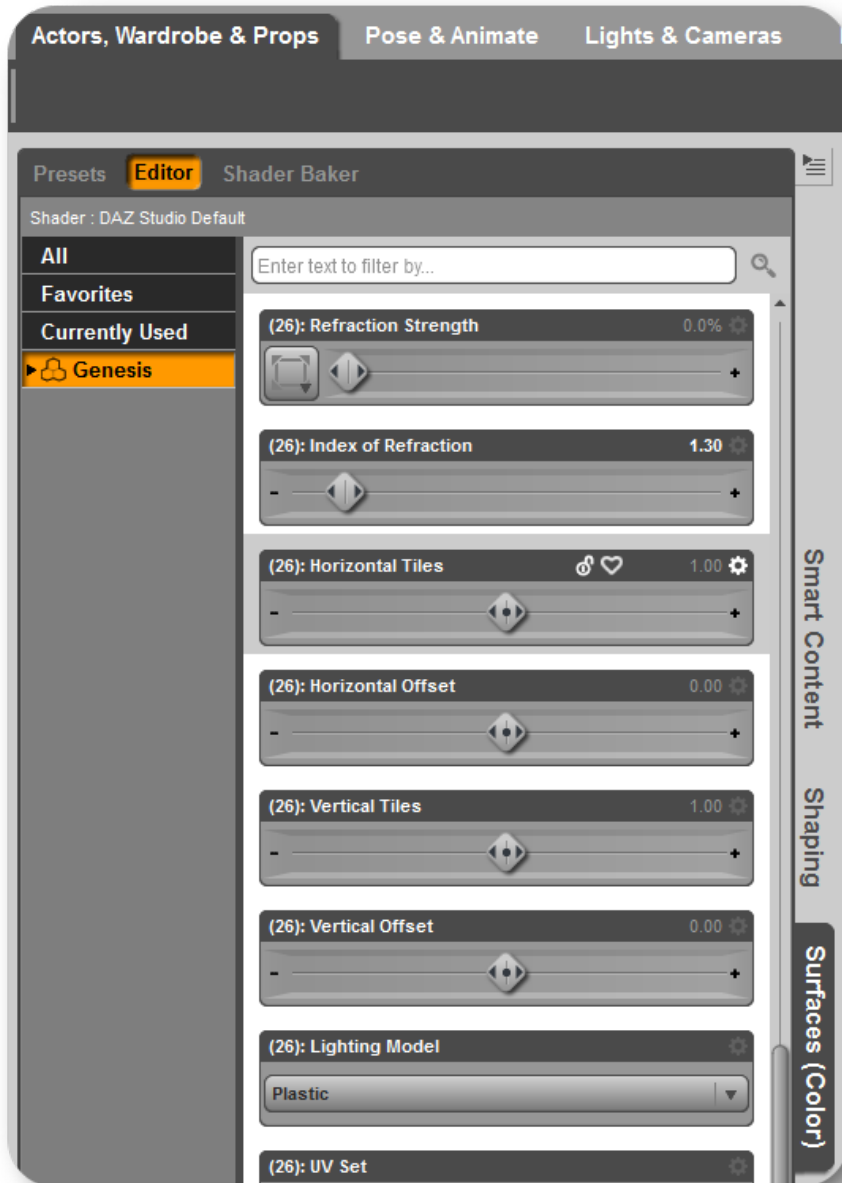


If instead you want just a quick preview of your scene, you can select the **Preview Render** option. This will create a fast Render, showing essentially the same quality of your scene as what you see through your viewport.



# Lighting Models

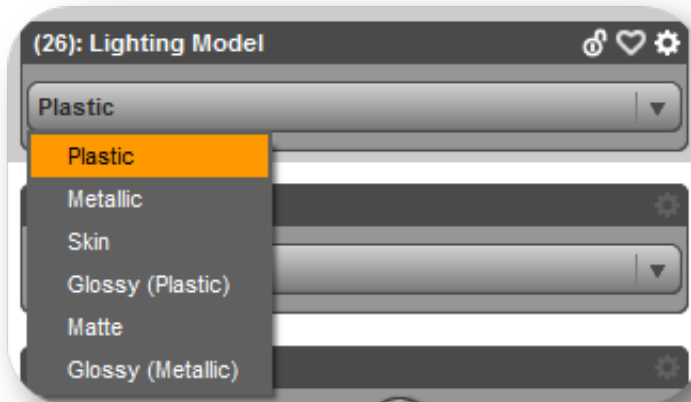
One additional thing to add depth to your Render's look is to add a specific Lighting Model to your objects, making them look more the way they should. You can find that under the '**Actors, Wardrobe & Props**' Activity tab on the '**Surfaces (Color)**' tab.

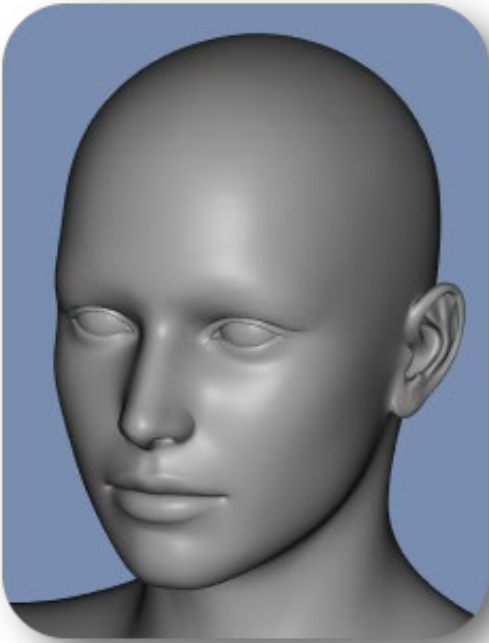


By default your objects will use the **Plastic** Light Model.



You can however choose between 6 different **Light Models** that will give your object a different look when light hits them; useful when you are consciously lighting your scene.





*Plastic*



*Metallic*



*Skin*



*Glossy (Plastic)*



*Matte*



*Glossy (Metallic)*

# Conclusion

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Now with all the lighting you've done in this tutorial you can start lighting your own scenes. There can be multiple lights in a realistic scene, so don't hold back from using as many lights as possible to create the perfect looking scene.

