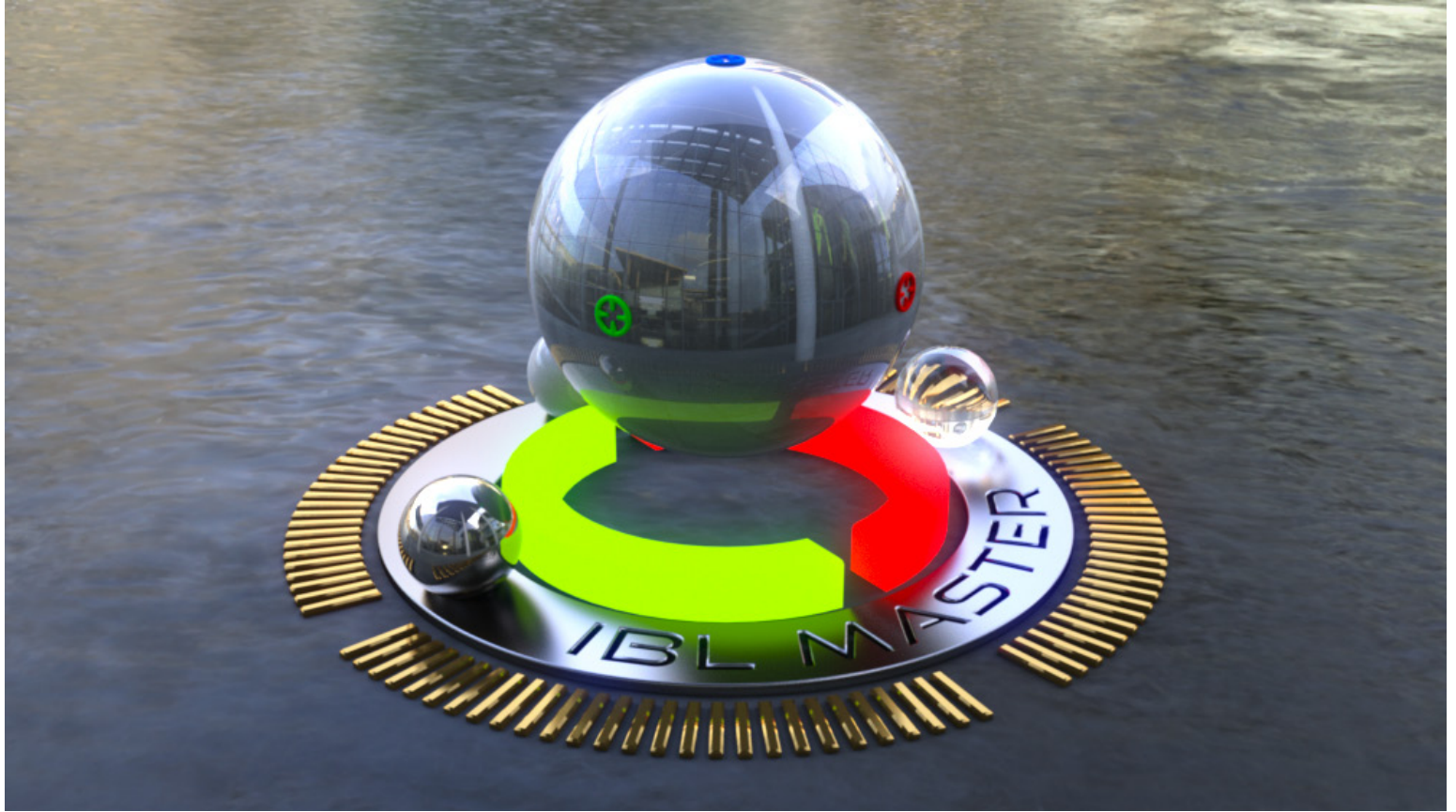


IBL MASTER FOR DAZ STUDIO



Introduction

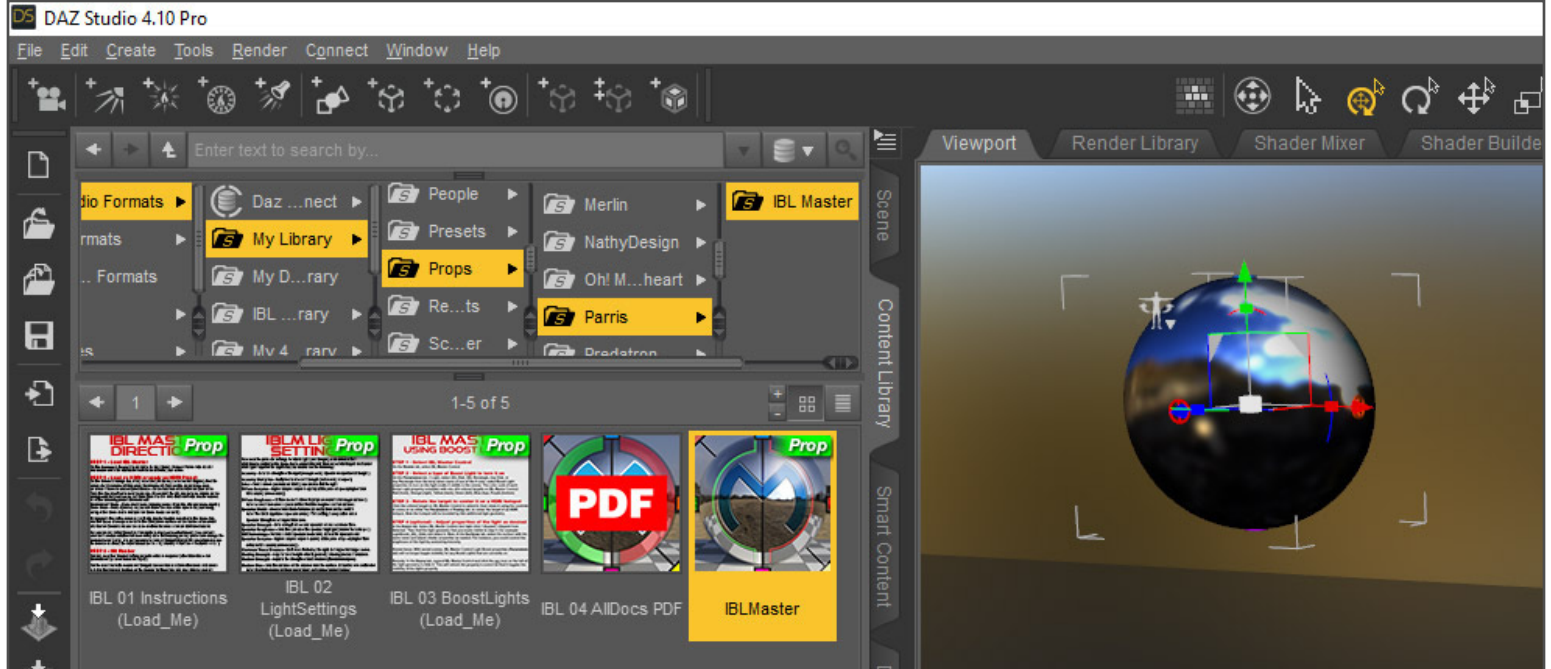
IBL Master is a lighting controller for Daz Studio that provides a synchronized Image Based Lighting experience for both Iray and 3Delight. It loads as a figure and hooks up to the Iray Environment Dome in Render Settings, making it easy for you to preview your HDRi in realtime as a small sphere in the viewport and orient the Dome by manipulating the figure. This way, you can easily get a sense of which direction the light (often a hotspot in the image, like the sun) will be coming from. It also features a breakthrough IBL shader for 3delight that makes renders not only more realistic but significantly faster.

IBL Master debuts Bidirectional Remote Control which creates links between the Iray Dome, the control figure, the new 3delight IBL, and a new HDRi background sphere for the 3delight side. This means you can change HDRIs and transforms (rotation, translation, and background scale) in one place and they all stay synchronized. Additionally, because IBL Master matches IBL quality and lighting direction across both renderers, you can now composite like never before - in effect picking and choosing what you like best about each.



IBL Master Basic Instructions

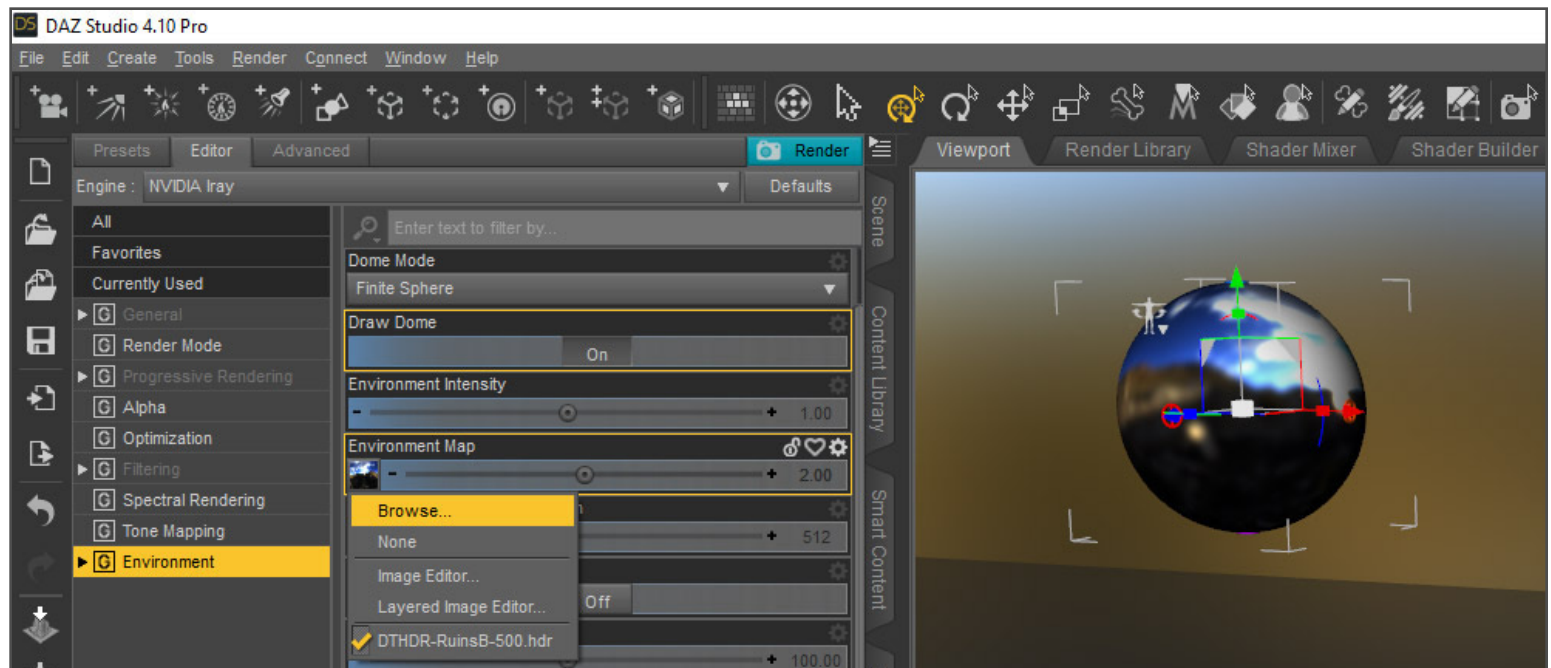
STEP 1 Load IBL Master



On the Content Library tab, navigate to: My Library / Props / Parris / IBL Master and double-click the IBL-Master icon to load it into your scene.

STEP 2 - Load an HDRI or apply an HDRI Preset

Load an HDRI in Iray (browse method)

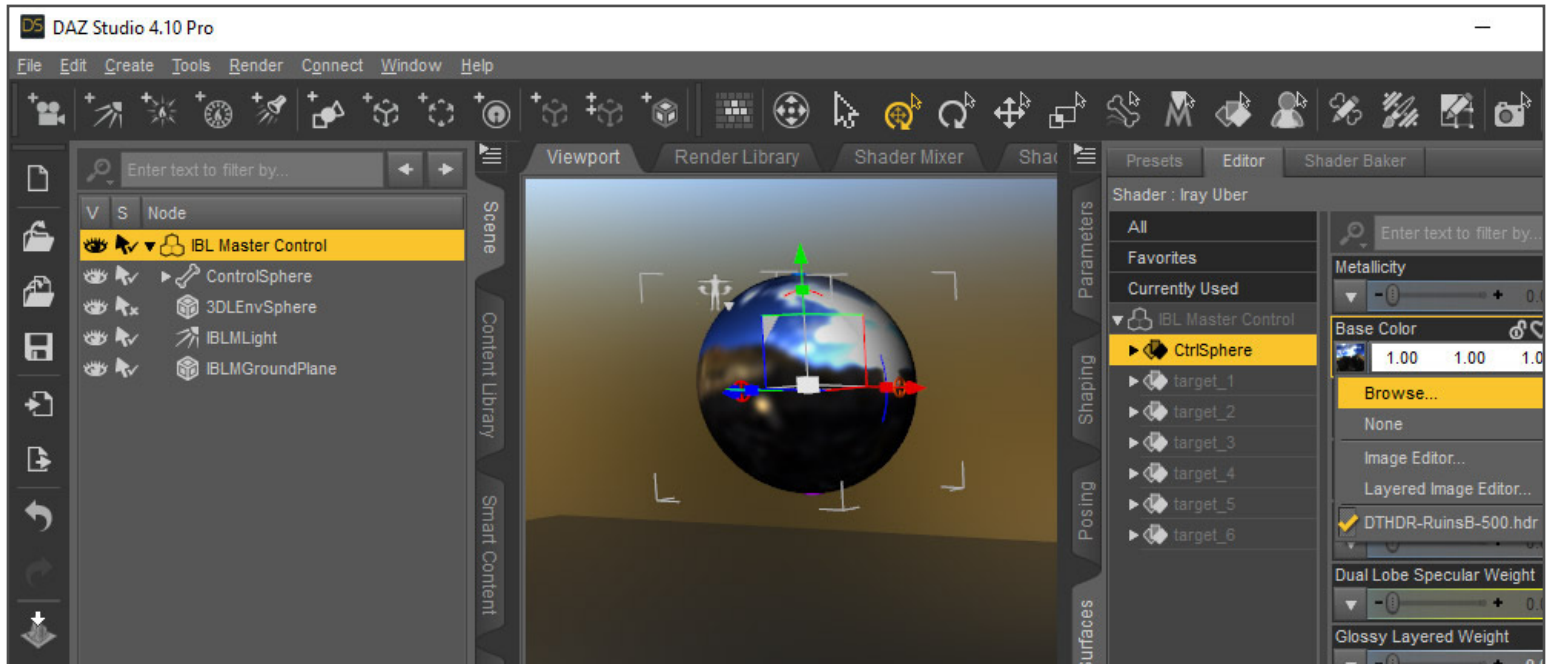


On the Render Settings tab, if Iray is active (Nvidia Iray selected for Engine), find the parameter Environment Map under Environment. Click on the small image icon (or arrow if none is chosen) and Browse... to the location of an HDRI on your drive. Click the Open button to load the image. If you want the IBL image to be visible as the background for your scene, set Draw Dome to On.

Note that when IBL Master loaded, it set the following under Environment:

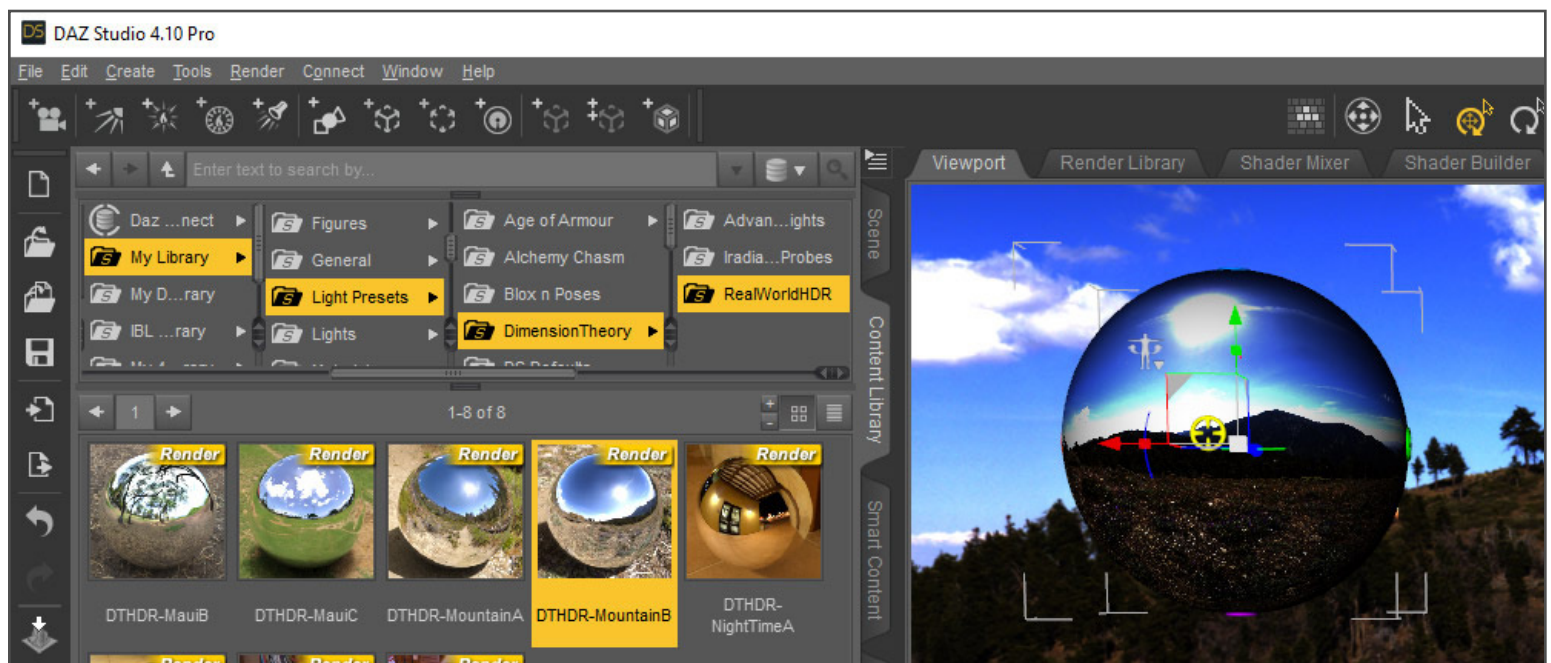
- **Environment Mode** - Dome and Scene (lighting comes from the IBL and scene lights)
- **Dome Mode** - Finite Sphere (so you can scale the size of the sphere to your liking, using either Dome Scale Multiplier or Dome Radius or both)
- **Ground position Mode** - Manual (to allow you to move the ground and background sphere together. Note: you cannot move them separately because currently Dome Origin does not function usefully. This is an Iray issue that can only be remedied by Nvidia Iray developers.)

Load and HDRI in 3Delight (browse method)



If 3delight is the active renderer, with IBL Master Control selected in the Scene tab, find the Base Color parameter in the CtrlSphere surface on the Surfaces tab under IBL Master Control and use the same method to browse for an HDRI and load it.

Load an Iray HDRI Preset



Navigate to a product's HDRI preset in your library (see content provider's documentation for more info).

Notes:

- Loading an Iray HDRI preset will change the renderer back to Iray.
- It is not possible to load a 3Delight (UE2) HDRI preset. Instead, please use the browse method; The HDRI should be in: {Library Name} > Runtime > Textures > {Vendor Name} > {Product Name} > ...or something similar (where Library Name is the library where you installed your HDRI product, typically My Library).
- Some Iray HDRI presets may change some transformation settings that IBL Master can't read. To keep transformations synchronized, you should reset the following and not use them: Dome Origin (reset to 0 and use Ground Origin Instead), Dome Rotation (reset to 0 and use Dome Orientation Y instead), and Ground Texture Scale (reset to 100, sorry no equivalent in viewport or 3DL).

STEP 3 - Hit Render

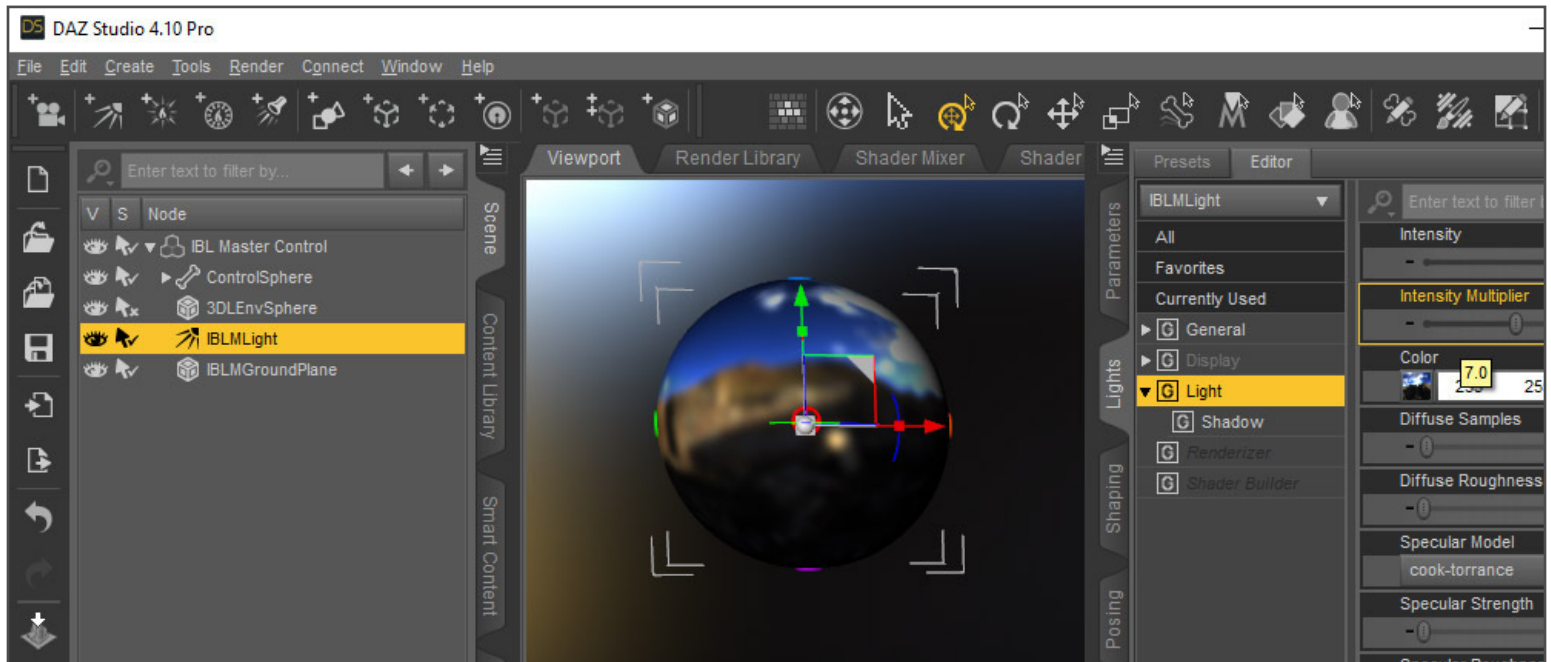
For Iray, no other Render Setting adjustments are required (other than those for Environment (as mentioned in step 2). For the most realistic results in 3Delight, turn on Gamma Correction and set Gamma to 2.2 in the Gamma Section on the Render Settings tab. Iray does this by default.

STEP 4 - Adjust the Intensity of the Light as Needed

In Iray, you can control the strength of the Image Based Light by navigating to Render Settings tab > Environment > Environment Intensity or Environment Map and moving the slider left or right. Smaller values (slide left) turn the light down; Larger values (slide right) turn the light up. You can also control brightness by navigating to Render Settings tab > Tone Mapping > Exposure Value and moving the slider left or right. Only here things move in the opposite direction - A larger Exposure Value will make the image darker.

For 3Delight you control the brightness of the light by making adjustments in the light's shader properties. So first click the arrow to the left of IBL Master Control in the Scene tab to expand it, then select IBLMLight. Next, navigate to Light on the Parameters tab or simply use the Lights tab. You can then use the slider for Intensity, or Intensity Multiplier to control the brightness. Smaller values (slide left) turn the light down; Larger values (slide right) turn the light up.

IBLM Light Settings



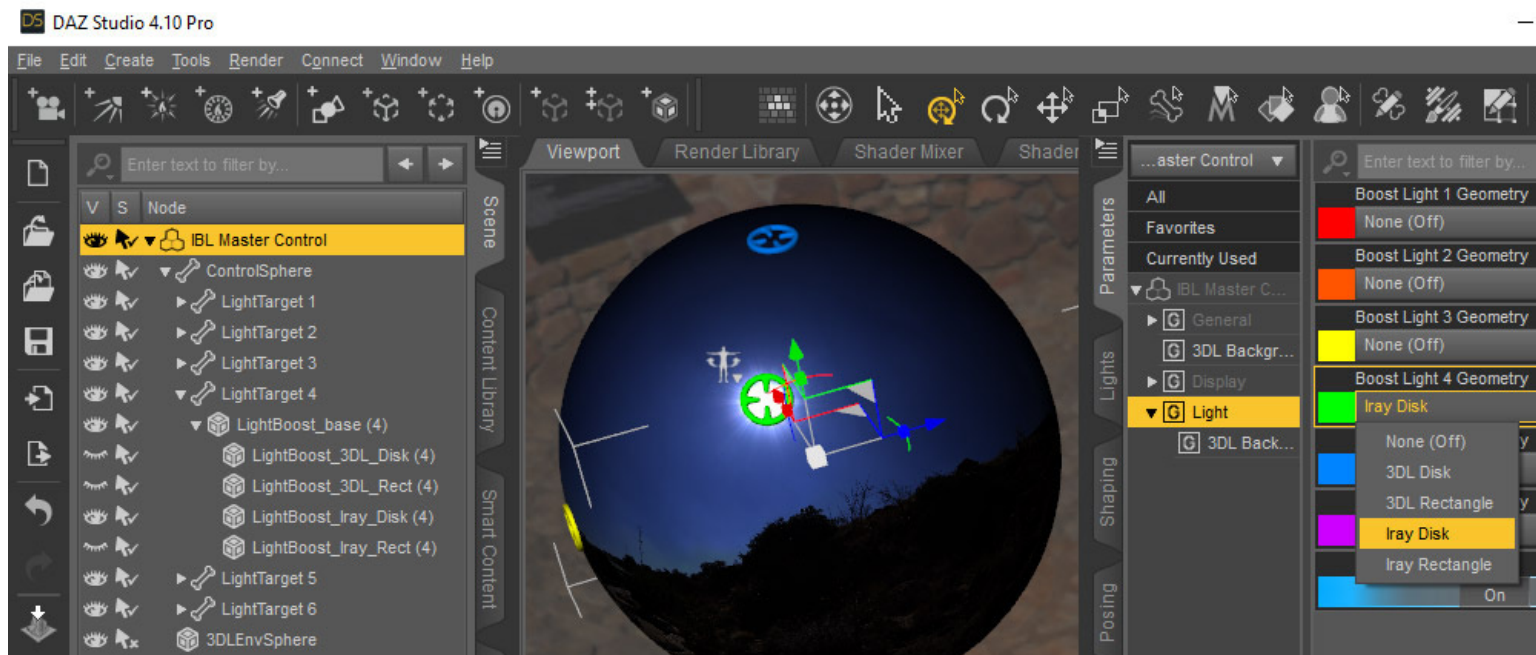
To access the parameter settings for IBLM Light (for 3Delight), click arrow left of IBLM Master control in the Scene tab to expand, then select IBLMLight. Next in the Lights tab > IBLMLight, you should see the following:

- **Intensity** - Sets the strength of the light (recognized by OpenGL viewport and 3Delight)
- **Intensity Multiplier** - Multiplies to also set strength (not seen by viewport)
- **Color** - This is where you load an HDRI; you can also tint the light.
- **Diffuse Samples** - Higher samples improve quality at the price of speed (higher than 32 is usually unnecessary).
- **Diffuse Roughness** - Diffuse model is Oren-Nayar (more realistic for rough surfaces). Note: Leave at zero unless you want to affect the roughness of all surfaces.
- **Specular Strength** - Sets strength of a second specular. Increases render time. Note: The IBLM Light does specular already automatically.

** These settings are only active when Specular Strength is set higher than zero.

- **Specular Model** ** - choose from Cook-Torrance (default), Blinn or Glass-GGX.
- **Specular Roughness** ** - Sets the spread of the specular highlight (smaller % is sharper) GGX Anisotropy - For Glass-GGX specular model only. Makes the specular oval.
- **Specular Samples** ** - Higher samples improve quality at the price of speed (higher than default of 8 is usually unnecessary).
- **Maximum Trace Distance** - Distance affected by the light. Set higher for large scenes.
- **Shading Strength** - Adjusts the strength of both geometry shading and cast shadows.
- **Shadow Strength** - Adjusts the strength of cast shadows (transmission) only.
- **Shadow Bias** - Sets the distance of the shadow from the surface (in centimeters). Default is .2 centimeters. **Note: If self-shadowing artifacts occur, set number slightly higher.**

Using Boost Lights



Boost Lights were designed to help you control the intensity of light on your subject separately from the brightness of the HDRI background. This is particularly useful when using Iray, because properties in Render Settings currently do not provide a means to control the two separately. With 3Delight, using Boost Lights is less necessary, because you can adjust the brightness of the background directly by selecting 3DLEnvSphere (under IBL Master Control) in the Scene tab, and then adjusting Diffuse Strength or Ambient Strength in the Surfaces tab. You can also use Boost Lights in either renderer for other lighting purposes (such as creating rim lights).

STEP 1 - Select IBL Master Control

On the Scene tab, select IBL Master Control.

STEP 2 - Select a type of Boost Light to turn it on

Navigate to Parameters tab > Light, and select 3DL Disk, 3DL Rectangle, Iray Disk, or Iray Rectangle from the drop down menu of one of the 6 color coded Boost Light properties to turn on the light (make it visible in the scene). The color code of each Boost Light property coincides with one of 6 colored targets on IBL Master Control: Red (front), Orange (right), Yellow (back), Green (left), Blue (top), Purple (bottom).

STEP 3 - Rotate the target to center it on a HDRI hotspot

Click the colored target on IBL Master Control to select it, then rotate it using the controls in scene or on either the Parameters or Posing tab, to center the target on an HDRI hotspot. Now the hotspot will be boosted by this additional mesh light geometry.

STEP 4 (optional) - Adjust properties of the light as desired

In the Scene tab: Select IBL Master Control and right click > Expand > Expand from Selected. Then find the light geometry that you made visible in step 2 (for example: LightBoost_3DL_Disk) and select it. Next, in the Surfaces tab, select the surface with the same name and adjust shader properties as needed. For instance, you could control the brightness of the light by adjusting Intensity.

Known Issue: With saved scenes, IBL Master Control Light Boost properties (Parameters tab) will no longer toggle visibility for any Boost Lights that are currently on. Remedy: In the Scene tab, expand IBL Master Control and click the eye icon on the left of the light geometry to hide it. This will refresh the property's control so that it toggles the visibility of the lights properly.

IBL Master Frequently Asked Questions (FAQ)

1. How do I control the brightness of the light in my scene including the HDRI background in Iray?

On the Render Settings tab there are three places that allow you to control the brightness of the environment light (IBL). These are Environment < Environment Intensity and Environment Map, and Tone Mapping > Exposure Value. Higher numbers for Environment Intensity and Environment Map will make the light brighter, while a higher number in Exposure Value will make the light darker.

It should be noted that currently there is no native way in Daz Studio's Iray implementation to control the brightness of the light and the background (Dome) separately. To remedy this, IBL Master provides Boost Lights.

2. How do I control the brightness of the light in my scene including the HDRI background in 3Delight?

With IBL Master, when 3Delight is the active renderer, the background (3DLEnvSphere) is a physical sphere geometry in the scene. This means that the light brightness may have a lesser effect on the background, depending on the angle of the light in relation to your viewpoint. It also means you can more easily control the brightness of the light on main scene elements and the brightness of the background separately.

So to control the brightness of the IBL light, first click the arrow to the left of IBL Master Control in the Scene tab to expand it, then select IBLMLight. Next, navigate to Light on the Parameters tab or simply use the Lights tab. You can then use the slider for Intensity, or Intensity Multiplier to control the brightness. Larger numbers will make the light brighter.

3. How do I control the brightness of the light and the brightness of the HDRI background separately?

In Iray, there is no native way in Daz Studio's Iray implementation to control the brightness of the light and the background (Dome) separately. You can however, mimic a hotspot on your HDRI with another light by matching its path and direction. Then you can adjust the intensity of this secondary light and it will not affect the background (Dome). IBL Master provides Boost Lights to simply this task. You can learn about Boost Lights here.

On the 3Delight side, in addition to Boost Lights (which normally point straight towards the center of the scene), you can control the brightness of the background (3DLEnvSphere) in the Surface tab by adjusting Diffuse Strength and/or Ambient Strength. With 3Delight, I actually recommend controlling the background brightness this way, because a Boost Light will cast light on the sphere, whereas with Boost Lights in Iray, the Dome background is unaffected.

4. Why does the brightness of the render change when I switch render engines?

A vast variety of High Dynamic Range Images (HDRIs), both free and for sale are now available to the public, which is great! But the amount of range between light and dark can vary greatly with each HDRI, and each render engine may interpret that range differently. So this is a setting that cannot currently be synchronized. Instead, you can adjust the intensity of the light in each renderer until you are satisfied with the results.

5. How do I control properties (such as Intensity) of a Boost Light?

Assuming you have already turned on a Boost Light, by selecting IBL Master Control in the Scene tab, then choosing a light type from one of the six color coded dropdown menus under Parameters tab > Light ...

In the Scene tab: Select IBL Master Control and right click > Expand > Expand from Selected. Then find the light geometry that you made visible and select it. It will have the same name/type and number (for example: LightBoost_3DL_Disk (2)). Next, in the Surfaces tab, select the surface with the same name and adjust shader properties as needed. For instance, you could control the brightness of the light by adjusting Intensity.

6. Shadows in my render are clipped. How do I fix this?

Maximum Trace Distance in the IBLMLight shader settings controls the distance within which shadows will be raytraced. By default this value is 350 centimeters (about 11 and a half feet), but you can easily set this number higher. To do so, click the arrow to the left of IBL Master Control to expand it and select IBLMLight. With the light selected, navigate to Parameters tab > Light, or Lights tab > Light, and adjust Maximum Trace Distance.

Also, if your scene is particularly large and you are using the IBLMGroundPlane to catch shadows, you may need to scale the plane so that it reaches far enough to catch all the shadows. Again, with IBL Master Control expanded in the Scene tab, select IBLMGroundPlane, then scale the plane using the Scale slider in Parameters tab > IBLMGroundPlane > General > Transforms > Scale.

7. Can I make the Shadow edges of the environment light (IBL) softer?

No, sorry. Any time you are using image based light, whether in Iray or 3delight, the softness (blurriness) of the shadow edges depends on the type of light in the HDRI. For instance, sun behind clouds will make soft shadows, while bright sun in a clear sky will make sharp shadows, just like in real life. If you want the shadow edges to be softer when the sun is crisp and clear in the sky of your HDRI, you can also blur the sun in an image editor that handles HDRs.

Note: You can make the shadow weaker/lighter by adjusting Shadow Strength or Shading Strength. To do so, make sure IBLMLight is selected in the Scene tab (expand IBL Master Control to find the light), then see Light tab > Light for these light settings.

8. What is Gamma Correction (or Linear Workflow) and why should I use it?

For 3Delight users, I recommend turning on Gamma Correction (GC) and specifying the correct setting of 2.2. It's what Iray does by default and it's industry standard. It's also what digital cameras do when you load JPEGs on to your PC so that photos look as they should, rather than deeply contrasted.

But many people get confused about what GC does and does not do. So put simply, when GC is properly set, you should notice more color in shadows, less unintended weird color (color that isn't present in the light or the surface color channels - off color specular halos, for instance), and less specular burnout (parts of the image that have just bleached out to white). **You can still get saturated color and dark shadows with Gamma Correction on.** Often though, you need to reduce the amount of light further from 3DL preset settings, because typically they were designed for GC Off and because now GC is doing it's job of handling the light better.

So with surfaces like skin, for instance, it's important to recognize what all adds light. Lights add light, obviously, but so do Diffuse Strength, Specular Strength, SSS Strength and Velvet Strength (typical settings for 3DL materials found on the Surfaces tab when a figure or other item is selected in the scene). So you should reduce the intensity of lights, consider reducing Specular Strength, SSS strength, and consider turning off Velvet all together.

For more information on Gamma Correction, take a look at my post on Gamma Correction here:

chrisparrishdesign.com/daz-studio/realism-daz-studio-3delight-and-gamma-correction-demystified/

9. Why doesn't the light direction change, when I rotate IBL Master Control?

You may also see this error in the log: *P1096: unknown coordinate system '3DLSpace' passed to 'trace()', using 'world' instead ...* If this is occurring, you are probably using a version of DS earlier than the supported version. **The Minimum supported version of Daz Studio is 4.10.0.113.**

Note: you can find the log file for Daz Studio, by navigating in the main menu to Help > Troubleshooting > View Log File.

10. Some HDRIs don't work in 3Delight. How can I get them to work?

Some imaging software used by HDRI authors, such as ImageMagick (used by HDRI Haven) output incorrect headers which 3Delight cannot read properly. To verify this as the cause, you may see the following error in the log: *tdlmake: cannot open input file ...*

Opening the HDR file in Photoshop or [Picturenaut](#) and then saving the file out again will write the correct headers. So the new HDRI you saved should work just fine!.

11. Do I need to use material presets that were designed for 3Delight when rendering in 3DL?

Whenever you render in 3delight, this is always recommended. In Iray, the Daz Uber Iray shader can do a decent job of interpreting some standard shaders. But in 3delight current shaders are not able to interpret Iray shaders. So results may be poor if you use Iray shaders in 3delight.

12. Does the IBLM Light for 3Delight create more burden on the system?

If you don't have a high end (high cuda core) nVidia card setup, and have been using IBL (Iray Environment) to light your scenes, then you should find that rendering with the IBLM Light in 3Delight instead will render much faster. it is therefore less taxing on your system.

If you were doing 3DL renders using Uber Environment as an IBL before, and you were using surfaces with transparency maps, then IBL Master should also be much faster and less taxing on the system, because there are less calculations (significantly less extraneous rays are generated).

However, using Image Based Light in general (for either render engine) does require more resources than regular lights, and can take longer as a result.

13. Can I use any HDRI when rendering with IBL Master?

Any equirectangular HDRI will work. However there are some additional details to keep in mind.

Daz Studio Presets: HDRI Presets that were designed to work with the Iray Environment will work for either renderer with IBL Master. However, with some HDRI presets you may find that IBL Master is no longer synchronized with your Iray render. This is because some HDRI products apply changes to Iray Render Settings > Environment that IBL Master's controls are not hooked up to (specifically Dome Origin X, Y, Z, Ground Texture Scale, and Dome Rotation). So you need to reset these values to defaults, if you want to maintain synchronization (See This FAQ for more details).

Also, 3Delight HDRI Presets that were designed for Uber Environment or ones designed for a specific dome product (like sky domes) will not load automatically. Instead you can use the Browse method to find the image in your library (My Library > Runtime > Textures > ...) and load the image in Iray Render Settings or onto IBL Master Control (See the FAQ accordion tab below for more details).

HDRIs as Backgrounds: Not all HDRIs create good backgrounds, though they may still do a nice job of lighting your scene. If clear detail in the background is important to you, a 4K (4K wide by 2K high) or larger is recommended. **Be warned though: 8K or larger HDRIs take up a lot of memory and may slow things down in Daz Studio as a result.** Make sure your system can handle it and save your scene before you load a large HDRI. Using the HDRI as a background is optional, and smaller HDRIs will often work just fine for lighting. You also probably don't need a big HDRI for the background if you plan on using depth of field.

Turning Image Sync Off (3Delight only): Additionally, on the 3Delight side, you can disable image syncing, so you can use a different equirectangular image (HDRI, TIF, JPEG, etc.) for the background than for the IBL. You just have to change the image on the background sphere last. To disable image syncing, select IBL Master Control in the Scene tab, then on the Parameters tab, navigate to IBL Master Control > Light and turn off Image Sync. Next (assuming you have already loaded the HDRI you want to use for the light), click the arrow left of IBL Master Control in the Scene tab to expand it, and select 3DLEnvSphere. Then on the Surfaces tab, click the image icon for Diffuse Color and Choose Browse ... to find the equirectangular image you want to use for the background. You should also repeat this step for Ambient Color.

14. How do I use the Browse method to load an HDRI?

You can use the Browse method to load an HDRI either in Iray Render Settings or on IBL Master Control.

In Iray, on the Render Settings tab, navigate to Environment > Environment Map and click on the image icon to select Browse Then use the dialog to navigate to wherever your HDRI exists on your hard drive.

In either 3Delight or Iray, you can also choose the HDRI you want to use by browsing. With IBL Master Control selected in the Scene tab, on the Surfaces tab, select CtrlSphere under IBL Master Control. Then click the image icon for Base color, select Browse ... and use the dialog that comes up to navigate to wherever your HDRI exists on your hard drive. (If you are rendering with 3Delight, don't be concerned that the shader for CtrlSphere is Iray Uber. It doesn't matter here because IBL Master Control is not seen by either renderer).

For Daz HDRI products the typical location of HDRIs (from your Daz Studio content directory) will be My Library (or other library name) > Runtime > Textures > {Published Artist Name} > {Product Name} > {HDRI File Name.hdr}. If the images are older ones designed for 3delight, they may be in TIFF format. If so, I recommend saving them as HDR files using Photoshop or [Picturenaut](#).

15. Why doesn't the background in the viewport or 3Delight render match the view in my Iray render?

Yes, IBL Master is designed to synchronize the HDRI image, the lighting direction and the background scale and position. It does these things very precisely. However, there are some changes that you or a HDRI preset may make in Iray Render Settings > Environment that IBL Master isn't hooked up to. So for these instances, there is no way for things to stay synced.

Basically, if things are not synced with transforms (rotation, translation, or scale), you should reset the transform properties in Render Settings > Environment that IBL Master does not control.

Specifically, when IBL Master loads, it sets Dome Mode to Finite Sphere (so the scale can match) and Ground Position Mode to Manual (so that IBL Master can translate the Dome and Ground plane).

These are the transforms that IBL Master controls (Iray on the left, IBL Master and 3DL on the right):

- Dome Scale Multiplier < > Sphere Scale Multiplier (3DLEnvSphere)
- Dome Radius < > Sphere Radius (3DLEnvSphere)
- Dome Orientation X , Y, Z < > X, Y, Z Rotate (IBL Master Control)
- Ground Origin X, Y, Z < > IBLM Master Control X, Y, Z Translate

These are the transforms that IBL Master cannot control (you should reset these if you or a preset changes them, but you still want synchronization):

- Dome Origin X, Y, Z
- Dome Rotation
- Ground Texture Scale

Note: IBL Master is not hooked up to these transforms for good reason:

1). *Dome Origin does not translate the dome in a way that users expect. This is a known problem with Iray which is controlled by nVidia, so only they can change how it works. Until they do, there is no logical reason to hook up to this. Instead, Ground Origin provides the proper translation of the Iray Dome and IBL Master.*

2). *Dome Rotation does the same as Dome Orientation Y, except that it rotates in the opposite direction. Hooking this up would cause a conflict with Dome Orientation Y.*

3). *Currently there is no known way to duplicate the effects of Ground Texture Scale on the IBL Master background sphere in the viewport or 3Delight.*