Lumina Kit

Lumina Kit is a collection of UberSurface2 shader presets you can use with DAZ Studio and 3delight, along with light presets for a variety of different lighting scenarios. To quickly setup materials, there's also some useful scripts for copying/modifying textures and colors.

The shader presets and accompanying scripts should be installed in your DAZ3D Library folder, under 'Shader Presets'. There are several presets available, organized into different sub folders. Light presets will be under 'Light Presets' of your content library.

General Notes

No textures are included in these shader presets. This is intentional so you'll have the freedom of using premade maps.

These presets were made with gamma correction enabled and gamma set to 2.2.

For quick setup, use the presets with the light sets included.

These are made with a total reflectivity of no more than an RGB value of 160,160,160 for the diffuse (roughly 40%). Pure black with textures should be no less than an RGB value of 32,32,32 for most materials.

Maps such as opacity, bump, displacement, specular (in the 1st specular strength slot) will be retained when you apply the shader presets, even if you apply the preset without bringing up the option to retain maps.

Bump and displacement settings (mininum and maximum values) are not retained, especially if converting from DAZ Studio Default Surface or Age of Armour Subsurface to UberSurface2. Converting from other omnifreaker shaders (HumanSurface or UberSurface) works correctly. You still need to manually copy settings from the 1st layer to the 2nd one. By default, the 2nd layer bump and displacement will be set to 100%.

Displacement is not raytraced by default. If you want to have raytraced displacements, you need to enable 'Trace Displacements' manually.

Along with shader presets for base materials, you will also find modifier shader presets. Modifier shader presets changes parts of the settings (ie fresnel/specular/reflection), enable or disable a feature (opacity and relevant settings), or color (opacity and translucency colors).

All light sets have been saved as scene subsets files. As such, you should only use one per scene (for example, use only one UE2 and one distant light). You can add more fake bounce lights by loading up the extra bounce lights.

Overview

---Light Sets

The UE2 light do not use any HDR/IBL images. If you want to use a HDRI with UE2, you will need to load the HDR map manually and adjust the settings.

There are two basic light sets, with varying ambient lighting intensities. This is mostly done because there are no exposure controls in the camera with DAZ Studio and 3delight.

If you want stronger, sharper shadows, change the 'Shadow Softness' of the distant light. The four point lights are used as 'fake' bounce lights, so their shadows should be kept soft.

You can manipulate the light set to meet your needs and scene very easily. Change the rotation of the distant light to mimic incoming sunlight. You can also rotate, move and scale the 'BounceLights' dummy node to change the position of all four linear point light simultaneously.

If you do not want light coming from a certain direction, you can either turn off the light completely, reduce the intensity or lower the 'Falloff Start' or 'Falloff End' values.

To change color tones, apply the 'Temp Warm' or 'Temp Cool' preset to the lights. They can be applied to a single light, or multiple lights at the same time. Using this preset on UE2 will overwrite any HDR maps. If you want to retain the map, CTRL+ 2x Left Click to bring up the option to retain maps.

For an indoor environment (a room with a window), the distant light will generally be obstructed. You can raise the strength so it will cast shadows into the room. If you don't want to use the distant light (a closed room without a window), just disable it. You can then raise the strength of one of the linear point light (or all of them) up to the maximum value.

---Fabric - Holds shader presets mimicking fabric/clothing.

You'll find these presets in 'My DAZ3D LibraryShader PresetsLumina MATsFabric'

In this folder, you'll find three basic shader presets. Also included are 'Fabric Semi Transparent Less' and 'Fabric Semi Transparent More' modifier presets that enables opacity and achieves the semi transparent look by lowering the opacity color slightly.

---Glass - Holds shader presets for mimicking glass and glass like surfaces.

You'll find these presets in 'My DAZ3D LibraryShader PresetsLumina MATsGlass'

In this folder, you'll find four shader presets for glass. There are several modifier presets to change the surface index of refraction (IOR) or turning refraction on/off.

These presets overwrite any values and remove any maps in the 'Opacity Strength' slot.

'Glass 1' and 'Glass 2' should be used for more complex objects, while 'Glass 3' and 'Glass 4' are better suited for simple solid ones.

With these presets, objects may appear as if not casting shadows. To avoid this, use a geometry shell of the object to cast the shadows and set the original object to not cast shadows. Use the included 'Glass Geo Shell' preset on the object's geometry shell. Make sure the geometry shell's offset is set to 0 (zero).

---Metal and Metal Outer - Holds shader presets for mimicking various metal surfaces.

You'll find these presets in 'My DAZ3D LibraryShader PresetsLumina MATsMetal' and 'My DAZ3D LibraryShader PresetsLumina MATsMetal Outer'

In this folder, you'll find various shader presets for metal. For painted metal surfaces, use any of the 'Painted Metal' presets. These presets retain diffuse maps, while the others overwrites them.

If you want to have a mix of reflective and dull metal, or even different metals on the same surface, you can mix the base metal presets with the various 'Metal Outer' presets. These presets modifies the base metal second layer settings. Three fresnel strength modifier presets are included to adjust the strength of the outer layer at direct viewing angles.

---Others - Holds shader presets for mimicking various other surfaces.

You'll find these presets in 'My DAZ3D LibraryShader PresetsLumina MATsOthers'

In this folder, you'll find presets for a variety of surfaces, each with some variations (rough, dull or glossy/reflective). These include: ceramic, dirt, latex, leather, leaves (with translucency), plastic, rubber, stone (or concrete), water, and wood.

All these presets retain diffuse maps.

---Utility

You'll find these presets and scripts in 'My DAZ3D LibraryShader PresetsLumina MATsUtility'

In this folder, you'll find various modifier presets to change different aspects of a surface, such as turning on/off opacity and translucency, various opacity and translucency strength settings, changing opacity and translucency colors, and switching between raytraced and environment mapped reflections, changing reflection blur samples.

In addition, there's also several scripts to manage textures and colors. These are essential when converting or applying the shader presets.

General Workflow Notes

1. To apply these presets, you need to select the actual surface you want to convert. The quickest way would be to use the 'Surface Selection' tool. After selecting all the surface you want to convert, simply double click on the preset you want to apply.

As noted, outside of some 'Metal' and 'Metal Outer' presets, the presets will retain diffuse, opacity, bump, displacement, and specular maps in the 1st specular strength slot.

2. Since some of the presets use the 2nd diffuse channel rather extensively, you will need to run the 'Transfer Textures' script after applying any preset. The script will copy diffuse, bump, displacement textures from the 1st channel to the 2nd one. For compatibility, use the script on surfaces of one object sharing the same texture.

There might be occasions when the script fails to copy the textures. Usually this happens when you try to run the script on multiple objects. Try reapplying the preset used and select a different object. After that, reselect the object and surface and reran the script.

If that still fails, just copy them manually.

3. After copying textures (either via the script or manually), run the 'Transfer Colors' script to copy colors from the 1st diffuse to the 2nd diffuse and 'Translucency' color slot. The script automatically clamps diffuse color to an RGB value of no more than 160,160,160 and no less than 32,32,32. For example a saturated green color (0,255,64) will be converted to (32,160,40).

As with the 'Transfer Textures' script, run the script on surfaces sharing the same color per object.

4. If you find the diffuse color too dark on renders, you can try raising the colors to compensate. You can either do that manually (by bringing up the color picker and raising the color 'Value' (not the individual RGB values) or use the 'Color Light Alternate' script. The script will raise the color to a max value of 210,210,210 from a clamped value. For example, a clamped value of 32,160,40 will be raised to 42,210,50.

5. The 'Color Dark' script simply tones down the 1st and 2nd diffuse to a clamped black (32,32,32), while retaining diffuse maps.

6. If you change bump or displacements maps after applying the preset, you can run the 'Transfer Bump Displacement' script to copy the new maps from the 1st channel to their respective 2nd channel slots. The script will only work if you have a texture inside the bump map slot.

7. If a surface you want to convert have a specular map inserted in the 'Specular Color' slot instead of the 'Specular Strength' slot, they will not be retained when converting. You can copy or move the map manually. To save time, you can also use the 'Transfer Specular' script to do it. Please note that this only copies the textures for the 1st specular channel.

8. By default, the shader presets do not enable opacity and various opacity related switches (multiply by opacity for specular and reflection). If you want to enable opacity, simply apply the 'Opacity On' preset.

However, presets with the 2nd diffuse channel enabled will look wrong because the 2nd diffuse will still be applied to parts that should be transparent. To correct this, you need to copy the opacity map to the 2nd diffuse strength slot, either manually or by running the 'Transfer Opacity' script.

9. Opacity modifier presets ('Opacity Strength' preset) overwrites any maps used in the 'Opacity Strength' slot. Remember to CTRL+ 2x Left Click on them when applying these presets to bring up the option to retain maps.

10. 'Reflection Raytraced' and 'Reflection Mapped' switches between raytraced reflections and environment mapped reflections. 'Reflection Mapped' will automatically load the 'OMKHPark' environment map for both reflection channels. If you want to use a different map, you will need to change them manually.

11. If you want to use a texture on a glass surface, use the 'Glass 3 Colored' or 'Glass 4 Colored' preset. These will retain diffuse maps, along with bump, normal and displacement maps. Like non metal materials, you will need to run the 'Transfer Textures' and 'Transfer Color' script to copy the diffuse

maps and colors to the translucency color slots. You will also need to run the 'Transfer Diffuse to Opacity Color' script. As the name implies, this will copy the diffuse map to the opacity color slot, so you'll have the refraction color based on the diffuse texture.

12. When applying the 'Metal Outer' presets, it's best to start with the dull variant first, especially when these presets are used with non metals. For some materials, like fabric, it's best to use a specular map to control the 2nd specular and reflection strength. However, since the presets override those two settings, you will need to CTRL+ 2x Left Click on them to bring up the option to retain maps. Adjust the specular and reflection strength as needed. If you use the same map on both, you can just multiply the applied values. For example, if reflection strength needed to be changed from 20% to 100%, just multiply the specular strength by 5.

Troubleshooting

1. Renders looks too dark or too bright.

Please check the renderer options to see if gamma correction is enabled and gamma set to 2.2. If the render still looks too bright, check to see if there are extra lights in the scene.

2. Some surfaces looks like there's a white overlay on top.

This is generally because the 2nd diffuse is enabled without any maps. Run the 'Transfer Textures' to copy diffuse maps from the 1st channel to the 2nd channel. If the script fails to copy the texture, you'll have to do it manually.

For leaves and grass with opacity maps, remember that you will also need to transfer the opacity maps to the 2nd diffuse strength slot.

3. Metal and glass presets don't look like they reflect anything.

The object/surface needs something to reflect (and refract). You can either apply the 'Reflection Mapped' to use environment mapped reflections, or put the object in a full scene.

Alternatively, you can toggle the 'Visible in Render' parameters of the UE2 environment ball in the Parameters tab. Insert a HDR/IBL/environment map (you can use the JPG version of the map) in the 'Diffuse Color' and 'Ambient Color' slots of the environment ball surface (via the Surfaces tab). Make sure 'Ambient Active', 'Raytrace' is set to 'On'. Leave 'Diffuse Active' to 'Off'. 'Ambient Strength' generally needs to be 210%. If you prefer to make the actual ball not visible to the camera, but still show up in reflections, make sure 'Fantom' is set to 'On'.

4. There are some dark spots on glass surfaces.

One cause of this is too low maximum ray trace depth. If you're rendering a lot of glass objects, ray trace depth should be set to at least 4 or higher. For example, in a test scene with a glass that's filled with water, you probably need to raise ray trace depth to 12.

5. Glass looks odd, like a one way mirror.

This generally happens when the glass object or surfaces don't have depth (for example windows built as a single plane instead of a flattened cube). Unfortunately, you will have to make changes to the geometry so it has depth.

6. Rendering fabric with opacity maps takes a long time.

This is typical of rendering opacity maps with occlusion. To speed up occlusion on selective surfaces, look at the very bottom of the shader parameters in the Surfaces tab. You should see 'Occlusion Shading Rate Mode' and 'Occlusion Shading Rate'. Set Occlusion Shading Rate Mode to 'Override' and Occlusion Shading Rate to 128. The leaves/grass preset have these values set by default.

An additional trick is to use progressive rendering. With progressive rendering enabled, 3delight uses a modern path tracer that can render denser opacity mapped geometry much, much faster than the default method (Renders Everything Your Ever Saw - REYES). A very nice side effect of using the path tracer is that you don't need to fiddle with shading rate in the renderer option to get fine details. Results with progressive rendering is comparable to using a shading rate of 0.25.

7. Rendering with raytraced reflections takes a long time.

You can either switch to environment mapped reflections or limit the ray trace depth of reflective surfaces. Go the Surfaces tab and look for the option 'Reflection Max Trace Depth' and make sure its set to 1. Setting it to 2 means trace depth will be as high (or as low) as the value in the renderer options. By default, glass and metal presets have the value set to 2. Other presets is set to the default value of 1.

8. Some surfaces have white/black spots or noise when rendered.

Noisy dark spots generally means oclussion samples are set too low. Simply raise UE2's occlusion samples. As for white spots, they are usually caused by not enough reflection samples. You will need to raise UberSurface2 reflection blur sample value (manually or with the modifier preset in the Utility folder).. Both can be altered on the fly when you use IPR.

9. Fabric have white spots or noise when rendered.

This sometimes happens with translucency. Simply turn off translucency for the affected surface.