

IG Iray Dawn to Dusk User Guide

Introduction

The idea behind IG Iray Dawn to Dusk is to help you get the most out of the built in Iray Sun-Sky environment. If your unfamiliar with it, the Sun-Sky Mode is a procedurally generated environment light that gives you a simple, but accurate, global sun and sky lighting model. While simple it is also very powerful, creating different lighting environments based on the height of the sun, automatically giving you a difference between sunrise and noon day sun. At its heart IG Iray Dawn to Dusk has been designed to be both as simple, as much a 'one-click' solution as possible while also giving you the flexibility to be able to make individual adjustments to suit the needs of your individual scene.

A Quick Walkthrough

The easiest way to get into learning and using IG Iray Dawn to Dusk is to set up a simple scene, set the view point to NVIDIA Iray and then start cycling through some of the 53 Dawn to Dusk presets while checking out the changing results in your view point. In its simplest form, that's all you need to do. Once you get used to things you can start playing around with rotating the sun around in your scene (see Using the Sun-Sky Direction Tool section below). When you load a full preset for the 1st time it loads a Sun-Sky Direction Tool into your scene for you. To switch to a different preset, you need to make sure you have the tool selected in the scene tab while applying a preset.

Note: The full Dawn to Dusk presets are designed to do pretty much everything for you. If you're OK with that, and don't feel the need to know more, you can safely close this guide and get down to making beautiful renders.

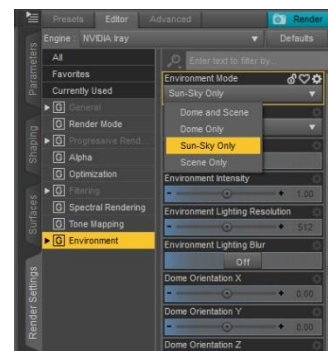
Sun-Sky Basics

The following is a short description of the basics to using the Sun-Sky Mode and what the full IG Iray Dawn to Dusk presets are doing and how you can adjust them manually.

Turning on the Sun-Sky Mode

Checking to see if Sun-Sky Mode is turned on, and turning it on if it isn't, has been built in the Dawn to Dusk presets, but you can also do it manually. To do that, open the Render Settings Tab and set the Environment Mode to Sun-Sky Only.

Note: When it says Sun-Sky Only it is sort of a misnomer. What it means is that standard Daz Studio lights (Spotlights, Point Lights) won't work in Sun-Sky Mode. Emissive lights will work in Sun-Sky Mode



Setting the direction of the Sun

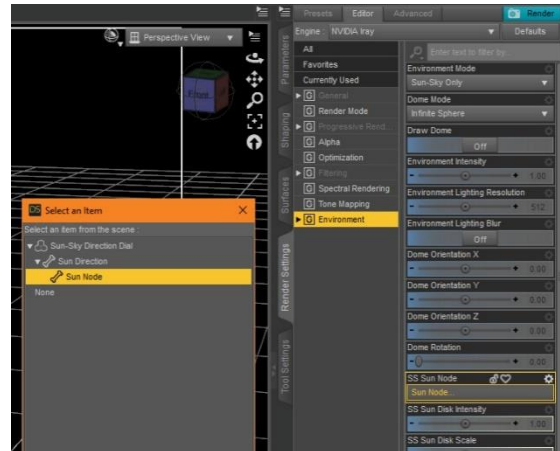
There are several different ways you can set the position of the sun in the Sun-Sky Mode. IG Iray Dawn to Dusk has its own tools for positioning the sun and these have been built into the full presets, but you can use any method you feel the most comfortable using while still getting the most out of IG Iray Dawn

to Dusk. The simplest, most basic way is to enter your Longitude, Latitude, Date and Time in the spaces provide in the Environment section. There are also other products available that can help you to set the Sun in a specific place and time. A third way is to set an object (camera, light, null etc.) as a Sun Node and then Iray calculates the position of the sun by drawing a line from the zero point of the scene, through the center of your Sun Node and off into infinity where Iray places the sun in your render.

Using the Sun-Sky Direction Tool

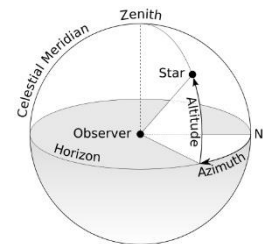
All of the above methods work perfectly well but none of them are very good at visually showing you where the sun light is going to be coming from. The Sun-Sky Direction Tool is an attempt to be both a precision positioning tool and an easy to see visual guide to where the light in your scene will be coming from.

By default, each the full presets will load a Sun-Sky Direction Tool into your scene for you (if you don't already have one) but you can also manually load one up if you want to. Once you have it manually loaded into your scene, you need to manually tell Daz Studio to use as a Sun Node. To do that open the SS Sun Node pull down box and navigate to the Sun-Sky Direction Tool and open it till you get to the bone labeled 'Sun Node'. Iray will now position the Sun based on the direction of the Sun Direction Tool.



Now that you have Daz Studio set to use the tool, you can position the sun how you want it. To use it, open the figure in the scene tab and select the Sun Direction bone. On the Parameters Tab there are sliders to set the Azimuth and Elevation.

The Sun-Sky Direction Tool is set up to use a Horizontal coordinate system. Elevation (Altitude) is the amount above the horizon (with 0° being on the horizon and 90° being directly overhead). Azimuth is the clockwise direction starting behind your scene (backstage, north).



If you want to set the Sun-Sky Direction Tool to a specific time/location you can use the calculator found here:

<https://www.esrl.noaa.gov/gmd/grad/solcalc/#>

If you need to find a specific location in Longitude or Latitude you can use the tool found here:

<https://www.findlatitudeandlongitude.com/find-latitude-and-longitude-from-address/#.WclJddFryHu>

Note: There are control sliders in the Environment tab that let you rotate the environment dome. When using the Sun-Sky Direction tool (or any other type of sun node) these sliders will have no effect or the direction of the light in your scene.

Using the DIY Sun-Sky Presets

The DIY Presets are designed for people who don't want to use Sun Direction Tool to set the position of the sun in the sky. These presets will automatically set up the Sun-Sky environment and set up any needed tone mapping settings for you but you will need to have some idea of the Elevation of your sun to get the most from these presets.

Advanced Presets

The full Dawn to Dusk presets are designed to do pretty much everything for you.

While the full presets are designed to be as close to one click solutions as I can get them, the advanced presets are very different. To get good results from Dawn to Dusk require a delicate balancing act between several types of settings (sun height, environment, exposure, white point etc.). The full presets do pretty much all that for you, but if you want a little more freedom to experiment, you can try these advanced presets. Instead of one preset doing several different things, each advanced preset only adjusts one setting or group of settings at a time. That can give you a lot more freedom but ultimately not all of the presets are designed to work well with each other, and you can very easily end up with some very bad results.

Render settings

By itself, the Sun-Sky Mode tries to simulate a typical day. As the sun gets closer to the horizon the color of the sunlight changes, as it does in the real world. These render settings are intended to help boost the Sun-Sky simulation to better emulate the differences between daylight at different times of the day. They are setup assuming you know the Elevation of the Sun. For most of the day, there isn't very much to change from the default settings. Most of these presets are designed to help you in special situations like Sunrise/Sunset or Twilight or when trying to simulate a night scene. The Render presets are broken down into 2 types: those that effect the settings on the environment, and those that effect the tone mapping.

Environment Settings

These render settings change things like the amount of haze in the air, the Blue-Red Tint and the Color Saturation. The exception is when trying to simulate the changes in the air in the afternoon/sunset. There really isn't very much difference in the environment as long as the sun is above the horizon. Most of these presets are to deal with what happens when the sun is below the horizon (Twilight or Night).

Tone Map Settings

These settings will either adjust the scene's Exposure Value (EV) or White Point. All of these settings are pretty subjective and scene dependent. Using them is optional and don't feel locked into using any of them.

Exposure Values Presets

As the sun gets closer to the horizon (and even more after it goes below the horizon) the amount of light cast by the sun lowers. These presets help compensate for the loss in sunlight while still giving you a difference between a sunset scene and a noon scene. Use this as a guideline and adjust as your scene requires (especially if you are using additional sources of light in your scene)

White Point Presets

As the sun gets closer to the horizon the color of the light shifts more towards the red (technically this is caused by Rayleigh Scattering but that is more info than this guide really needs). These White Point presets compensate for the change in color giving you a color-cast less light if that is the result you want

Daylight Settings

There aren't many of these. They mostly deal with the changes to the atmosphere in the afternoon/evening as the sun warms the air, increasing the haze in the atmosphere, giving a slightly different feel to sunrise vs sunset.

Twilight Settings

While the Sun-Sky simulation generally works pretty well, it is when the sun drops below the horizon that it really starts to fail. By itself the light continues to get redder and redder, but that isn't how it works in the real world. Instead the light actually gets more blue as it fades (as the shorter red rays are blocked by the planet itself).

Night Settings

These settings are really beyond what the simple Sun-Sky was designed for, but it is actually possible to get a decent looking night scene using the sun as your moon. These presets really require adjusting everything to get the right feel, and are the only presets that have a white point built into the nighttime environment presets. I have included presets to simulate the different amounts of light cast by the different phases of the moon but I have no way to visually give you the phases of the moon on the environment sphere.

Note: if you try out the night scenes and then switch back to a daylight scene you are going to have to reset the white point because the daylight presets have no white point data (as it is optional for when you need this changed) while this is included in the night presets.

Space Settings

This is probably even more subjective. Essentially it is night but without the colorcast and without the ground plane.

Note: Technically it isn't possible to get rid of the ground plane completely but you can't see it and it will have no effect upon your scene (unless you put the sun directly under your scene).

Star Dome and Star Sphere Props

These are simple emissive (light casting) props to help add a little realism to your night or space scenes. The default settings are at best suggestions as how the stars look in the sky are probably the most subjective aspect of this whole package.

Glossary

Twilight

Twilight is the time before the sun rises and after it sets, when the sun is lighting up the atmosphere, but not yet directly shining on the surface. Officially it is broken down into three periods:

Civil Twilight

From 0° to -6° , this is the period most people think of as twilight, when the sun is set but you can still see.

Nautical Twilight

From -6° to -12° , there is still some light from the sky but it is increasingly hard to see without help.

Astronomical Twilight

From -12° to -18° , honestly most everybody thinks of this as night as you would start to see the stars in the sky but there is still some light. Technically in Daz Studio at -18° (or less) there is no light from the environment while at -17.99° there is a tiny amount of light. The last preset I made was for -17.45° . Beyond that (till -17.99°) the light really drops off at such a significant rate that it made making a preset for

them not worthwhile. Technically everything in this range is straining the render engine and it can be hard to get a good clean render here.

The Golden Hour

The time just after sunrise or just before sunset. Not actually an hour, it is roughly when the sun is between 0° and 12° above the horizon. Highly prized by painters and photographers for the quality of the light. Generally, the morning light is preferred to the evening golden hour as the atmosphere has less effect on the lighting.

The Blue Hour

Also, not really an hour per say, it coincides with civil twilight and is the period before sunrise (or after sunset) when photography without artificial lighting is still possible. This time of day is highly prized by some photographers for its blue cast lighting.