# PHOTOREALISTIC LIGHTS (IES)

## A THOMAS MOUNTAINBORN ASSET

### 1. Applying IES lights

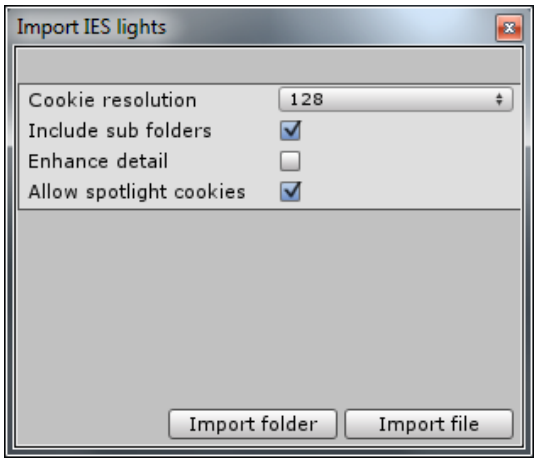
The IES data is imported as light cookies. The asset supports both point light and spotlight cookies. To apply a cookie, simply drag it into the "Cookie"slot of a light – 2D textures go onto spotlights, cubemaps onto point lights. You will find that a good number of samples came with the asset, so you can dig right in. Note that Unity as of yet does not support baked light cookies, so the light must be real time. If you require many real time lights, know that the deferred rending path is far more suited for this.

An IES cookie will greatly change the way your light looks. Some IES lights will have asymmetry around the polar axis – be sure to give your lights a spin around the Y axis if you suspect this is the case. The preview in the inspector will give you a rough idea of where the light will shine. Play around with all the light's settings to get the best result – distance to the wall, rotation, range, intensity and spot angle will all greatly impact the visuals.

You are likely to get the best results by disabling shadow casting on your lamp model. After all, the IES data is a direct measurement of how and where light comes out of a real lamp.

### 2. Importing IES lights

Many lamp manufacturers supply photometric measurements of their products for free on their site; normally these are used by architects in CAD packages, but video game developers have come to appreciate these just as much. This asset will import any .ies file you provide. You can also import entire folder hierarchies of .ies files if you downloaded a catalogue. Just go to **Assets > Import IES lights** in the Editor's menu bar to get started. All imports are saved in **IES/Imports**. Existing imports will be replaced.



### 2.1 Resolution

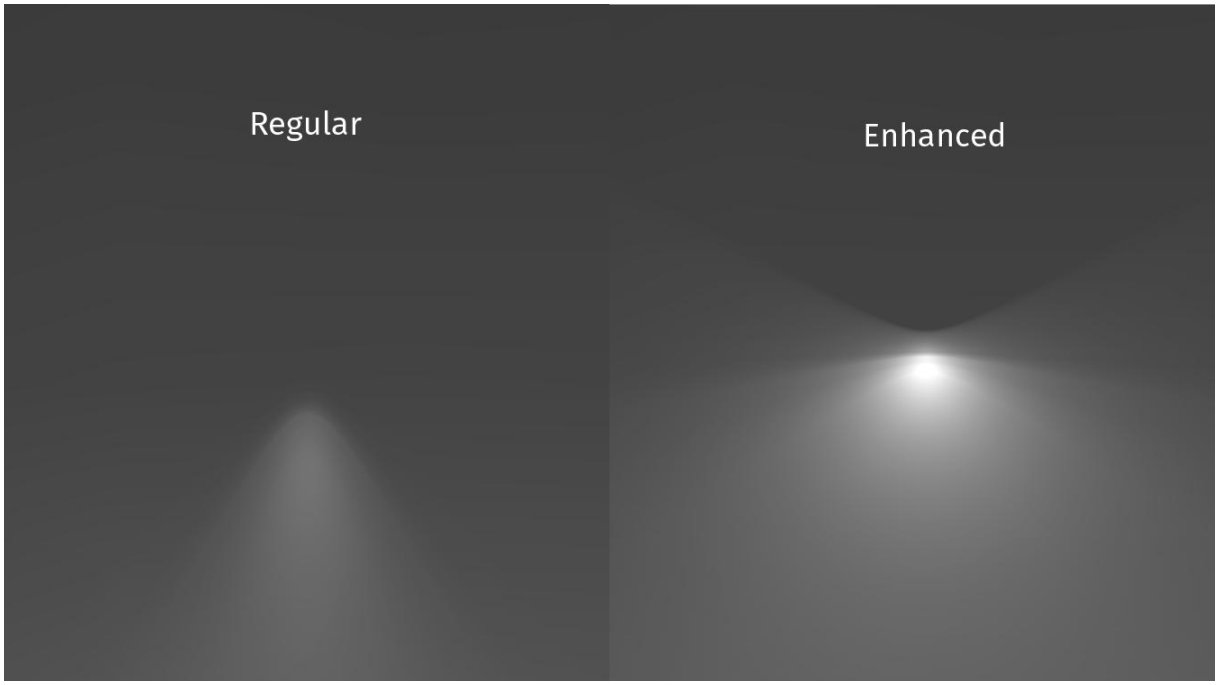
A cookie resolution of 64 will suffice for almost all IES lights, but 128 is defaulted to as a quality buffer – you can always drop down the resolution of a created cubemap in the inspector. Higher resolution options are available just in case a complex IES light looks a little blurry with 128 pixels.

### 2.2 Include sub folders

If you import a folder, all sub folders will also be imported if this is ticked. The folder hierarchy will be recreated inside IES/Imports. When importing several thousand .ies files, remember that each cookie requires storage space, scaling with the resolution you picked.

### 2.3 Enhance detail

This is a non-standard IES feature that will exaggerate the detail in the photometric measurements by reducing the impact of the brightest regions in the light. It can result in truly beautiful point light cookies – they won't match the actual lamp, but all is fair in love and video game development. To make it easy to tell them apart from regular imports, an [E] prefix is added to the cookie file name.



### 2.4 Allow spotlight cookies

When “Allow spotlight cookies” is enabled (it is by default), the asset will automatically try to create spotlight cookies whenever possible – i.e. when there is light only in one half of the .ies photometry. This allows you to use spotlights instead of point lights, saving greatly on rendering cost. Spotlight cookies are saved as “.asset” instead of as an image format, as this is necessary to set the correct import settings (clamp instead of repeat) right away.

Be aware that to create the cubemaps, a unit sphere is temporarily placed at the world origin on the **Ignore Raycast** layer. If you have any other objects on that layer at or very near the origin, disable them before importing IES files.

## 3. Getting more IES files

As mentioned, many lamp manufacturers will have a downloads section with .ies photometry files. For instance, Philips supplies them for (almost) every product, which are neatly divided into categories – useful if you are looking for a specific type. Just click through to a lamp, and head to its downloads section. You will find the .ies files in the **Photometry / BIM** section. Rovasi also offers neatly categorized .ies files – just click through to a product of your liking and you’ll find a treasure trove of photometry data.

Other manufacturers supply their entire .ies catalogue as a single .zip, like OMS or Cooper. This is just the tip of the IES iceberg. Happy photometry hunting!