Lightmapping Quickstart

This an introductory description of lightmapping in Unity. For more advanced topics see in-depth description of lightmapping in Unity
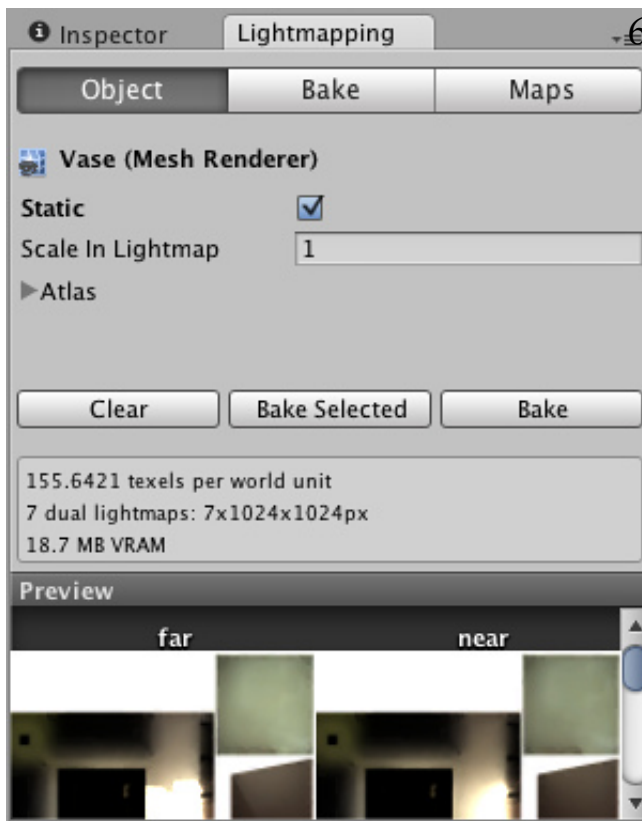
Unity has a built-in lightmapper: it's **Beast** by Illuminate Labs. Lightmapping is fully integrated in Unity. This means that Beast will bake lightmaps for your scene based on how your scene is set up within Unity, taking into account meshes, materials, textures and lights. It also means that lightmapping is now an integral part of the rendering engine - once your lightmaps are created you don't need to do anything else, they will be automatically picked up by the objects.
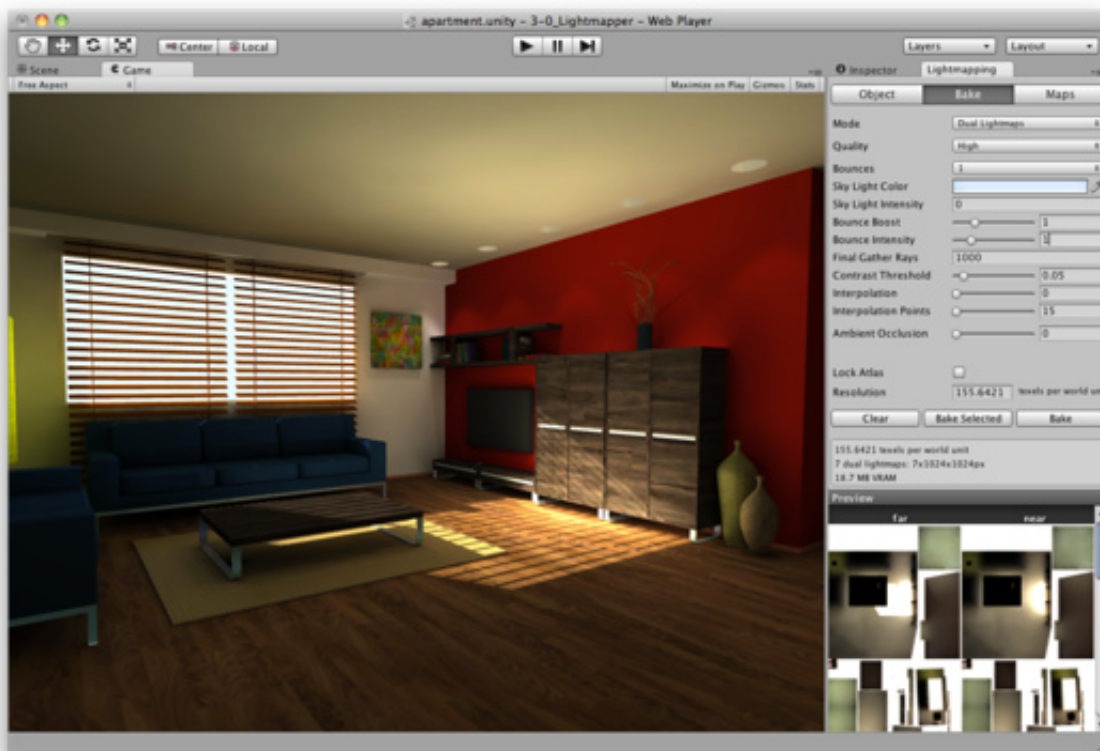
Preparing the scene and baking the lightmaps

Selecting **Window – Lightmapping** from the menu will open the Lightmapping window:

1. Make sure any mesh you want to be lightmapped has proper UVs for lightmapping. The easiest way is to choose the **Generate Lightmap UVs** option in mesh import settings.
2. In the **Object** pane mark any Mesh Renderer, Skinned Mesh Renderer or Terrain as **static** – this will tell Unity, that those objects won't move nor change and they can be lightmapped.
3. To control the resolution of the lightmaps, go to the **Bake** pane and adjust the **Resolution** value. (To have a better understanding on how you spend your lightmap texels, look at the small **Lightmap Display** window within the **Scene View** and select **Show Resolution**).
4. Press **Bake**
5. A progress bar appears in Unity Editor's status bar, in the bottom right corner.

Inspector | Lightmapping

| Object | Bake | Maps |

Vase (Mesh Renderer)
Static ☑
Scale In Lightmap 1
▶ Atlas

| Clear | Bake Selected | Bake |

155.6421 texels per world unit
7 dual lightmaps: 7x1024x1024px
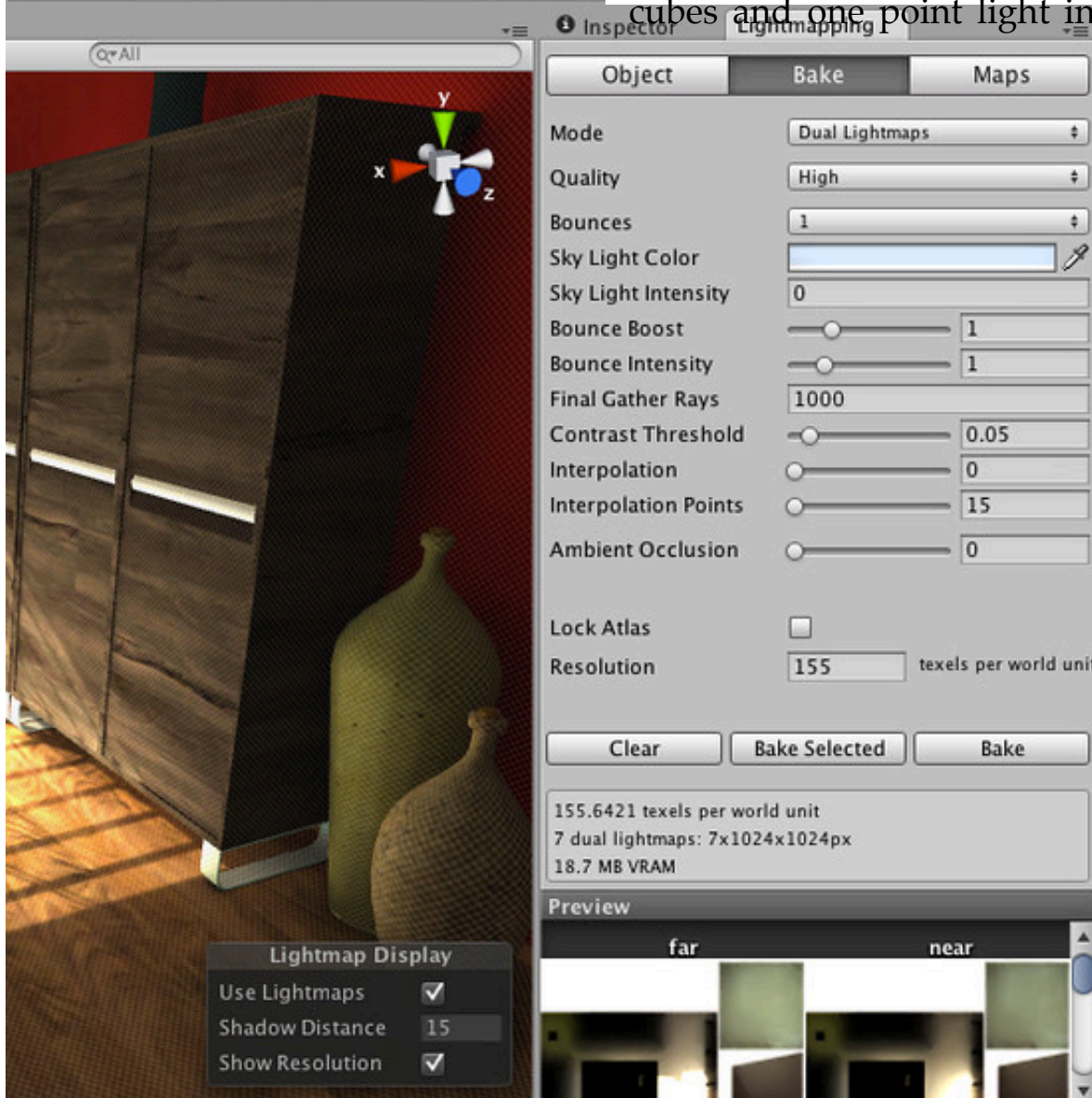18.7 MB VRAM

Preview
far   near

6. When baking is done, you can see all the baked lightmaps at the bottom of the Lightmap Editor window.

Scene and game views will update - your scene is now lightmapped!

Tweaking Bake Settings

Final look of your scene depends a lot on your lighting setup and bake settings. Let's take a look at an example of some basic settings that can improve lighting quality.
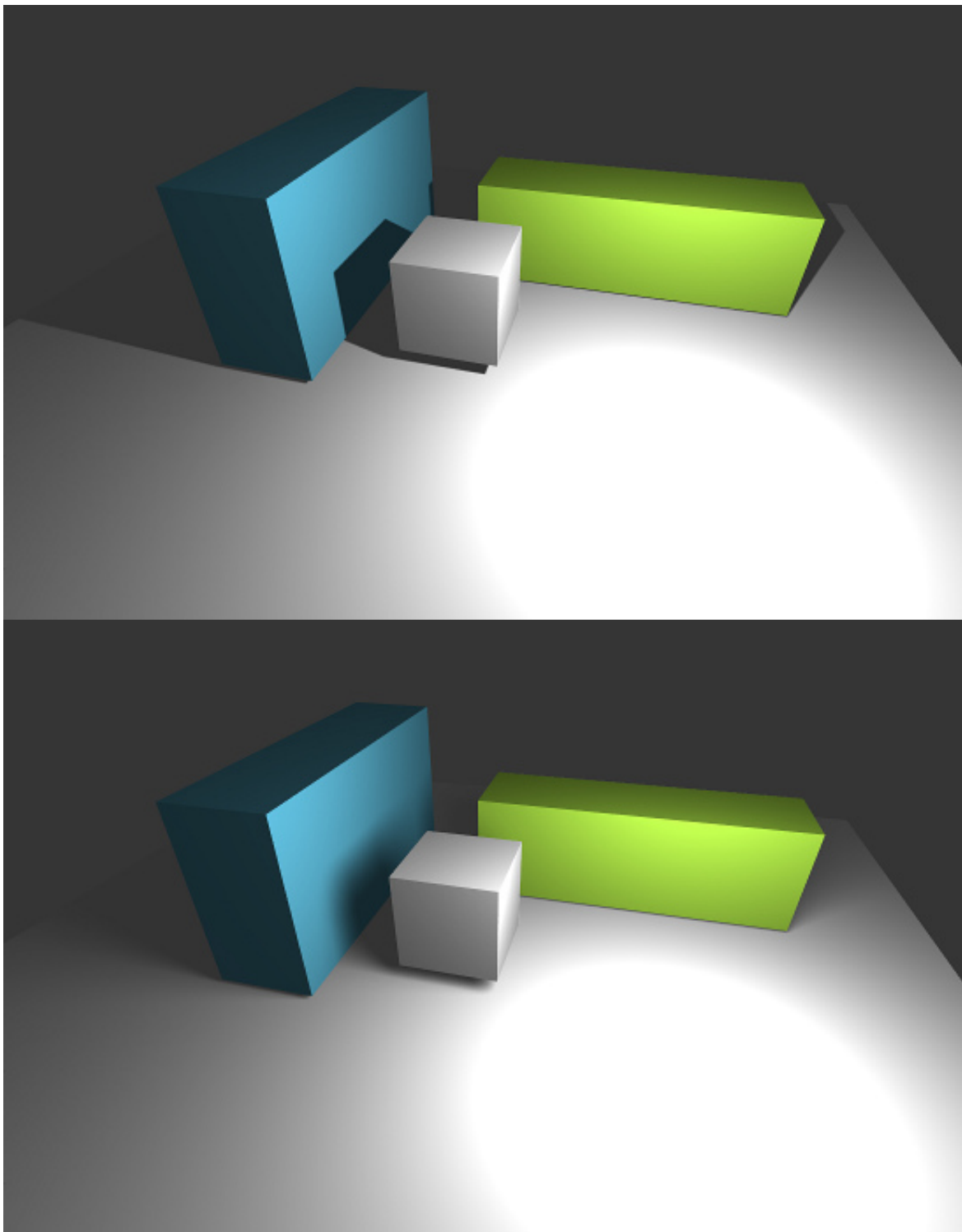
This is a basic scene with a couple of cubes and one point light in the centre. The light is casting hard shadows and the effect is quite dull and artificial.

Selecting the light and opening the **Object** pane of the

Inspector | Lightmapping

| Object | Bake | Maps |

Mode	Dual Lightmaps
Quality	High
Bounces	1
Sky Light Color	
Sky Light Intensity	0
Bounce Boost	1
Bounce Intensity	1
Final Gather Rays	1000
Contrast Threshold	0.05
Interpolation	0
Interpolation Points	15
Ambient Occlusion	0

Lock Atlas ☐
Resolution 155   texels per world unit

| Clear | Bake Selected | Bake |

155.6421 texels per world unit
7 dual lightmaps: 7x1024x1024px
18.7 MB VRAM

Preview
far   near

Lightmap Display
Use Lightmaps ☑
Shadow Distance 15
Show Resolution ☑

**Lightmapping** window exposes **Shadow Radius** and **Shadow Samples** properties.

Setting Shadow Radius to 1.2, Shadow Samples to 100 and re-baking produces soft shadows with wide penumbra - our image already looks much better.

With Unity Pro we can take the scene one step further by enabling Global Illumination and adding a Sky Light. In the **Bake** pane we set the number of **Bounces** to 1 and the **Sky Light Intensity** to 0.5. The result is much softer lighting with subtle diffuse interreflection effects (color bleeding from the green and blue cubes) - much nicer and it's still only 3 cubes and a light!

Lightmapping In-Depth

For more information about the various lightmapping-related settings, please refer to the in-depth description of lightmapping in Unity.
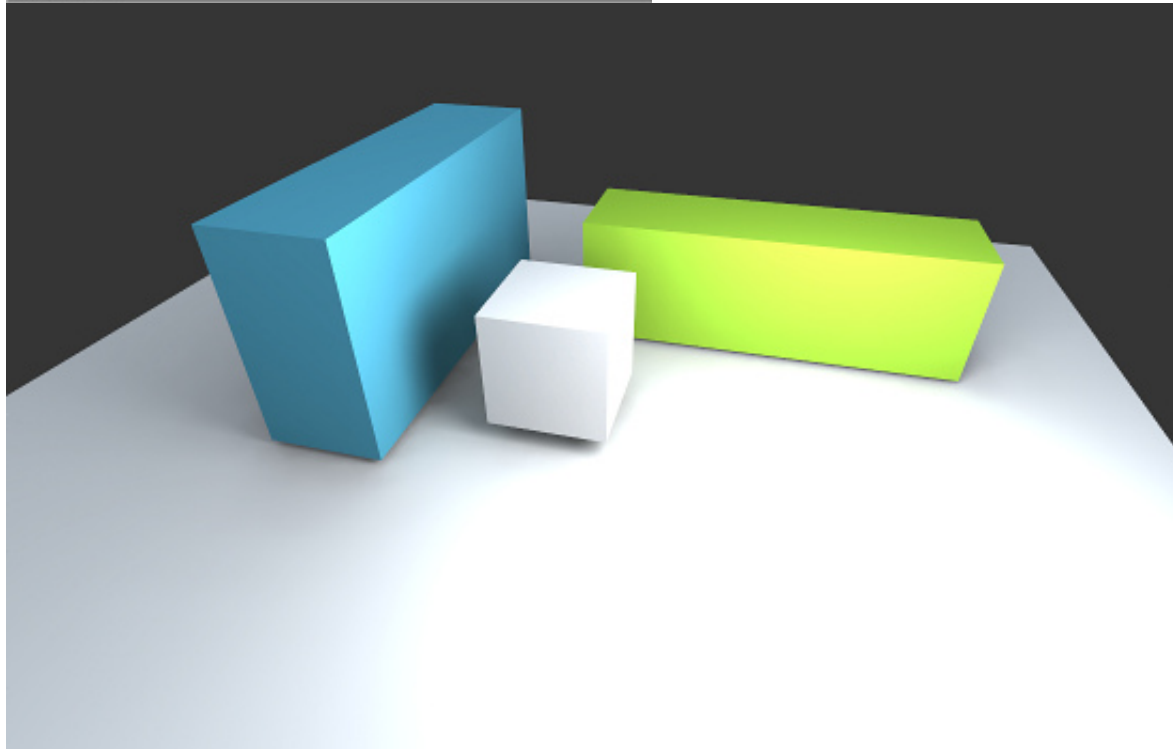
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Inspector	Lightmapping	
Object	**Bake**	Maps

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Interpolation Points	15
Ambient Occlusion	0
Lock Atlas	☐