Low Poly Modular Terrain Pack

by **LMHPoly**

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Follow me on **Twitter** to see what I'm working right now:

https://twitter.com/lmhpoly

CONTENT

DEMO SCENES

Now as you have imported the whole "**Low Poly Modular Terrain Pack**" to your Unity project, go to **Low Poly Modular Terrain Pack** > **Demo** > **Demo_Scenes** and Open any Demo Scene (*here is a Demo_04 example*). The scene should look like this inside **Game** view without any image effects:
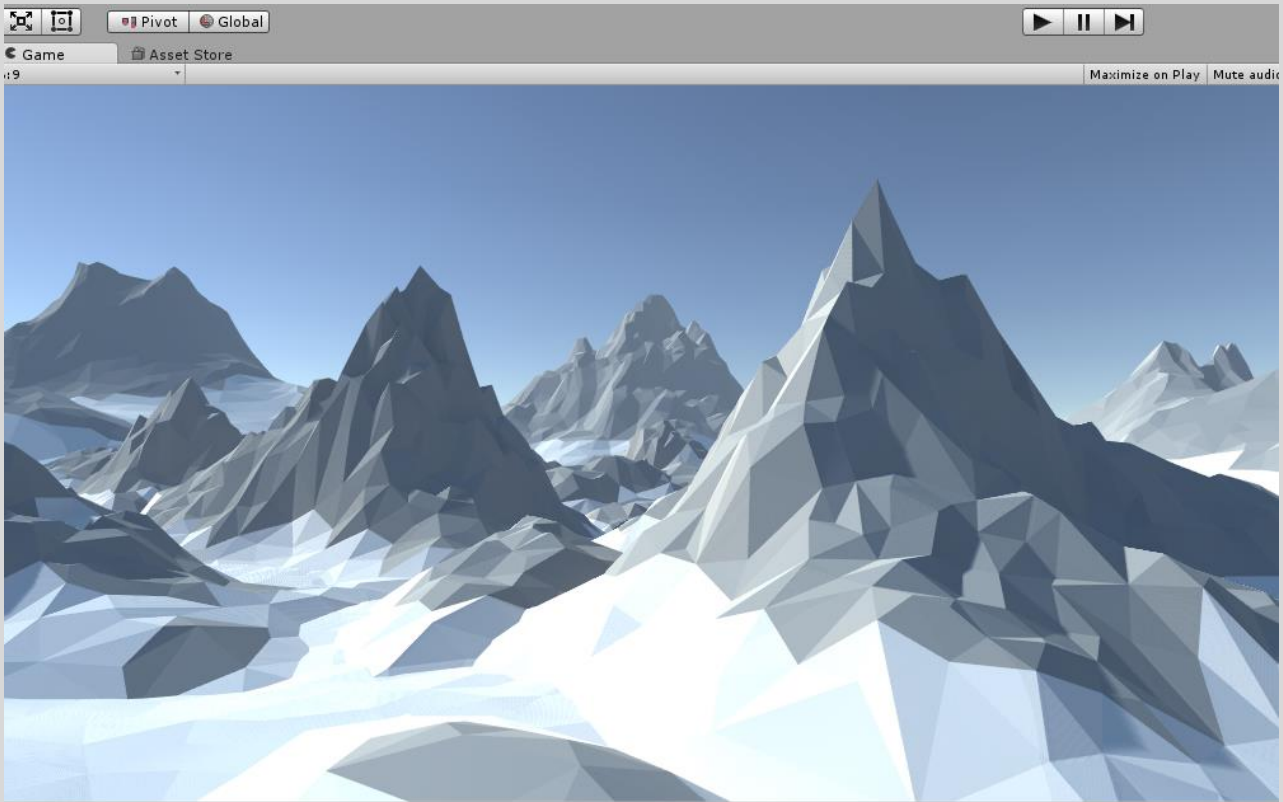
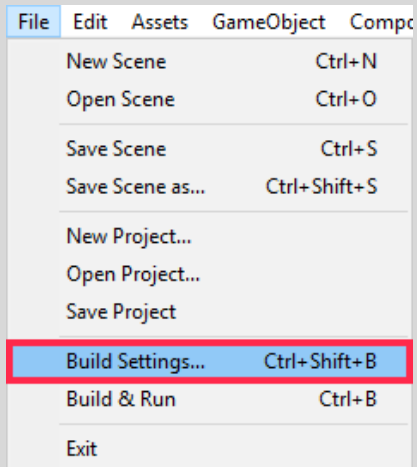If you press **Play**, you will get a message, something like this:
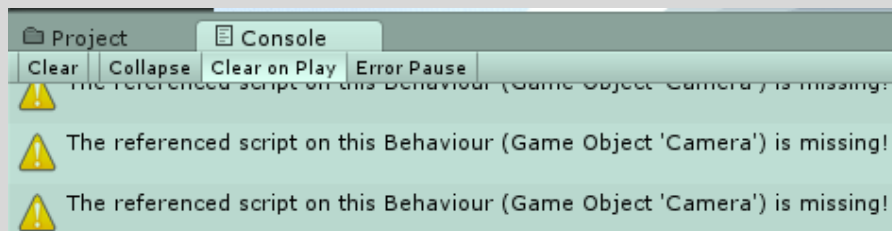
This is because all **Demo** Scenes use **Post-Processing** Image effects applied to all **Cameras** and those effects are not included in the pack! You just need to download them and import into your project. Follow steps below to setup Demo Scenes!
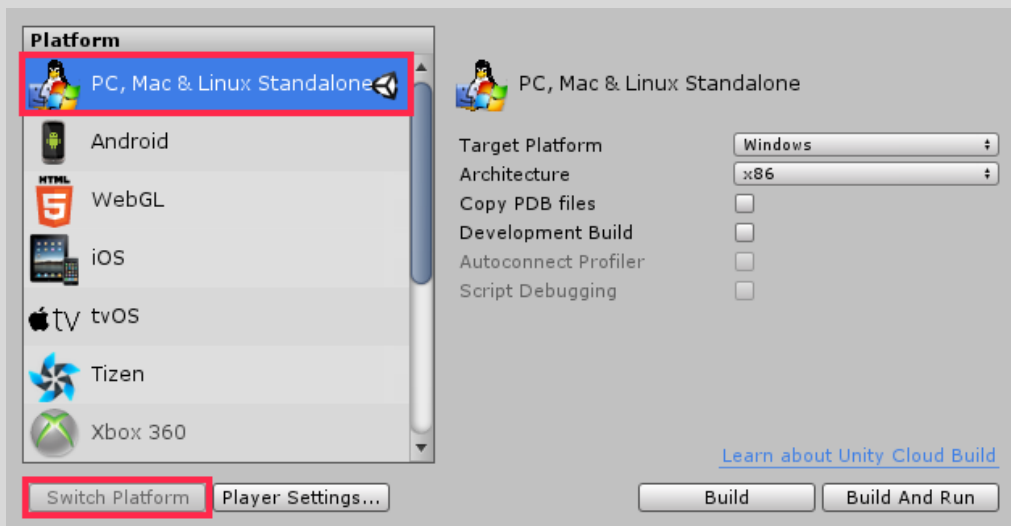
HOW TO SETUP DEMO SCENES IN UNITY 5.0.0 – 5.5.3 VERSIONS (For PC)

1. Make sure you are using **PC, Mac & Linux Standalone!**
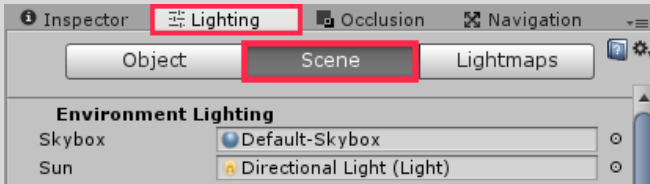
Go to **File > Build Settings**

Select **PC, Mac & Linux Standalone** and hit **Switch Platform** button.

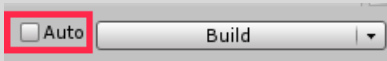2. **Clean GI Cache** (*Optional – needed if you have some light baking errors*)

Before you go to the next step you need to Disable **Auto** build/bake feature.

You can find it in **Lighting** and select **Scene** tab. (*If you don't have Lighting tab go to Window > Lighting*)
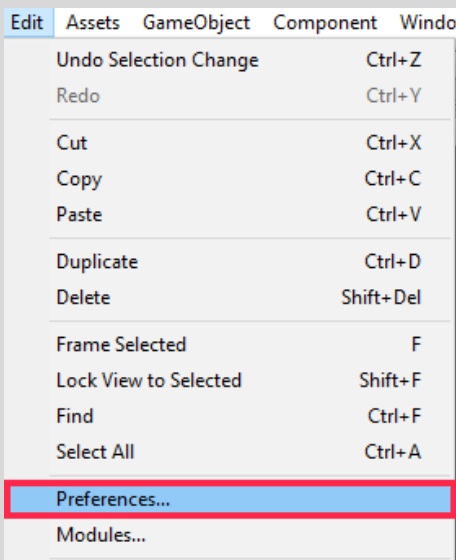

At the bottom you will see this:

Uncheck **Auto**.

Go to **Edit > Preferences**

Select **Gi Cache** tab

Press **Clean Cache** button!

Enable **Auto** build/bake feature

and wait until build is done (blue loading bar at right bottom corner).

-If you get some errors, try to change **Realtime resolution** to other value. For all my scenes I used 0.5**.** You can try lower or even bigger values like 0.3 or 1.0

3. Make sure that **Color Space** is set to **Linear.**

To do that go to **Edit > Project Settings > Player**

In the **Other Setting** tab, you will find **Color Space** set it to **Linear**.

4. Make sure that you are using **Forward Rendering**. (If you don't see this setting *in newer Unity 5 versions you don't need to change it – it's set to Forward by default!*)
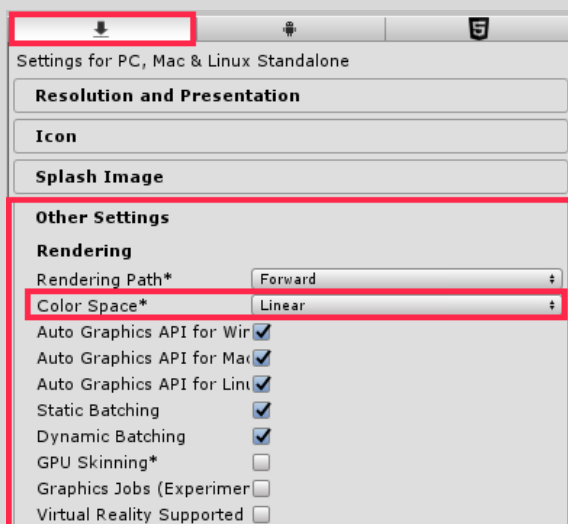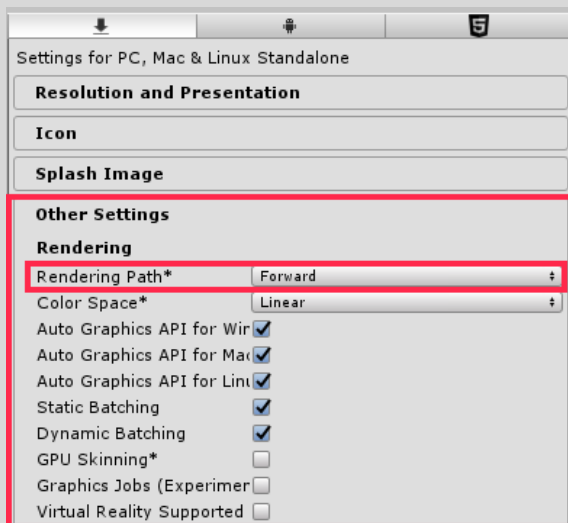
You can find it in the same **Other Settings** tab as described before. Set **Rendering Path** to **Forward.**

5. **Import Image Effects from "Standard Assets" package.** This needs to be done because of every Demo Scene Camera use image effects like (*DOF, Color Correction and so on*).

Go to **Assets > Import Package > Effects**
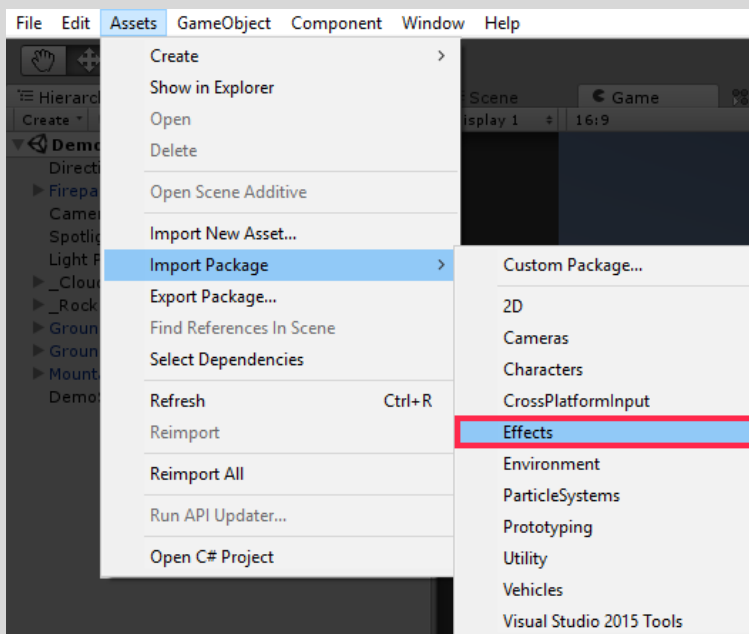
-If there are no **Effects** package to import, you need to download **Standard Assets** for your Unity build and install it!

Select only these folders:

- **Editor** (and everything that's inside that folder)

Inside **Standard Assets > Effects** select:
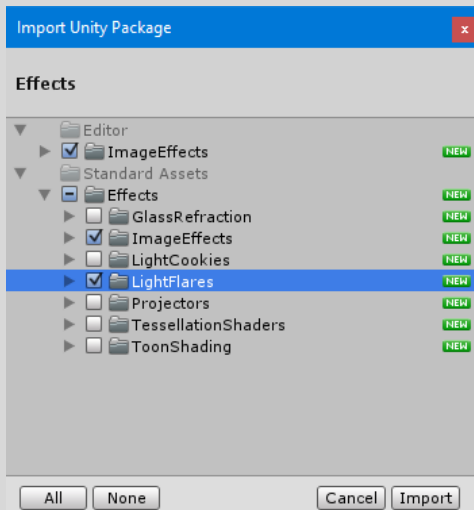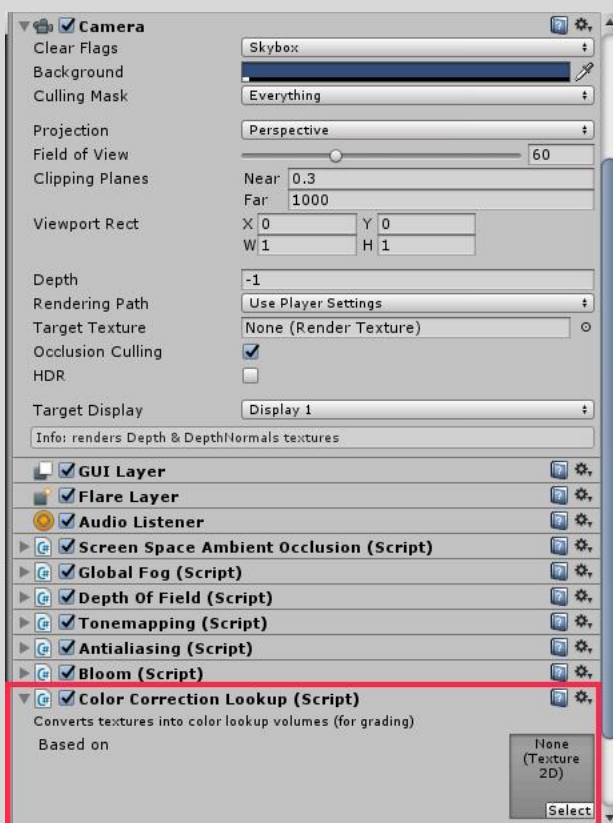
- **Image Effects**
- **LightFlares**

And **Import.**

After that, you will see all camera effects working like it should.

-Select **Camera** and make sure that **Color Correction Lookup (Script)** is working. Try to **disable/enable** it and see if colors change in the **Game** view!

If it's not changing go to **part 6** if it's changing skip part 6!

6. At the **Project** tab go to **Assets > Low Poly Modular Terrain Pack > Bonus_Assets > Post-Processing > LUT_Textures**
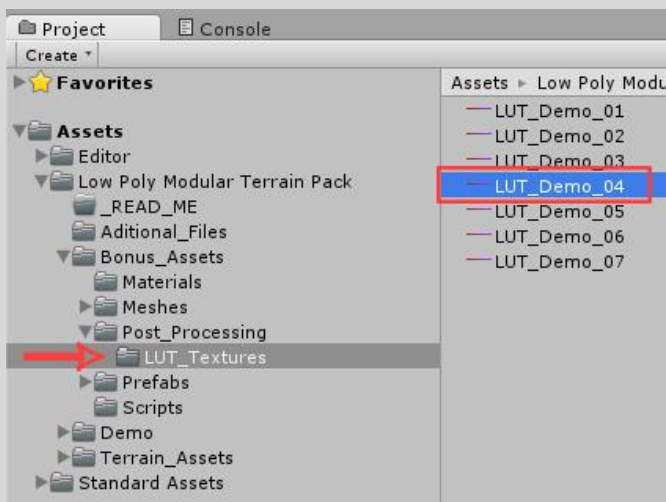
Grab and drag **LUT_Demo_04** texture file (this means that it's for Demo_04 Scene)

to Camera **Color Correction Lookup (Script)** blank square where it says **None (Texture 2D).**
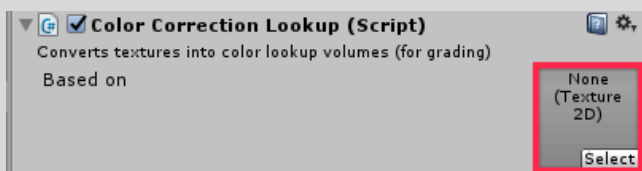
And press **Convert and Apply** button.
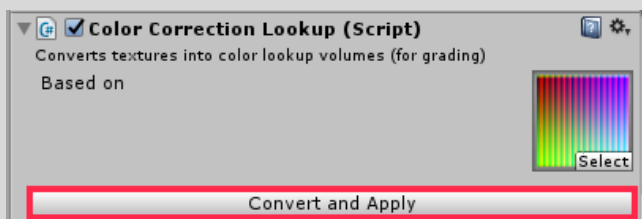
That's it. Now you have all camera effects working.

Do it for every Demo Scene if needed!

-For Low-End PC's if you hit play and it lags, try disabling image effects one by one on the camera!

Now your scene should look like this (Demo_04):

Press Play and Enjoy!

If you have any questions, please send me an e-mail.

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Website: http://lmhpoly.com/contact/

HOW TO SETUP DEMO SCENES IN UNITY 5.6.0 AND UP VERSIONS
(For PC)
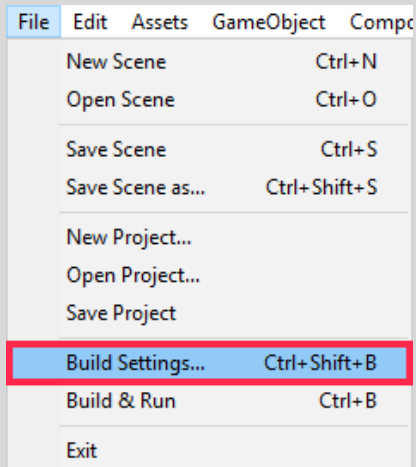
1. Make sure you are using **PC, Mac & Linux Standalone!**

Go to **File > Build Settings**

Select **PC, Mac & Linux Standalone** and hit **Switch Platform** button.
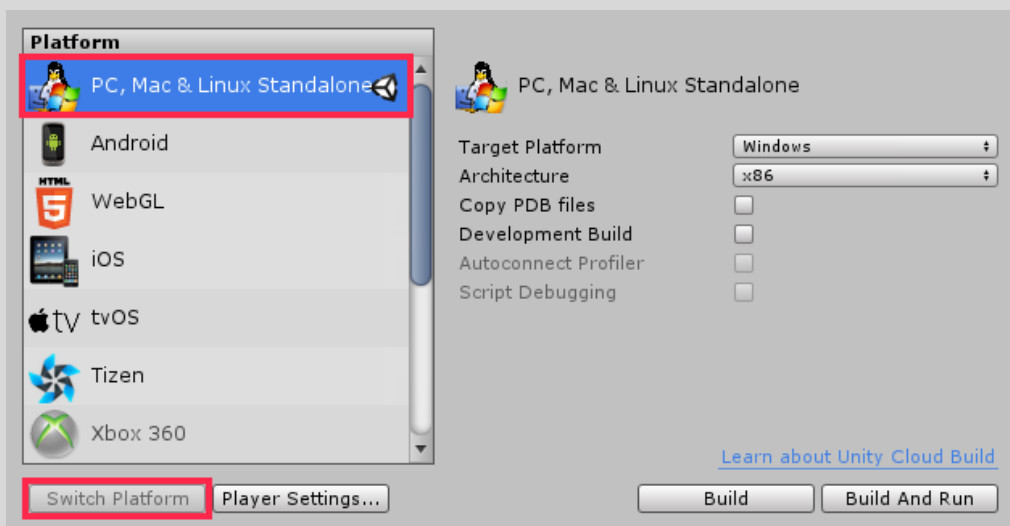
1. **Clean GI Cache** (*Optional – needed if you have some light baking errors*)

Before you go to the next step you need to Disable **Auto Generate** feature.

You can find it in **Lighting** and select **Scene** tab. (*If you don't have Lighting tab go to Window > Lighting > Settings*)

At the bottom you will see this:

Uncheck **Auto Generate**.

Go to **Edit > Preferences**

Select **Gi Cache** tab

Press **Clean Cache** button!

Enable **Auto Generate** feature
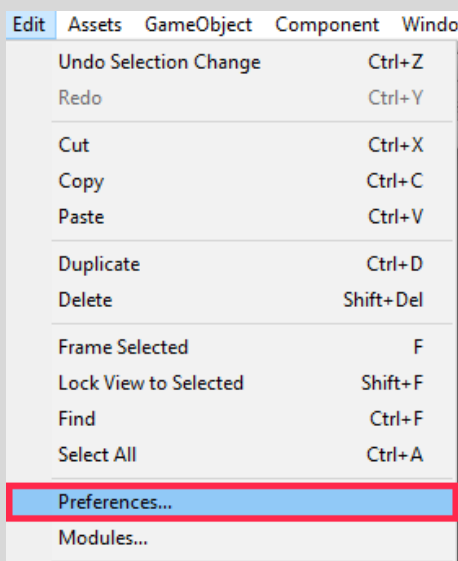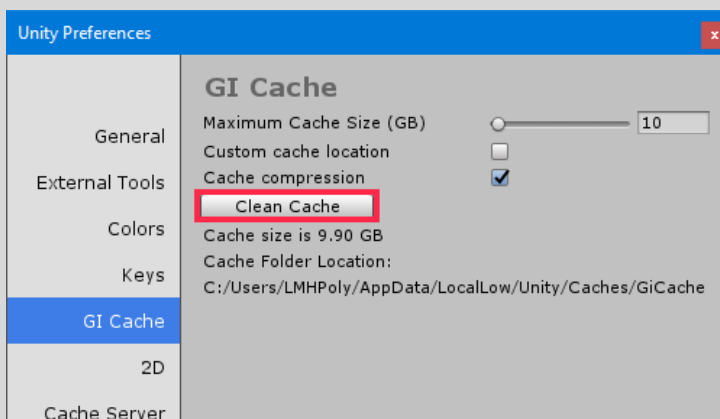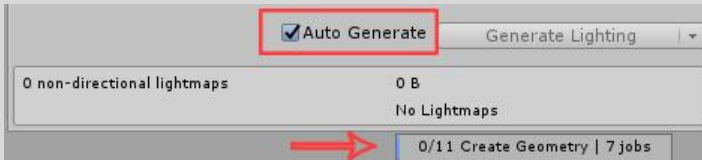

and wait until build is done (blue loading bar at the right bottom corner).

-If you get some errors, try to change **Realtime resolution** to the other value. For all my scenes I've used 0.5. You can try lower or even bigger values like 0.3 or 1.0

2. Make sure that **Color Space** is set to **Linear.**

To do that go to **Edit > Project Settings > Player**

In the **Other Setting** tab, you will find a **Color Space** set it to **Linear.**
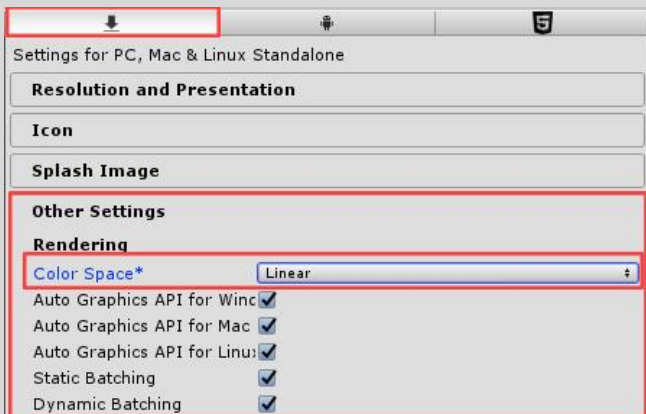
3. **I**mport **Post Processing Stack.** This needs to be done because of every Demo Scene Camera use image effects like (*DOF, Color Correction and so on*).

Go to *Window > Asset Store*

Search for **Post Processing Stack**:

Download and **Import** it to your project
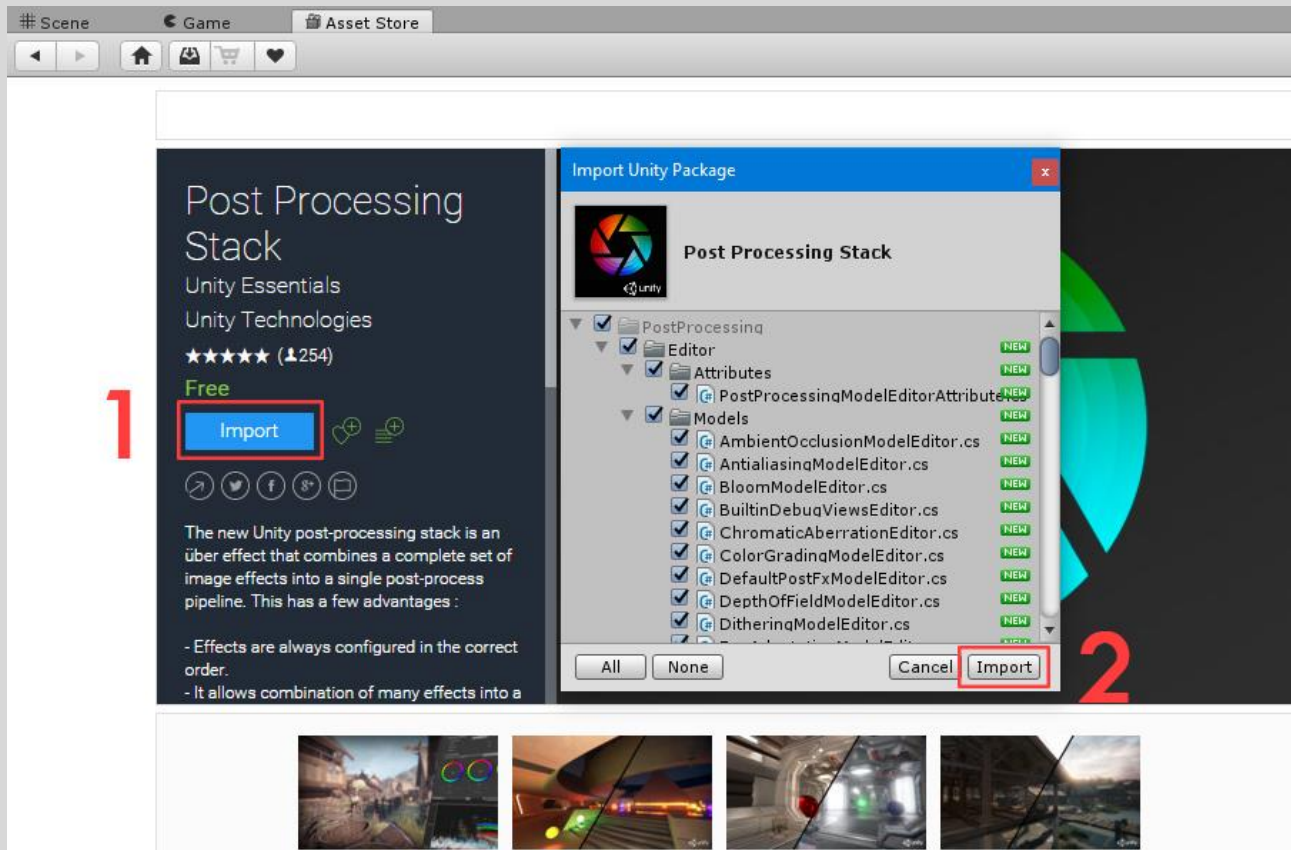
After that, you will see all camera effects working like it should.

-For Low-End PC's if you hit play and it lags, try disabling Post-Processing effects one by one on the Post-Processing Profile settings!

To edit **Post-Processing** Settings – go to **Low Poly Modular Terrain Pack** > **Bonus_Assets** > **Post_Processing_Profiles** and select **Demo** scene you want to edit Post-Processing effects for.

Now your scene should look like this (Demo_04):

Press Play and Enjoy!

If you have any questions, please send me an e-mail.

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Website: http://lmhpoly.com/contact/

HOW TO SETUP DEMO SCENES IN UNITY 5.0.0 – 5.5.3 VERSIONS
(For ANDROID)

1. Make sure you are using **Android** build!

Go to **File > Build Settings**

Select **Android** and hit **Switch Platform** button.
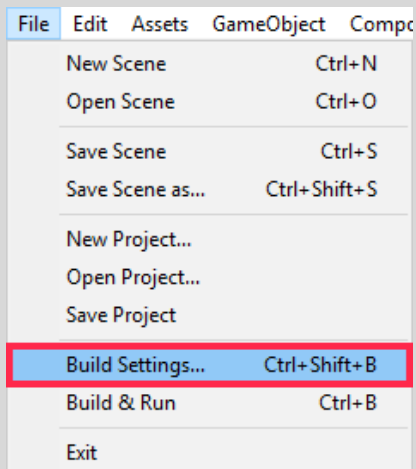
2. **Clean GI Cache** (*Optional – needed if you have some light baking errors*)

Before you go to the next step you need to Disable **Auto** build/bake feature.

You can find it in **Lighting** and select **Scene** tab. (*If you don't have Lighting tab go to Window > Lighting*)

At the bottom you will see this:

Uncheck **Auto**.

Go to **Edit > Preferences**

Select **Gi Cache** tab

Press **Clean Cache** button!

Enable **Auto** build/bake feature

and wait until build is done (blue loading bar at right bottom corner).

-If you get some errors, try to change **Precomputed Realtime GI** - **Realtime resolution** to other value. For all my scenes I used 0.5. You can try lower or even bigger values like 0.3 or 1.0

3. Disable **Precomputed Realtime GI** (Optional – for a better performance)

You can find it in **Lighting** and select **Scene** tab.

4. Make sure that Color Space is set to **Linear** (*Works only on Unity 5.5 and up!*).

To do that go to **Edit > Project Settings > Player**

In the **Other Setting** tab, you will find **Color Space*** set it to **Linear**.
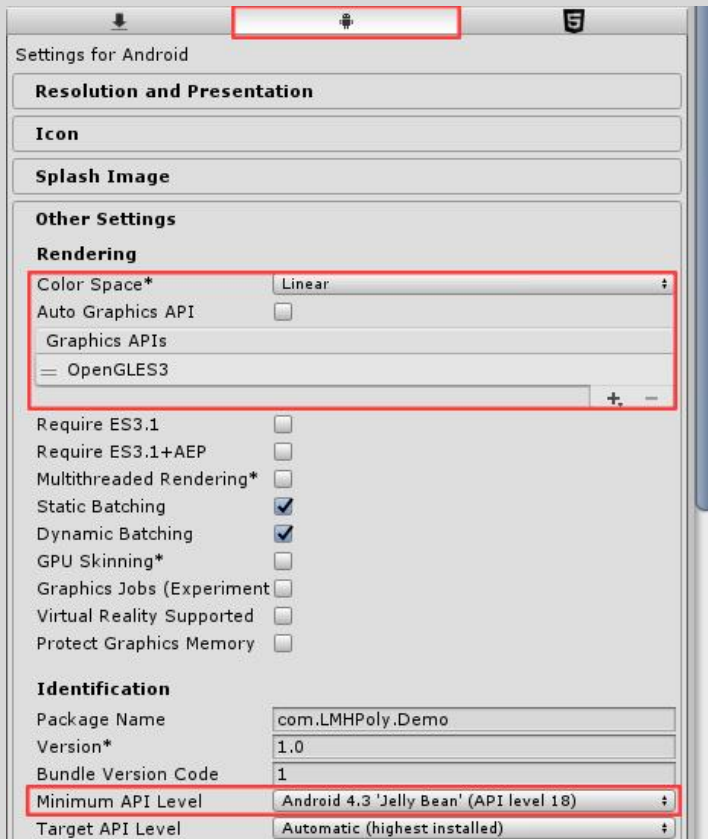
To use **Linear** Color Space, you need set **Minimum API level** to at least **Android 4.3** or higher!

Also, uncheck **Auto Graphics API** and remove all Graphic APIs from the list, leave only **OpenGLES3**.
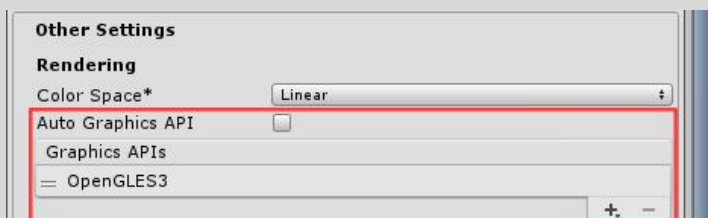
5. Make sure that you are using **Forward Rendering**.

You can find it in the same **Other Settings** tab as described before. Set **Rendering Path** to **Forward.** (If you don't see this option *in newer Unity 5 versions, you don't need to change it – it's set to Forward by default!*)
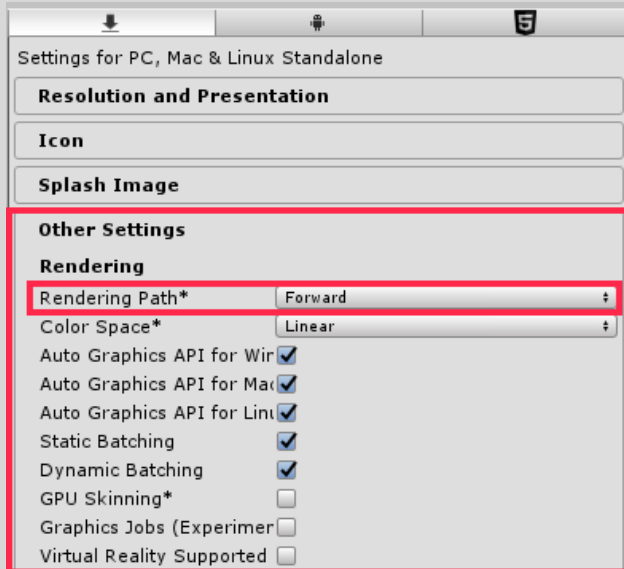
Also, select the Camera in the Hierarchy and make sure that **Rendering Path** set to **Forward** or set to **Use Player Settings**.
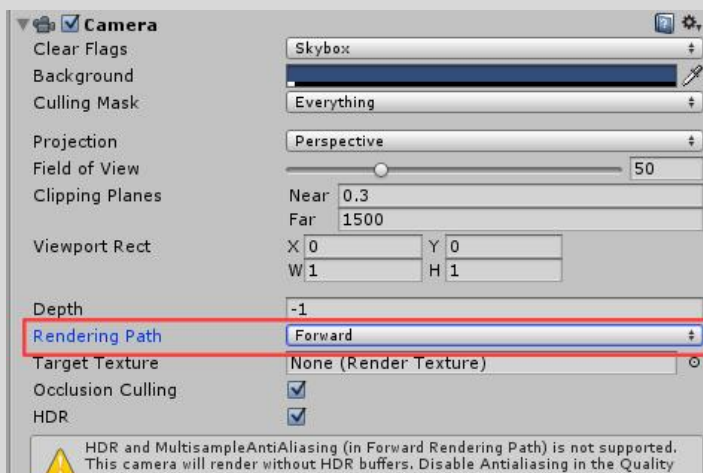
-Game will lag a lot on mobile if Rendering Path is set to Deferred!

6. Remove all Camera **Image Effects**!

Select **Camera** in Hierarchy and Remove all those **(Script)** components or just Disable them.
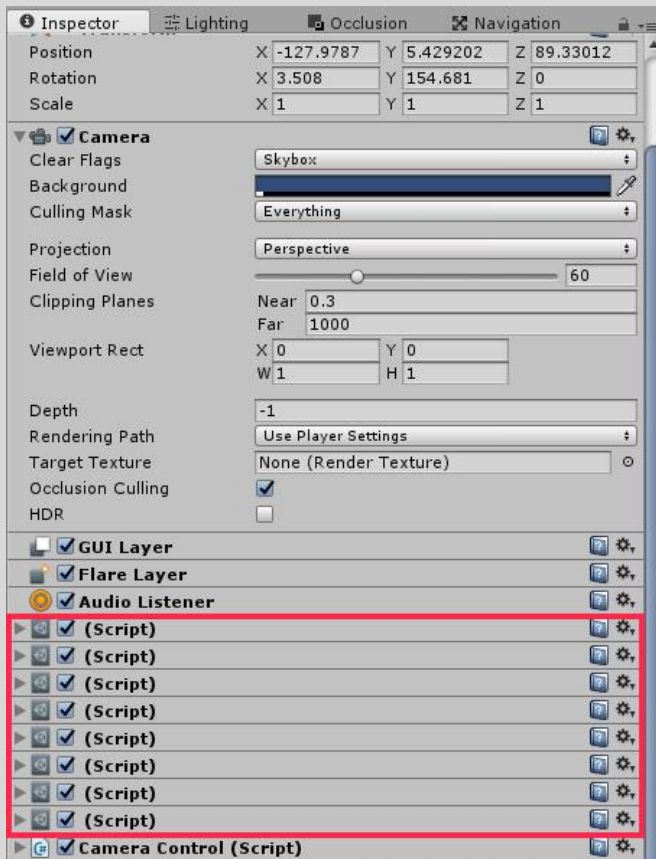
-It show's all image effects as **(Script)** only if you don't have imported **Image Effects** from **Standard Assets** (I showed how to do it for PC build earlier).

Do it by clicking on the gear icon and press **Remove Component.**
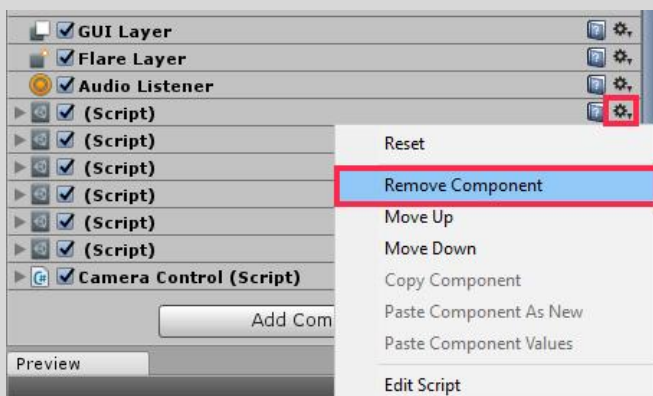
-Android don't support image effects which are added to the camera, and which ones work, they impact performance very much, so you need to disable them all.

7. Disable **Real-time Shadows** (*Optional – for a better performance*).

Go to **Edit** > **Project Settings** > **Quality**

Now your *Demo_04* Scene should look like this.
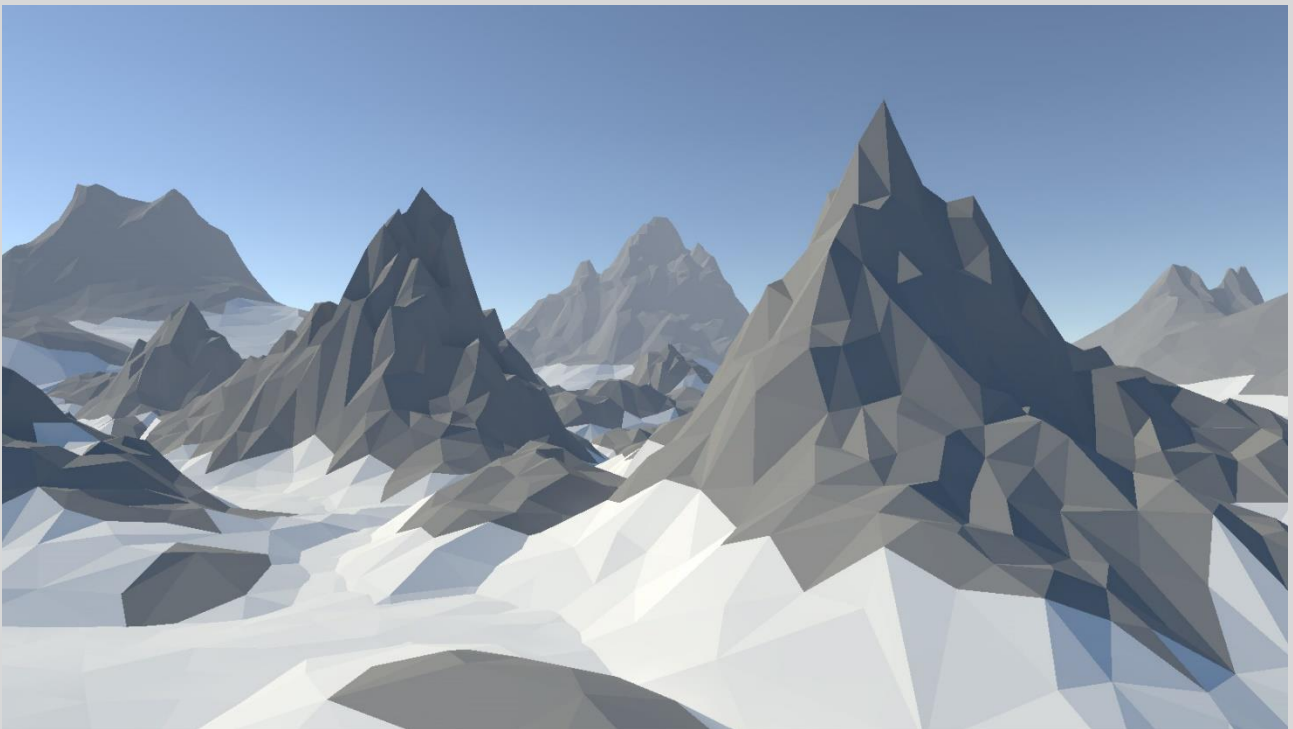
So by Using **Unity 5.5** and up + new **Linear** lighting feature for **Android** and **iOS,** you can achieve much better results than using **Gamma** lighting!

This Demo_04 Scene and all other Demo Scenes was tested on Xperia Z Ultra (Runs at solid 60FPS) with all Images Effects removed, using Realtime GI, Linear Color Space, Forward Rendering Path and Real-time Low Resolution Hard Shadows.

Now you can make **Android** build and test it on your own device!

-I don't have an **iOS** device, so I can't test it on that!

HOW TO SETUP DEMO SCENES IN UNITY 5.6.0 AND UP VERSIONS
(For ANDROID)

1. Make sure you are using **Android** build!

Go to **File > Build Settings**

Select **Android** and hit **Switch Platform** button.

2. **Clean GI Cache** (*Optional – needed if you have some light baking errors*)

Before you go to the next step you need to Disable **Auto** build/bake feature.

You can find it in **Lighting** and select **Scene** tab. (*If you don't have Lighting tab go to Window > Lighting*)

At the bottom you will see this:

Uncheck **Auto**.

Go to **Edit > Preferences**

Select **Gi Cache** tab

Press **Clean Cache** button!

Enable **Auto** build/bake feature

and wait until build is done (blue loading bar at right bottom corner).

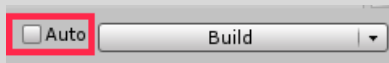-If you get some errors, try to change **Precomputed Realtime GI** - **Realtime resolution** to other value. For all my scenes I used 0.5. You can try lower or even bigger values like 0.3 or 1.0

3. Disable **Precomputed Realtime GI** (*Optional – for a better performance*)

You can find it in **Lighting** and select **Scene** tab.

4. Make sure that **Color Space** is set to **Linear**.

To do that go to **Edit > Project Settings > Player**

In the **Other Setting** tab, you will find **Color Space*** set it to **Linear**.

To use **Linear** Color Space, you need set **Minimum API level** to at least **Android 4.3** or higher!

Also, uncheck **Auto Graphics API** and remove all Graphic APIs from the list, leave only **OpenGLES3**.

5. Make sure that you are using **Forward Rendering**.

select the **Camera** in the **Hierarchy** and make sure that **Rendering Path** is set to **Forward.**
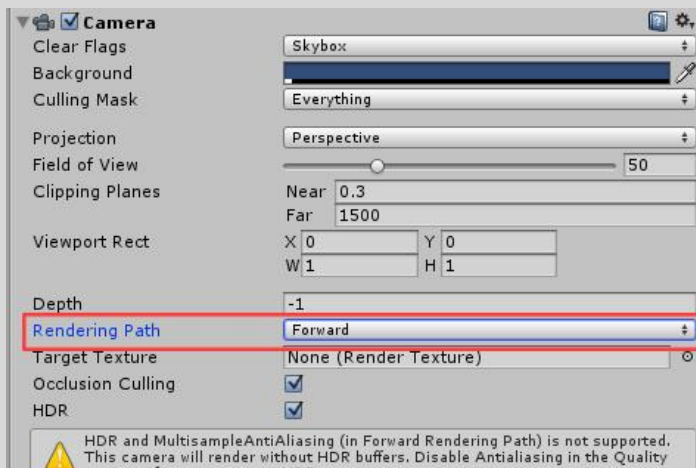
-Game will lag a lot on mobile if Rendering Path is set to Deferred!

6. Remove or Disable **Post-Processing** Effects from the Camera (*If you want to use Post-Processing effects, skip this step and go to the next **step 7***)!

Select a **Camera** in the **Hierarchy** and Remove **Post Processing Behaviour (Script)**.

-You will get a message "*Missing (Mono Script)*" where it says **Profile** if you don't have imported **Post Processing Stack** from Unity Asset Store!
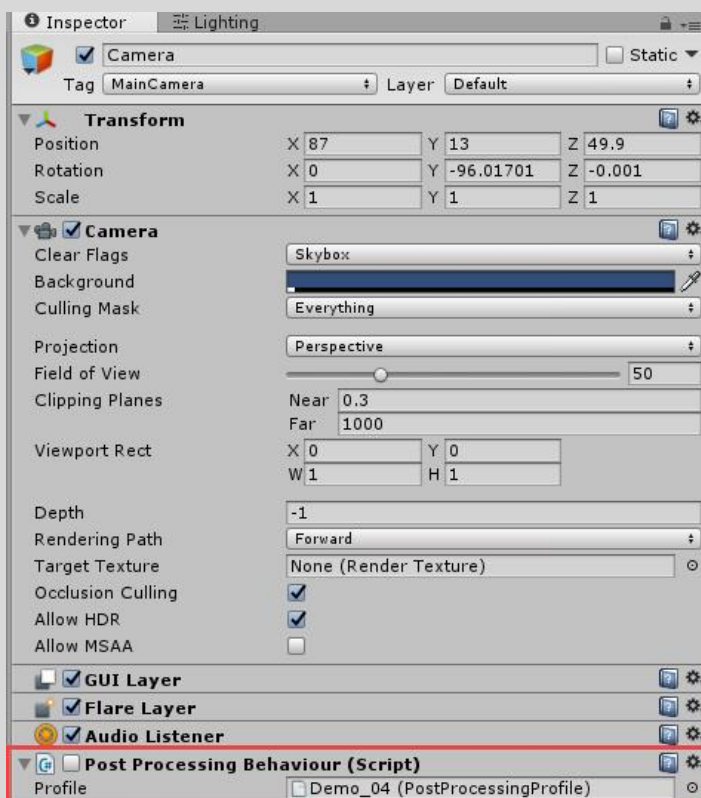
Do it by clicking on the Gear Icon and press **Remove Component.**
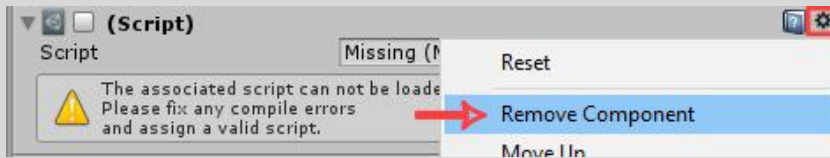
-All Post-Processing image effects eat a lot of mobile performance, so it's the best to remove them all.

7. **I**mport **Post Processing Stack** (*Optional – Big performance hit for mobile devices*). If you leave **Post Processing Behaviour (Script)** on the Camera and want to use those effects, you need to do this.

Go to **Window > Asset Store**

Search for **Post Processing Stack**:

Download and **Import** it to your project
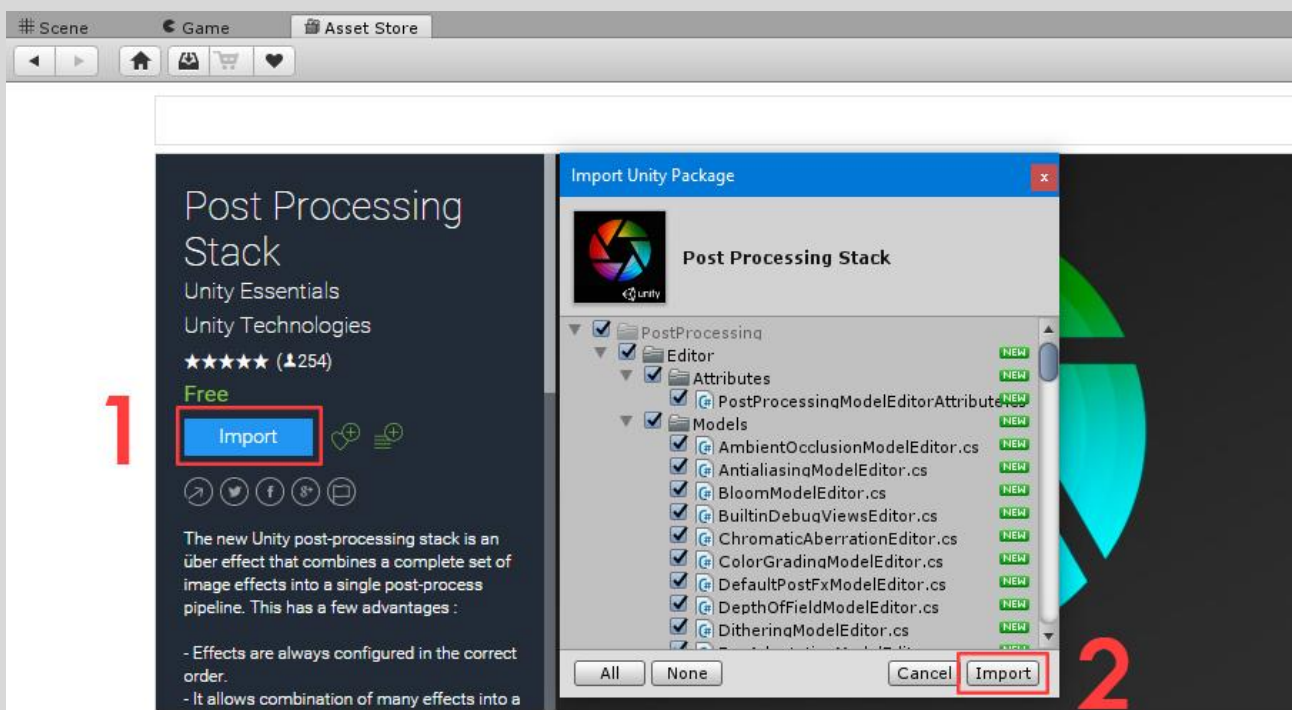
After that, you will see that all Camera Effects working like it should.

To edit **Post-Processing** Settings – go to **Low Poly Modular Terrain Pack** >
Bonus_Assets > **Post_Processing_Profiles** and select **Demo** scene you want to edit
Post-Processing effects for.
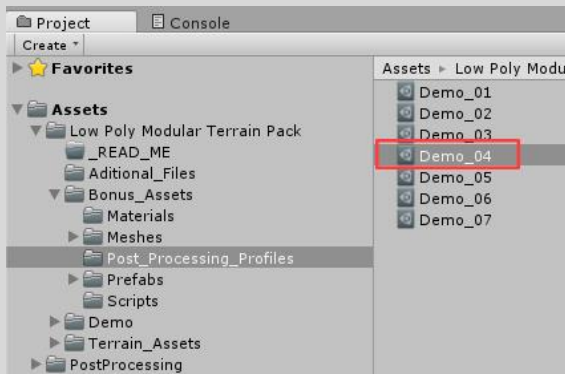
Uncheck all effects, and try them one by one to see which one impact mobile
performance the most.

8. Disable **Real-time Shadows** (*Optional – for a better performance*).

Go to **Edit** > **Project Settings** > **Quality**

Now your *Demo_04* Scene should look like this.
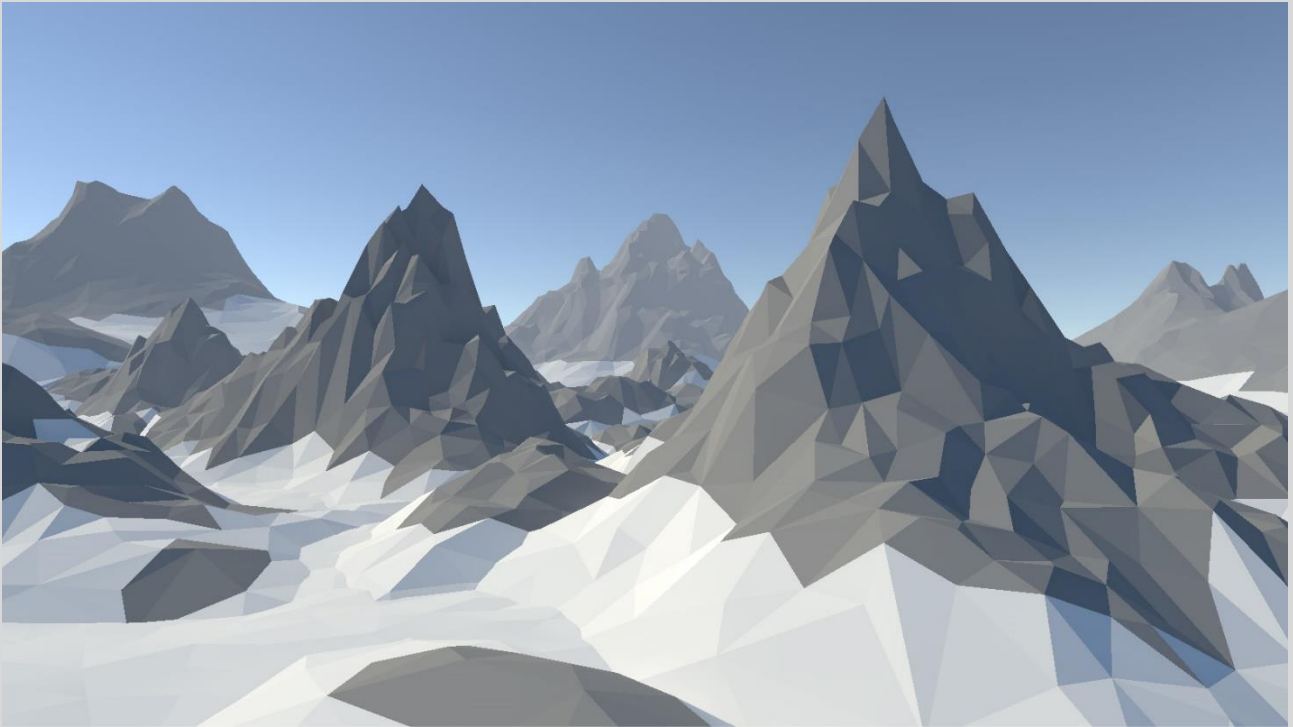
So by Using **Unity 5.5** and up + new **Linear** lighting feature for **Android** and **iOS,** you can achieve much better results than using **Gamma** lighting!

This Demo_04 Scene and all other Demo Scenes was tested on Xperia Z Ultra (*Runs at solid 60FPS*) with Post-Processing Behaviour (Script) removed from the camera, using Realtime GI, Linear Color Space, Forward Rendering Path and Real-time Low Resolution Hard Shadows.

Now you can make **Android** build and test it on your own device!

-I don't have an **iOS** device, so I can't test it on that!

HOW TO USE "Low Poly Modular Terrain Pack"

If you don't know what some names mean, go to **Page 41** for **Naming Conventions**!

Go to **Assets > Low Poly Modular Terrain Pack > Terrain_Assets > Prefabs.** Here you can select what kind of Prefabs you want to use - **Mountains** or **Terrain** folder. For example, open folder **Terrain,** you will see 3 types of the same Terrain. Open for example **CPT_Terrain** folder. Now select what size Terrain you want for example **CPT_Terrain_Large.** Select which version you want for example, **Simple**. And here you can see a list of **Simple CPT_Terrain_Large** Prefabs:
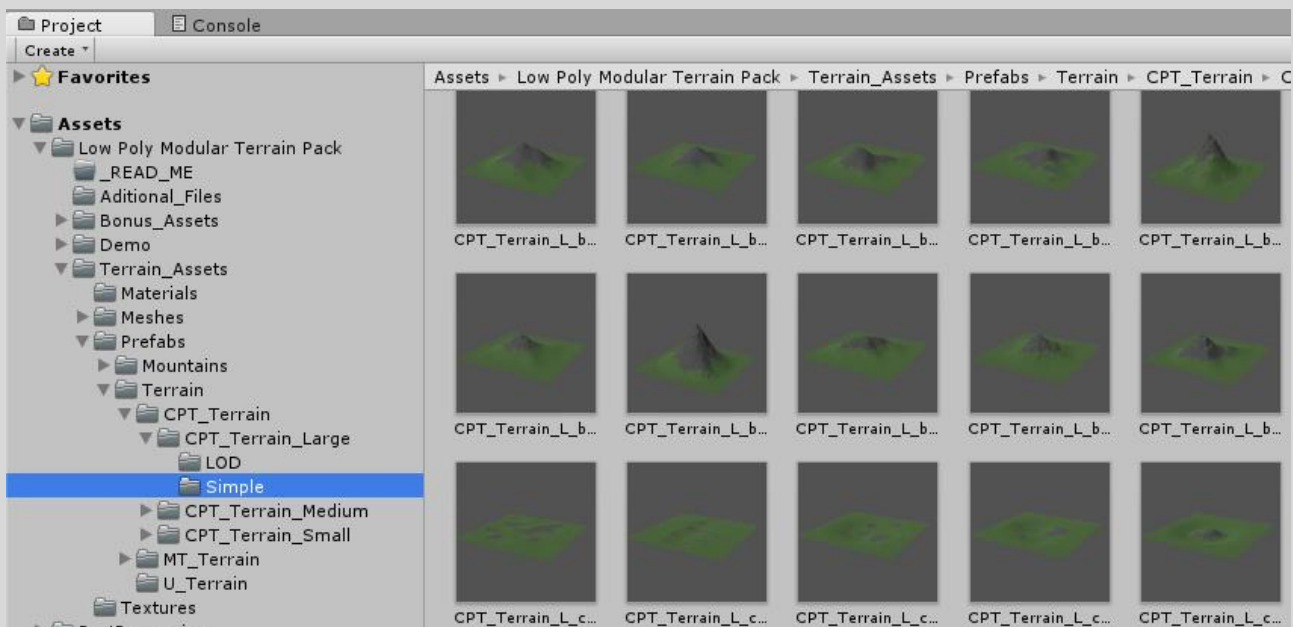
Select any Prefab you want, drag and drop it to your scene. With that Prefab selected, **Reset Transform** (*position to 0,0,0*) so it will sit on the Grid nicely.
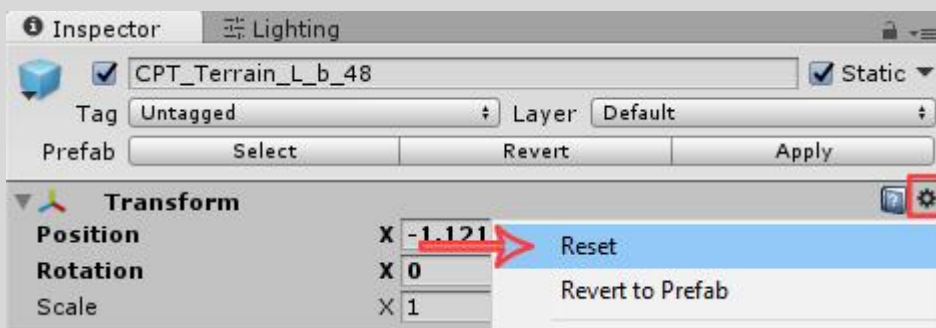
I recommend to drag and drop Prefabs straight to the **Hierarchy** tab, that way you don't need to **Reset Transform** because it should be at **Position 0,0,0.**
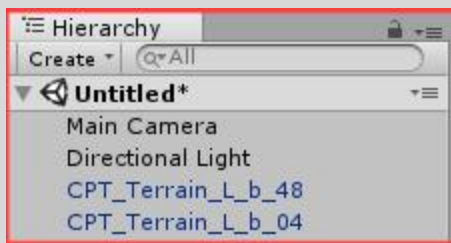
Set Tool Settings to **Pivot** / **Global**

Now add another Terrain Prefab to the Scene and with **Move Tool** selected

Hold **CTRL** + **Grab and Drag** the Transform **Arrow** to snap it to the **Grid**.
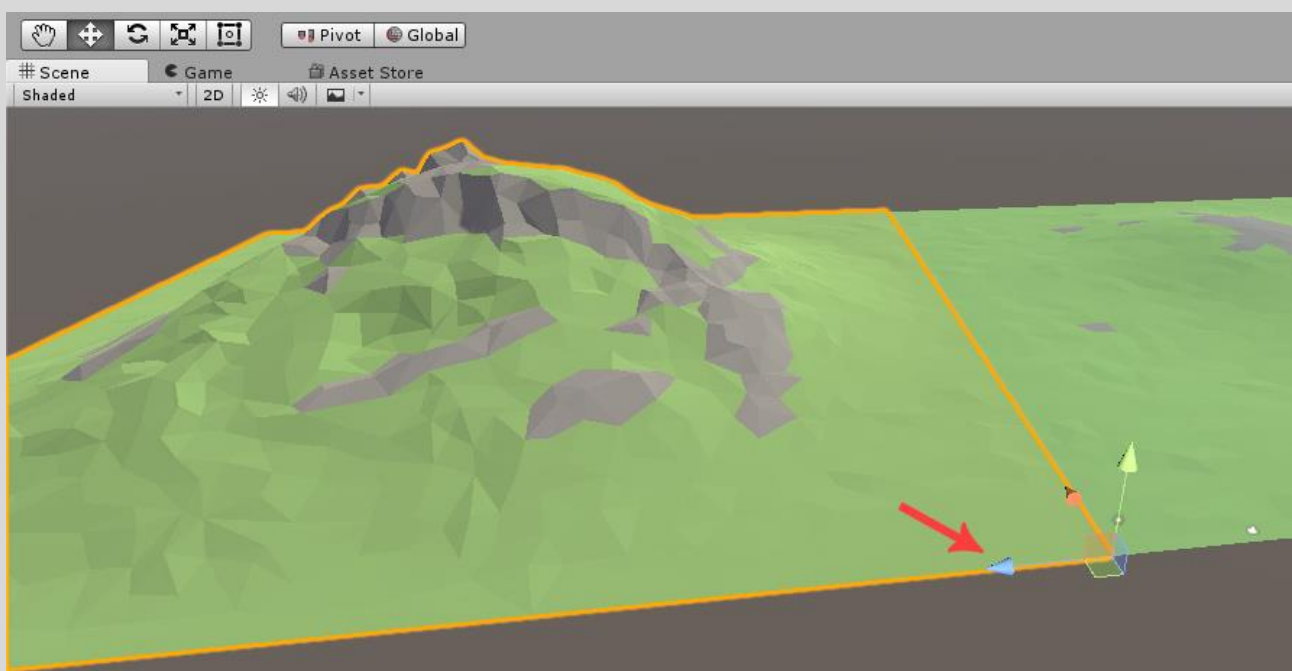
Large Terrain is 100m x 100m size, so you can easily change Position by 100 units to snap Terrain planes perfectly together.

Or you can snap Terrain planes by using **V**. Hold **V** and hover the mouse cursor on the Terrain corner, you will see a little yellow square (*it shows you which vertice of the mesh you are selected),* now by holding **V** key, Press and Hold **LEFTMOUSE** and move it to the other Terrain plane corner to snap it.
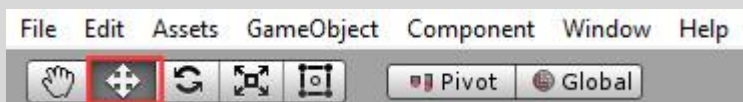
Same for **Bonus Assets.**

Go to **Assets > Low Poly Modular Terrain Pack > Bonus_Assets > Prefabs**

Select what you want and drag it to the scene.

How to Change Prefabs Color / Texture
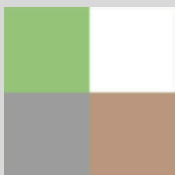
CPT Terrain / Mountains

- **CPT** – Color Palette Texture (*All CPT Prefabs use 1 Material + 1 Color Palette Texture Atlas 64x64*)

Go to **Low Poly Modular Terrain Pack** > **Terrain_Assets** > **Materials** here you will find 3 materials which are used for **CPT** Prefabs:


Originally **CPT_Terrain_01** are applied to all **CPT** Prefabs. To change the colors of **CPT** Prefabs you can apply one of these 3 Materials, or you can edit Texture colors itself.

Go to **Low Poly Modular Terrain Pack** > **Terrain_Assets** > **Textures** here you will find 3 textures, **CPT_Terrain_Texture_Atlas_01.png** is applied to **CPT_Terrain_01** Material. You can open this texture inside any image editing software and change the colors. There are only 4 colors on the texture:


These colors are used like this:
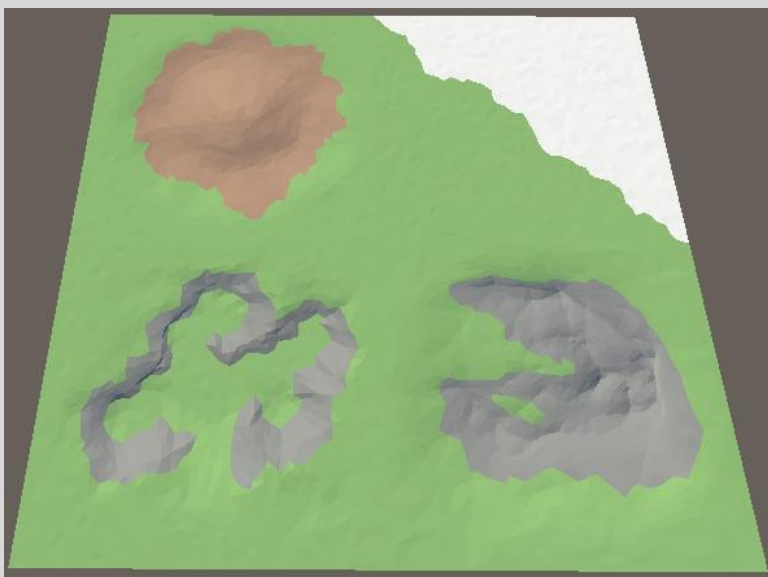
There is high-resolution texture **.PSD** file included to edit it more easily. Go to **Low Poly Modular Terrain Pack** > **Aditional_Files** and here you will find the **CPT_Terrain_Texture_Atlas_01.rar** file. Extract it, open inside Photoshop or Gimp and edit it. Then save at small resolution like 64x64 and import to your Unity project.

MT Terrain / Mountains

- **MT** – Material and Texture (All MT Prefabs use 1 Material. You can also add any seamless Texture to it!)

Go to **Low Poly Modular Terrain Pack** > **Terrain_Assets** > **Materials** here you will find 5 materials which are used for **MT** Prefabs:
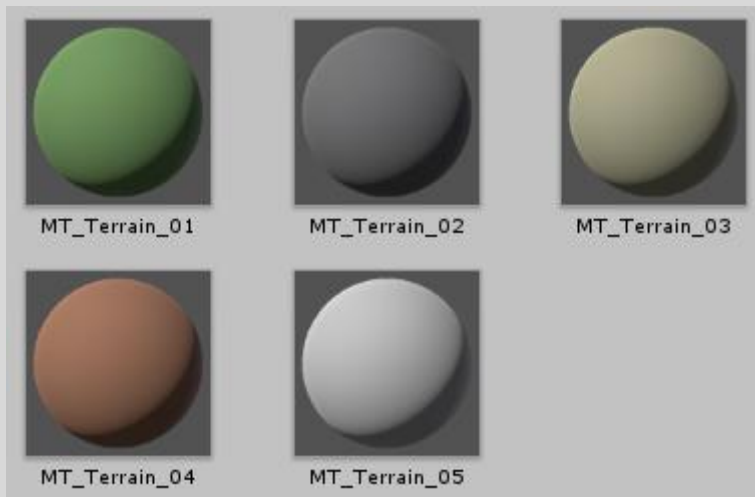

Originally **MT_Terrain_01** are applied to all **MT** Prefabs. To change the colors of MT Prefabs you can apply one of these 5 Materials, or you can just edit **MT_Terrain_01** material color:
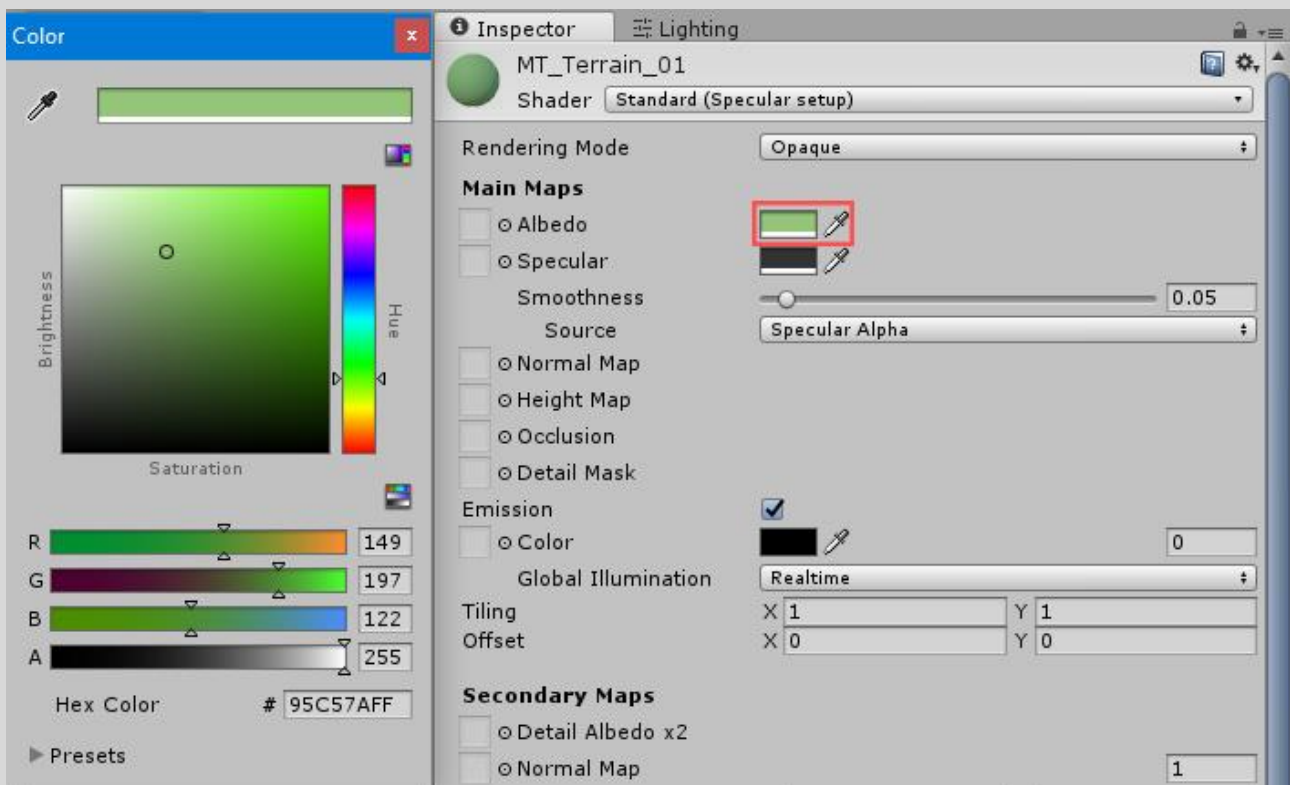
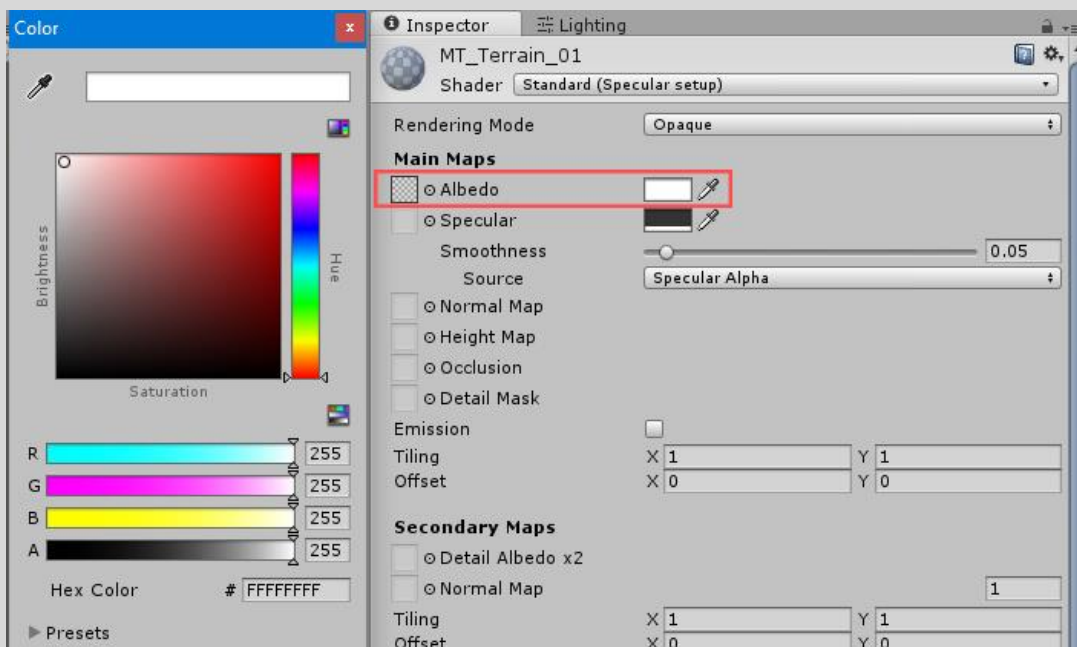You can also apply any **Texture** to all **MT** Prefabs. Seamless textures are supported too. Here are 4 **MT_Terrain** Prefabs added to the Scene (*They use default* **MT_Terrain_01** *Material*):
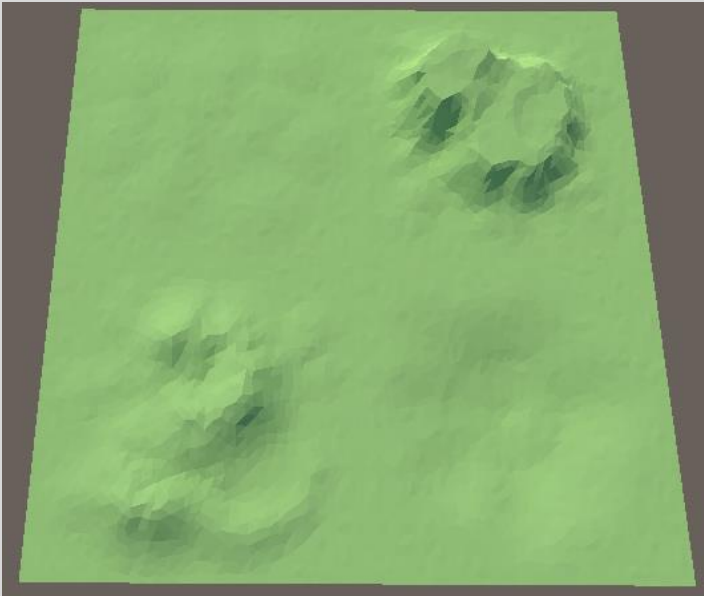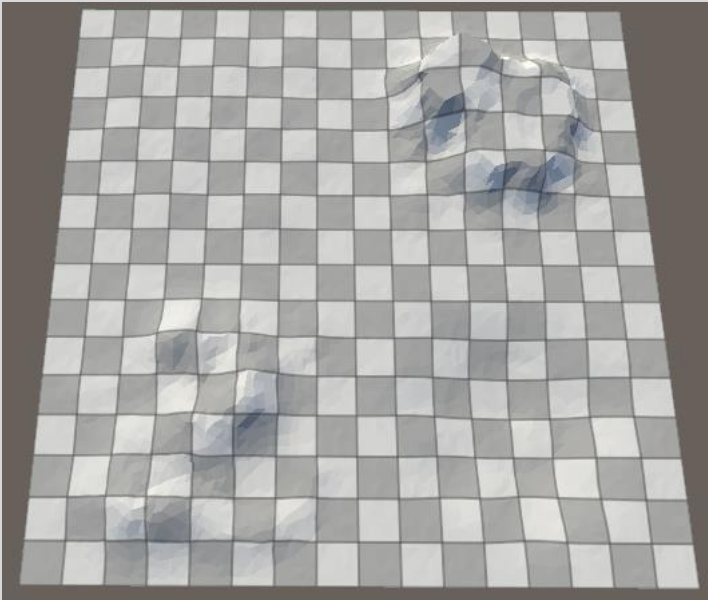

Now I will apply simple Grid Texture to **MT_Terrain_01** Material:
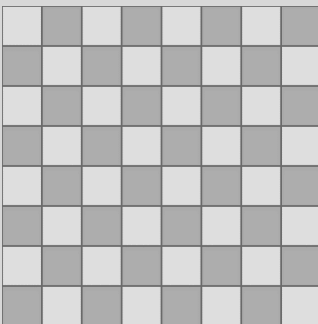
And change Material Color to White:

Now Terrain looks like this:

U Terrain

- **U** – Unity Terrain (You can edit the terrain shape, paint textures, draw grass, trees, etc)

U Terrain use the same Material as **CPT** Terrain by default!

Select **U** Terrain Prefab in your Scene, go to **Terrain Settings** and change **Material** to **Built In Standard** (*this way your terrain become white, so you can paint any texture, any color you want on it*):
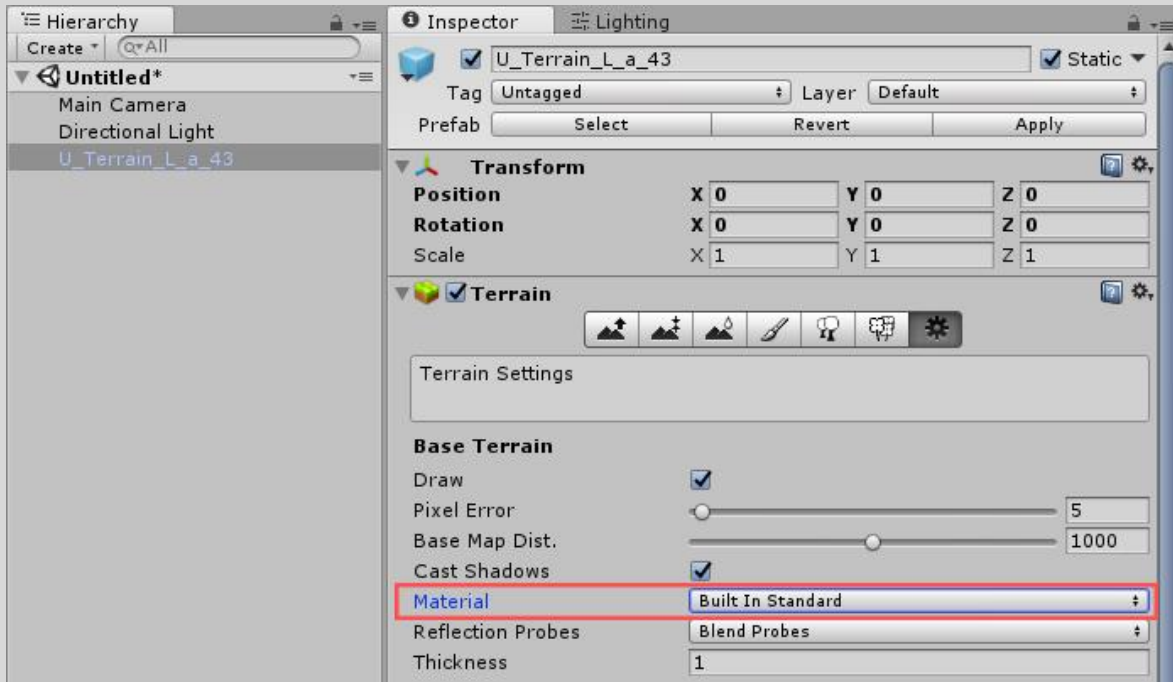
To paint a Texture **- go to** Paint Texture **press on** Edit Textures **>** Add Texture **and select any texture you want to paint.**
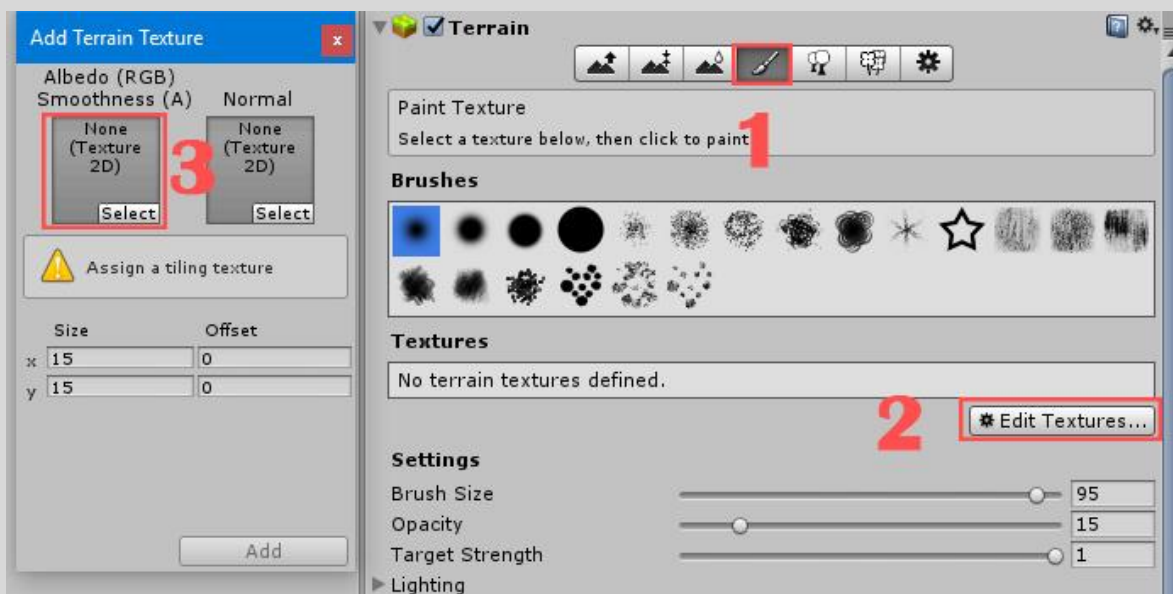
LIGHTMAP BAKING – UNITY 5.6
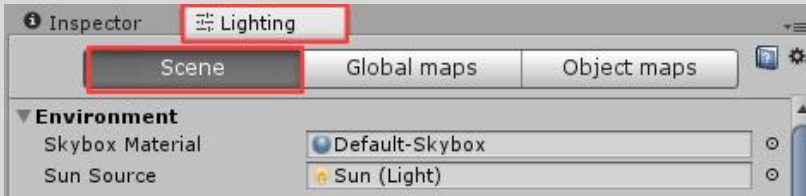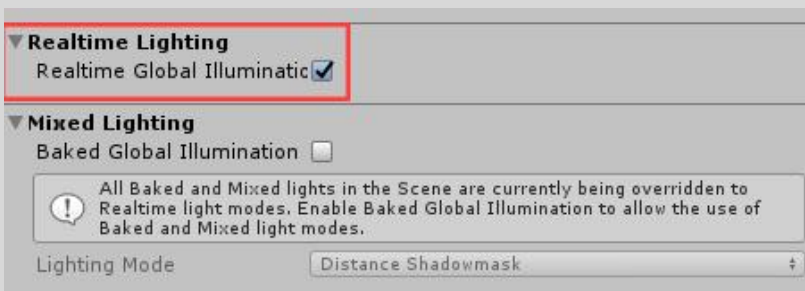
Realtime Global Illuminatic

All **Terrain / Mountain** Prefabs are already set to **Static** and has **Lightmap UVs**. So, go to **Lighting** and open the **Scene** Tab. (*If you don't have Lighting tab go to Window > Lighting > Settings*).

Enable **Realtime Global Illuminatic.** And Leave **Baked Global Illumination** Disabled.

Enable **Auto Generate** / Generate Lighting at the bottom. And wait until Lightmap Data will be generated.

Or just use **Generate Lighting** button to Generate Lightmap Data when you really want/need instead of using **Auto Generate** feature.

Baked Global Illumination

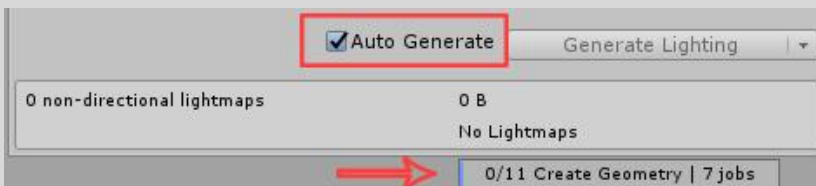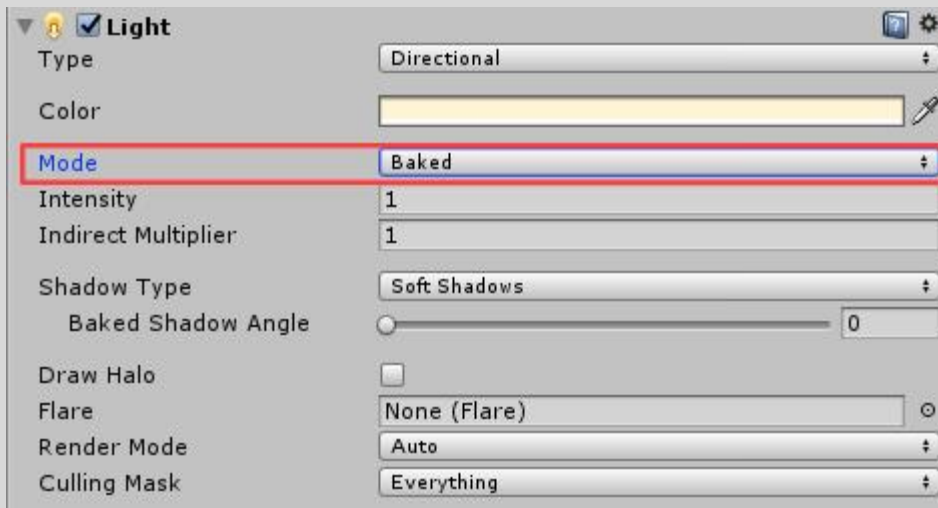Select **Directional Light** and Set Light **Mode** to **Baked.**

All **Terrain / Mountain** Prefabs are already set to **Static** and has **Lightmap UVs**. So, go to **Lighting** and open the **Scene** Tab. (*If you don't have Lighting tab go to Window > Lighting > Settings*).
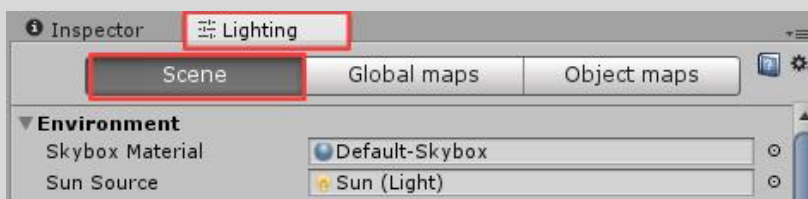
Enable **Baked Global Illumination.** And Leave **Realtime Global Illuminatic** Disabled. Also, choose **Lighting Mode** you want to use.

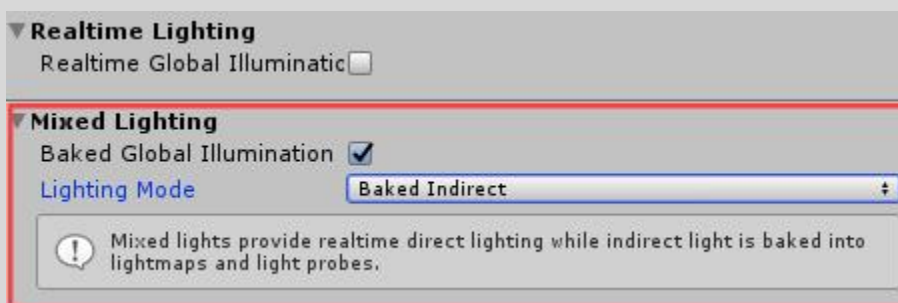Now change some **Lightmapping Settings**. Of course, it depends on your platform you are making a game for, but I always Disable **Compressed Lightmaps** to get much better results with nice colors.

Most important parts are the **Lightmap Resolution** and **Lightmap Size**! It depends on what Terrain size you are using - Large, Medium, or Small. If you use too small **Lightmap Resolution**, you will get black seams between Terrain planes!

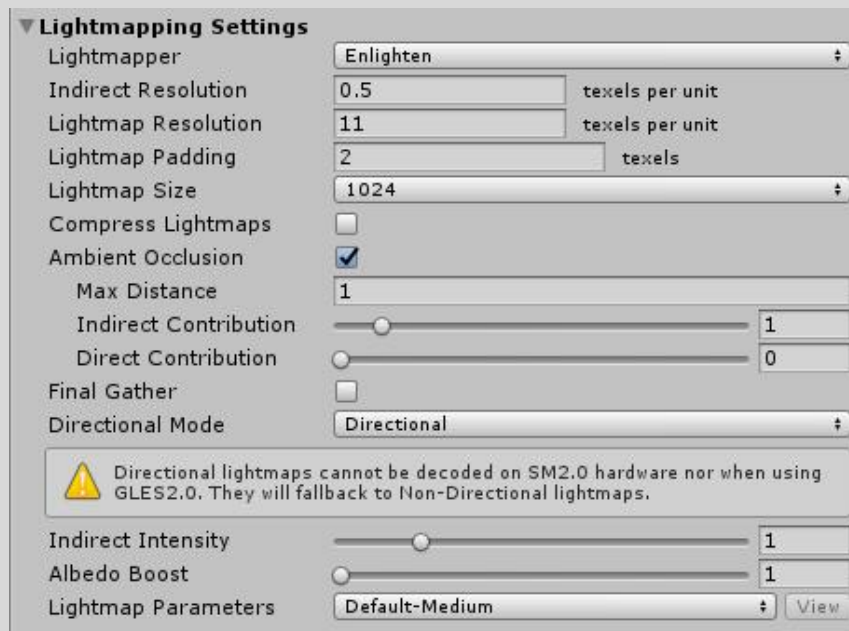4 **Large** Terrain planes with Baked Lightmap using **Lightmap Resolution of 10**:
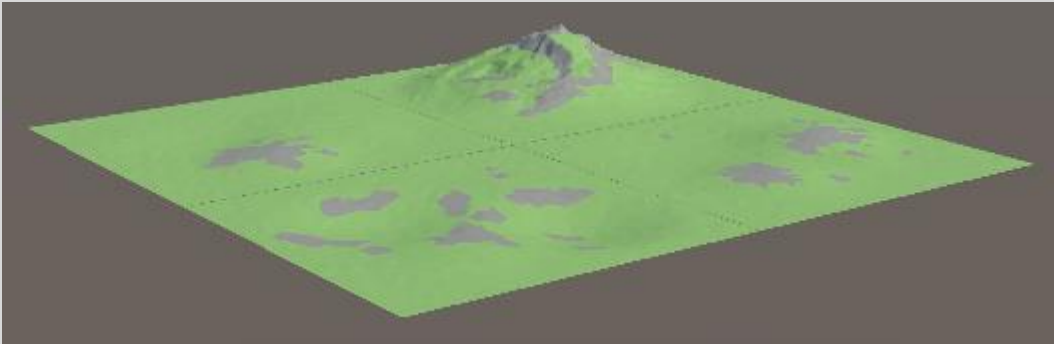
4 Large Terrain planes with Baked Lightmap using **Lightmap Resolution of 11**:
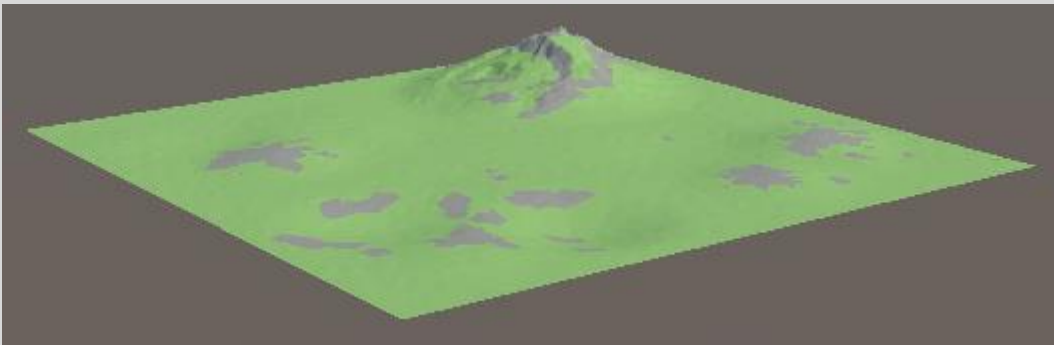
As you can see if I use **Lightmap Resolution of 10** I get black seams where Terrain planes meet, if I use **Lightmap Resolution of 11** or more I don't get any seams!

My Lightmap Settings for **Large Terrain**:

Best **Lightmap Resolution** Settings using **Lightmap Size** of **1024**:

- **Large Terrain** – if you set Lightmap Resolution to 10 you will get black seams between Modular Terrain Planes. More than 10 is perfect without any seams (*11,12,13..20,40, etc*).
- **Medium Terrain** – if you set Lightmap Resolution to 20 you will get black seams between Modular Terrain Planes. More than 20 is perfect without any seams (*21,22,23..30,40, etc*).
- **Small Terrain** – if you set Lightmap Resolution to 40 you will get black seams between Modular Terrain Planes. More than 40 is perfect without any seams (*41,42,43..50,60, etc*).

Best **Lightmap Resolution** Settings using **Lightmap Size** of **512**:

- **Large Terrain** – if you set Lightmap Resolution to 5 you will get black seams between Modular Terrain Planes. More than 5 is perfect without any seams (*6,7,8..20,30, etc*).
- **Medium Terrain** – if you set Lightmap Resolution to 10 you will get black seams between Modular Terrain Planes. More than 10 is perfect without any seams (*11,12,13..20,30, etc*).
- **Small Terrain** – if you set Lightmap Resolution to 20 you will get black seams between Modular Terrain Planes. More than 20 is perfect without any seams (*21,22,23..30,40, etc*).
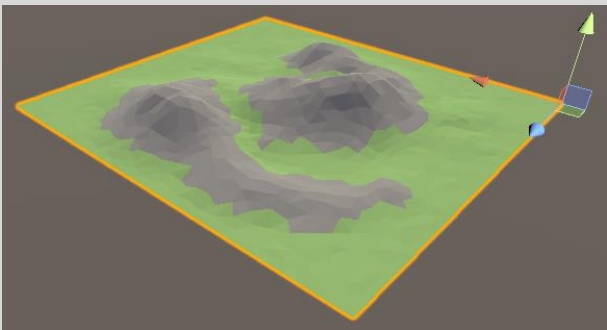
After you done setting up everything press on **Generate Lighting** button at the bottom. And wait until Lightmap Data will be generated.
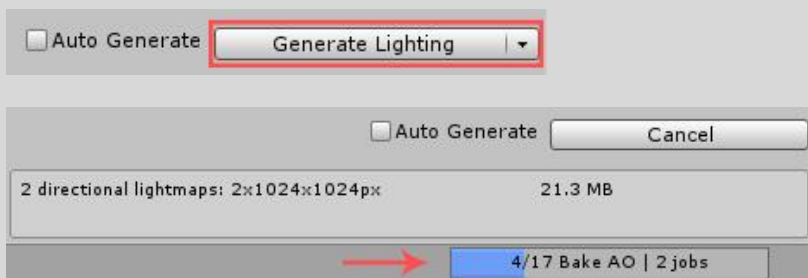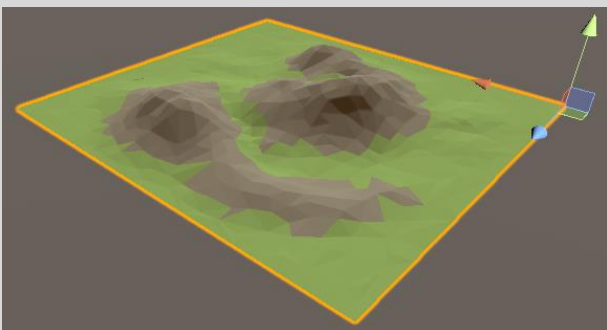

Baked Global Illumination For LOD Assets

If you bake LOD Terrain / Mountain only LOD0 will use Lightmap Data, LOD1 and LOD2 won't.
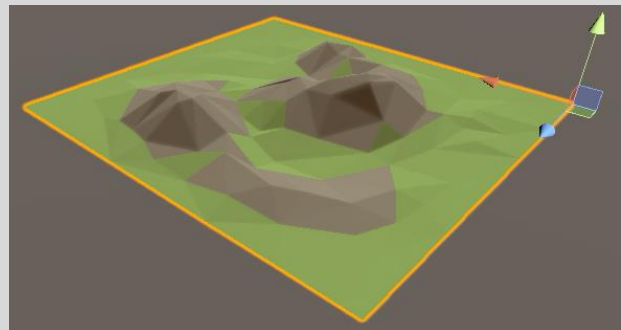
LOD0

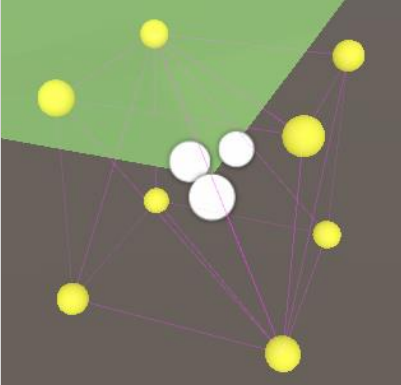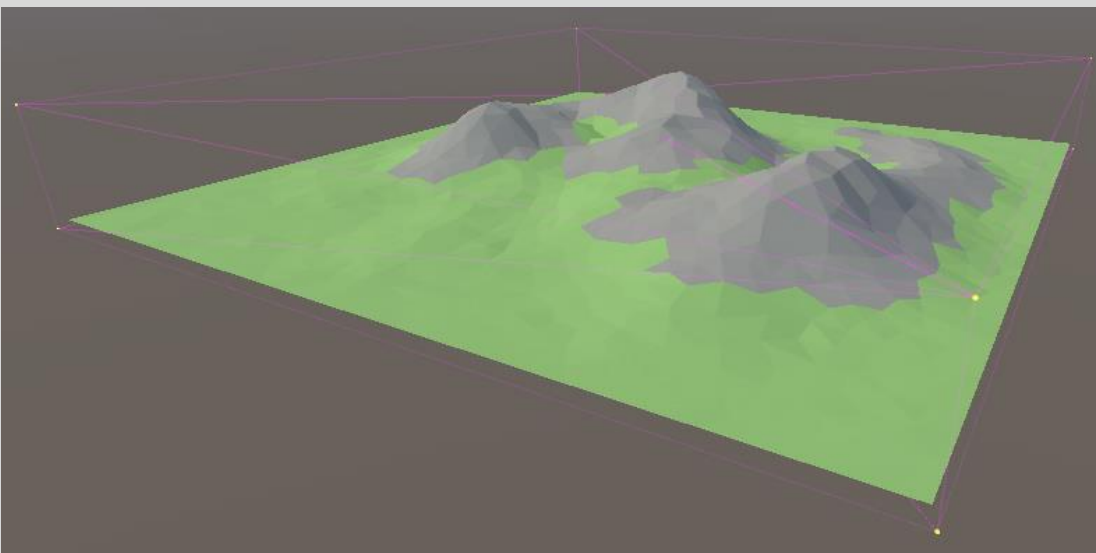**LOD1**   **LOD2**

You can see that lighting and colors are slightly different, so when you use LODs in the game, you will clearly see when LODs change from LOD0 to LOD1.
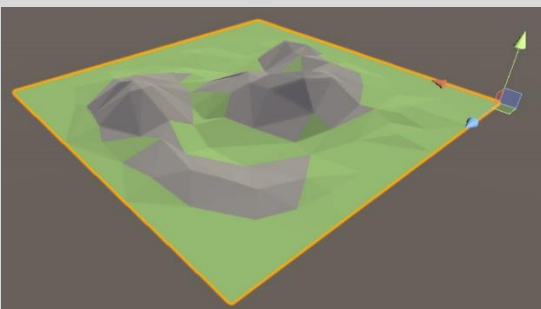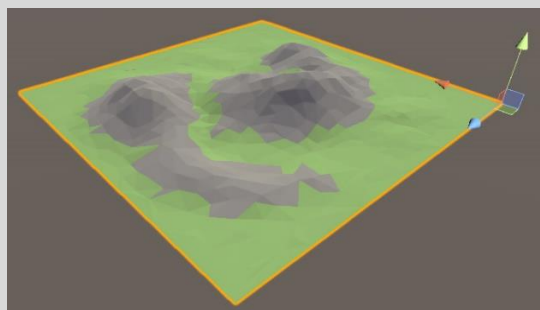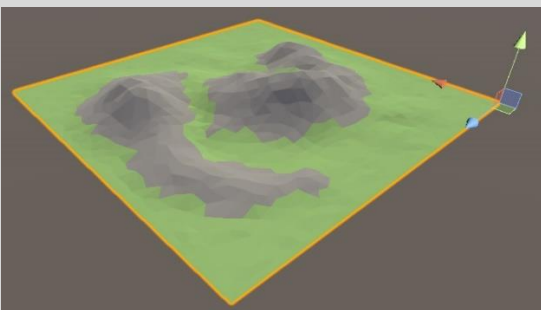
To fix this you will need to add **Light Probe Group** to your Scene!

And move Light Probes around the Terrain just like that:

Now, all LODs use Lightmap Data! So no difference in lighting and color.

ADDITIONAL INFO

NAMING CONVENTIONS

Prefab name example: **CPT_Terrain_L_b_27**

- **CPT** – Color Palette Texture (*All CPT Prefabs use 1 Material + 1 Color Palette Texture Atlas 64x64*)
- **L** – Large 100m x 100m Terrain Size
- **b** – Just a Terrain type letter,
- **27** – Prefab number

The same Terrain Prefabs comes in 3 different types:
- **CPT** – Color Palette Texture (*All CPT Prefabs use 1 Material + 1 Color Palette Texture Atlas 64x64*)
- **MT** – Material and Texture (All MT Prefabs use 1 Material. You can also add any seamless Texture to it!)
- **U** – Unity Terrain (You can edit the terrain shape, paint textures, draw grass, trees, etc)

All Terrain / Mountain prefabs come in 2 versions:
- **Simple** – Simple Mesh Prefabs
- **LOD** - Prefabs with 3 LOD levels: LOD0, LOD1, LOD2

Terrain / Mountain prefabs come in 3 Sizes:
- **L** - Large 100m x 100m Terrain Size
- **M** - Medium 50m x 50m Terrain Size
- **S** - Small – 25m x 25m Terrain Size
- All sizes prefabs are unique and different – so Large terrain is not the same terrain as medium or small

SCRIPTS

Almost every scene **Camera**, **Directional Light,** and **_Clouds**(*an empty game object which contains all clouds on the scene*) have movement controls.

For example, select the **Camera** and on **Inspector** scroll down to the bottom, you will see **ModularTerrainCameraControl (Script)** attached to it. Here you can control **Camera Movement Speed** using sliders.
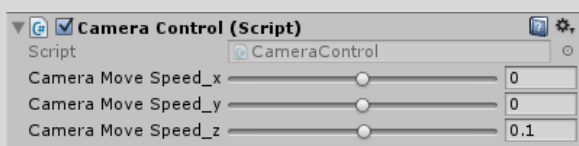
Same with **Direction Lights** and **_Clouds**.

CONTACTS

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https://twitter.com/lmhpoly