Magic Light Probes

Introduction

Magic Light Probes (MLP) - High Precision Light Probe Generator

> Unity light probes are an important part of every scene. It provide the transmission of direct, indirect and reflected light from light sources in mixed and baked modes to dynamic objects. The accuracy of lighting dynamic objects on the scene largely depends on how correctly the light probes are placed.
>
> Learn more in the docs or, if you prefer, this video tutorial.

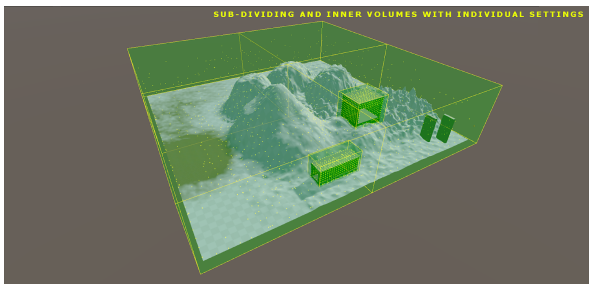
Magic Light Probes is an editor extension that is designed to help you arrange your light probes in the automatic mode as quickly and correctly as possible.

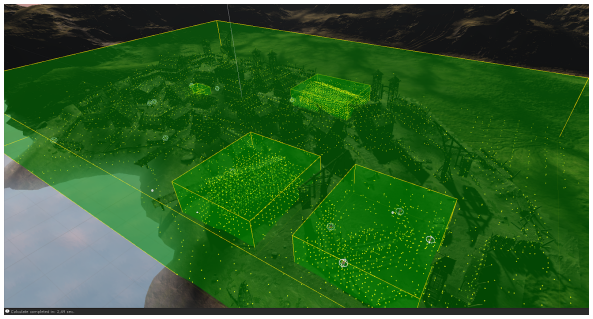
This tool can guarantee that:

- No probes will be located inside the geometry, no matter how complex it is, convex or concave. This is very important, because even in the simplest case of manually arranging probes by simple duplication, you will inevitably encounter probes within the geometry.
- With high accuracy, light probes will be installed at corners and intersections of the geometry. In corners, as a rule, the light intensity is lower, therefore, in order to properly illuminate a dynamic object when approaching such places, it is necessary to install probes there.
- Depending on the settings, the system will try to place the probes in the most contrasting places (errors are not excluded)
- It is guaranteed to be pretty fast in most cases.

Multivolume workflow

Large and complex scenes can be divided into separate volumes. You can customize each volume individually, and also exclude some light sources from the calculation in volumes in which they will not have any effect.





Multithreading and GPU acceleration

Although multithreading cannot be applied universally in Unity, there are still places where it is actively used. In most cases, this is work with large arrays.

In some calculation passes, GPU acceleration (compute shaders) is used. It's very fast. This brings maximum benefit during the setup of the already calculated volume.

Debug mode

Volume calculation takes place in several passes and each of these passes you can configure separately using the debug mode.

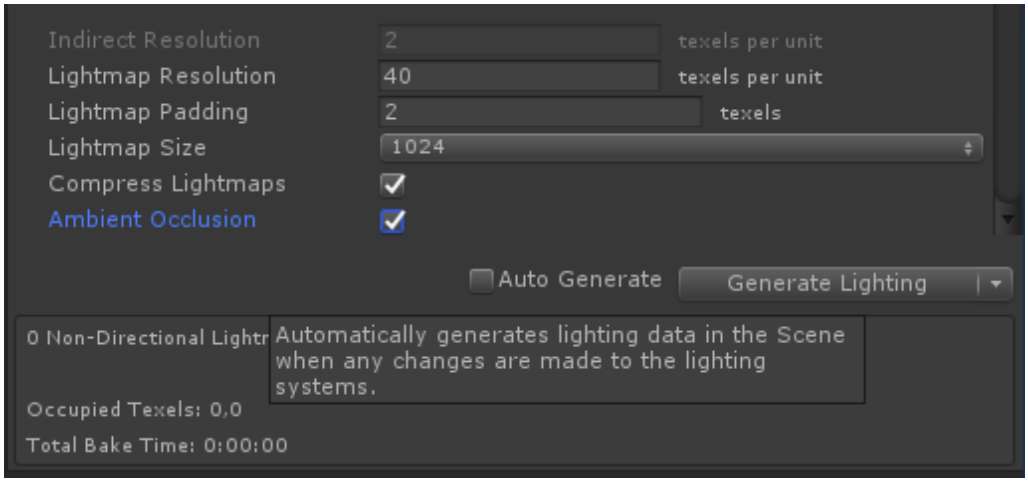
GETTING STARTED

Quick Start

1. Editor Setup

During scene setup, the positions of the light probes will often change, so it is recommended that you turn off the automatic generation of lighting to speed up the workflow.

Go to "**Lighting**" and uncheck the "**Auto Generate**" option.

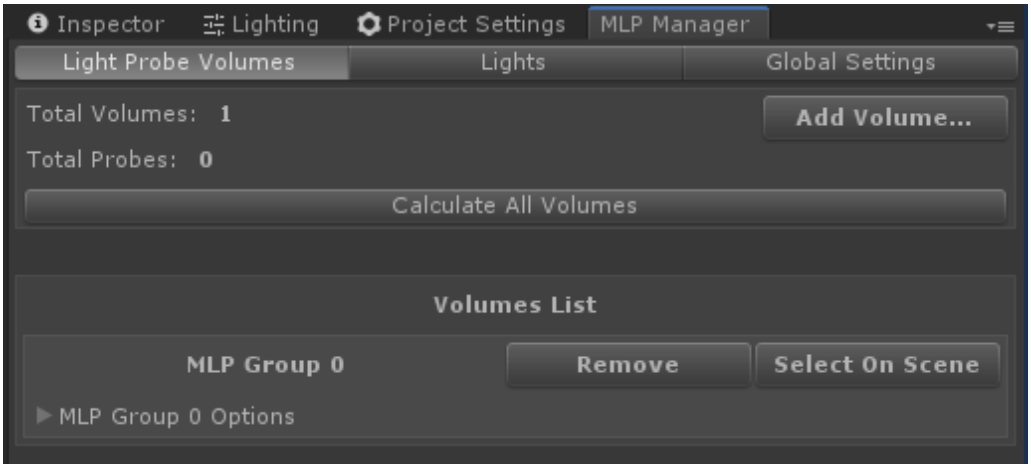


2. Import MLP Package

Import the MLP package using the "**Asset Store**" tab in the editor or go to the "**Assets -> Import Package -> Custom Package**" menu and select the package in Windows Explorer.

3. Adding calculation volume to the scene

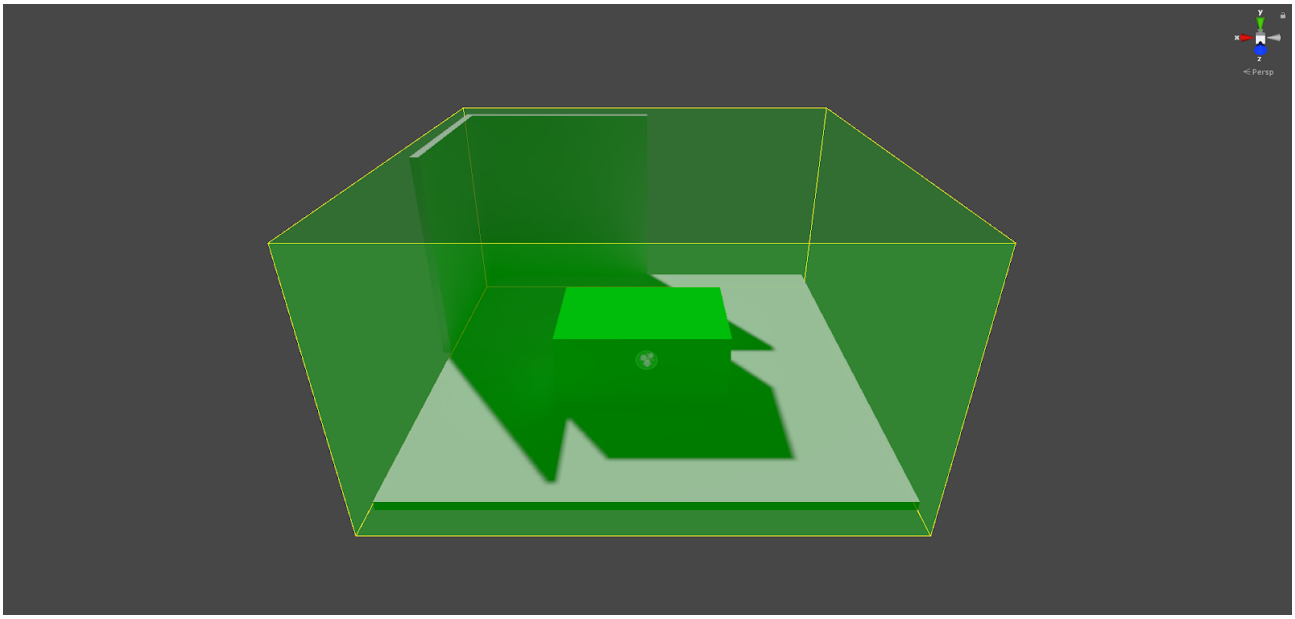
1. Open the scene Magic Light Probes -> Examples -> Quick Start
2. Open manager window Tools - > Magic Light Probes -> MLP Manager
3. Click the "**Add Volume...**" button



The main plugin component will be added to the scene

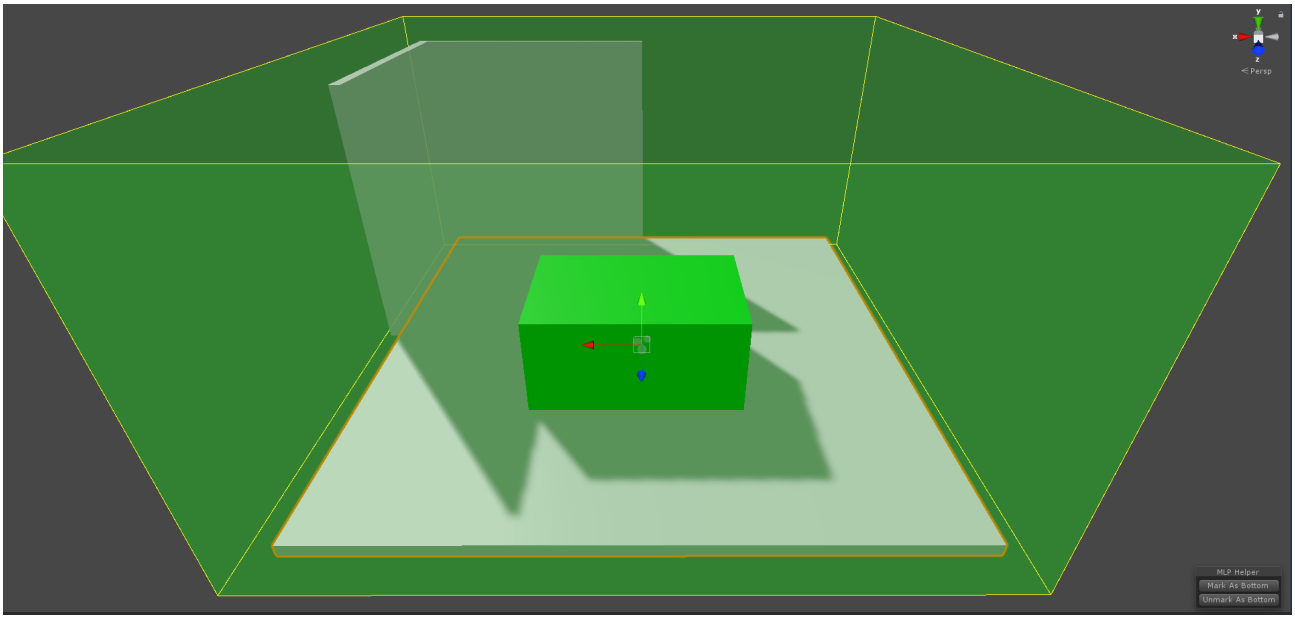
4. Basic Volume Setting

Select an “MLP Group 0” object and then select the child object “MLP Group 0 Volume”, resize it to fit the size of the scene.

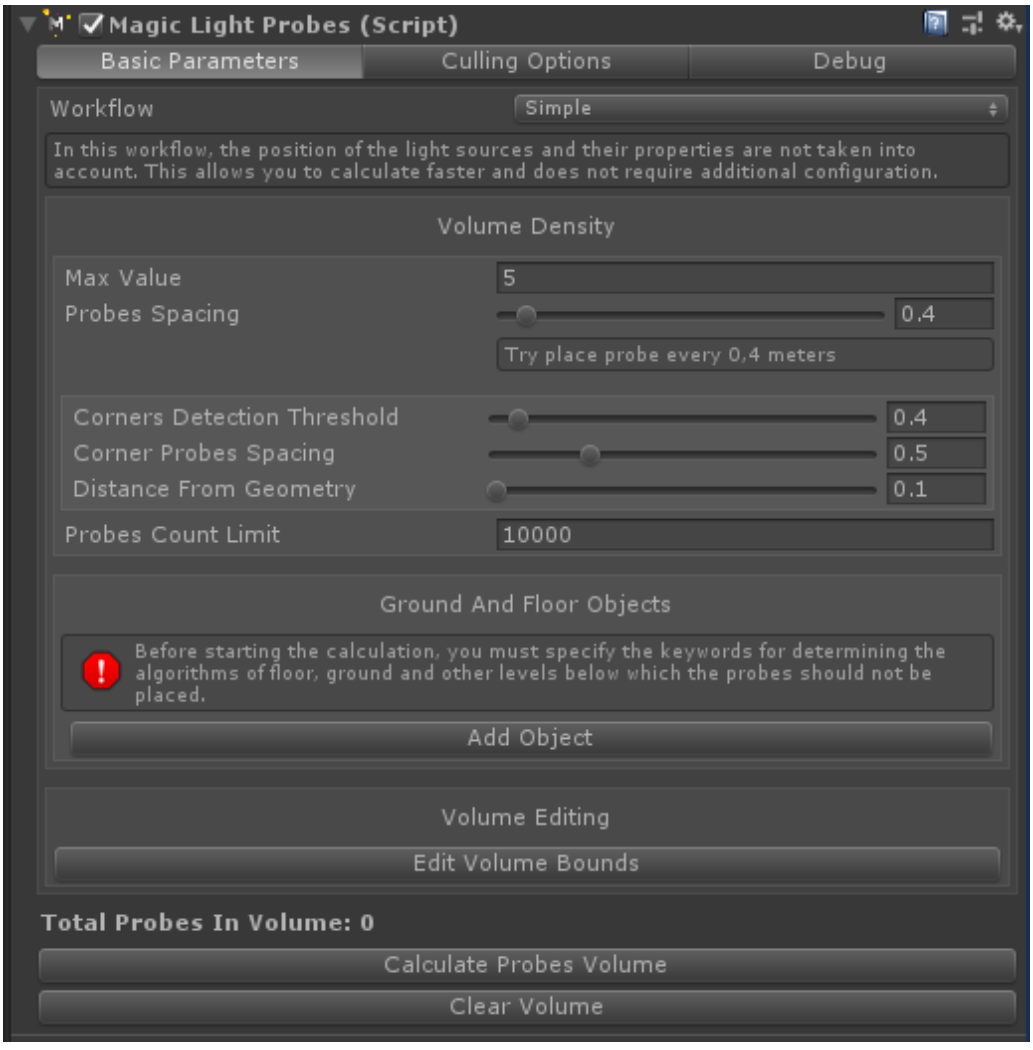


Use standard tool “Rect Tool” or "Handles" on volume sides

Enable the "**Scene GUI**" (**Tools -> Magic Light Probes -> Scene GUI -> Enable**), select the plane below the object and click button “**Mark As Bottom**”



You can also use the interface of the main component to perform this action. Go to the "**Basic Parameters**" tab and click the "**Add Object**" button in the "**Ground And Floor Objects**" section.

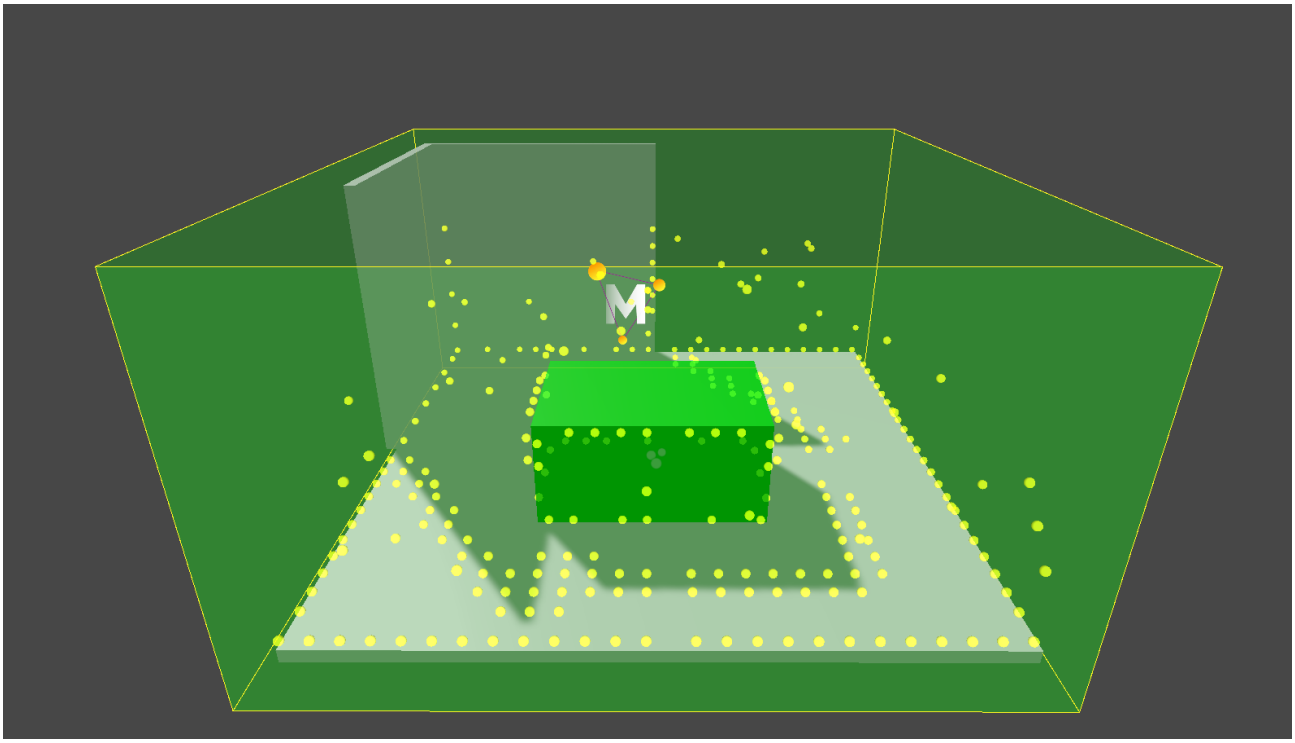


5. Volume Culling Options

Set "**Color Threshold**" to 0.005 and "**Free Volume Filling Rate**" to 0.05

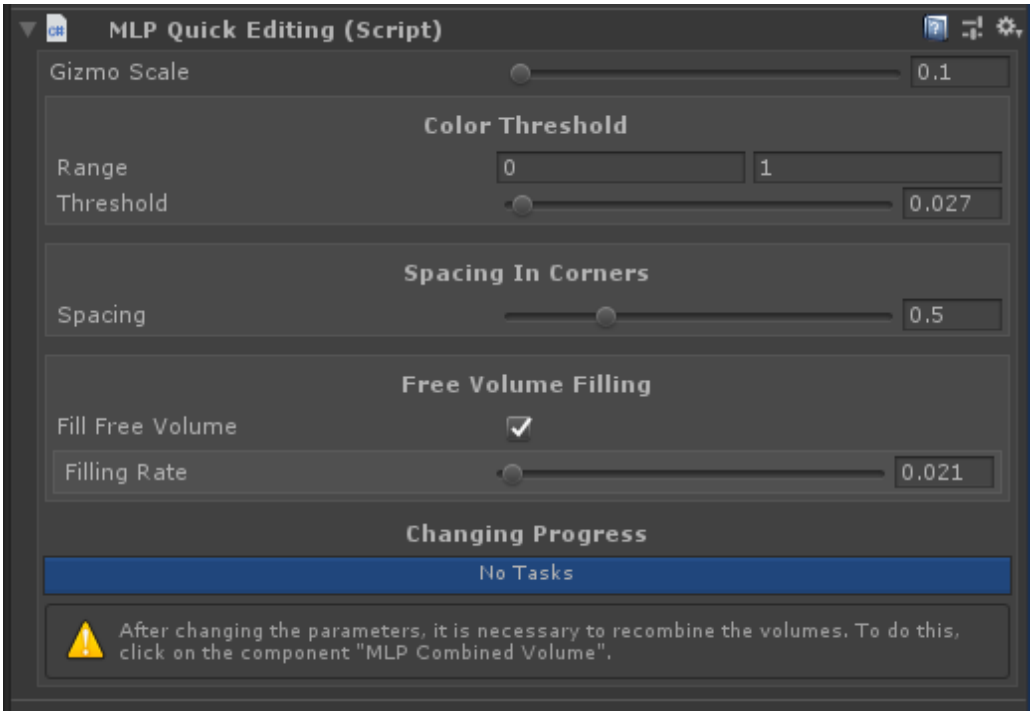
6. Volume Calculation

Click the “**Calculate Probes Volume**” button.



7. Quick Volume Editing

Additionally, you can press on the “**Go To Quick Editing**” button and adjust the available options in the “**MLP Quick Editing**” component.



Changes in the corresponding values will be reflected in real time on the parameters of filling the volume.

Recommendations To Use

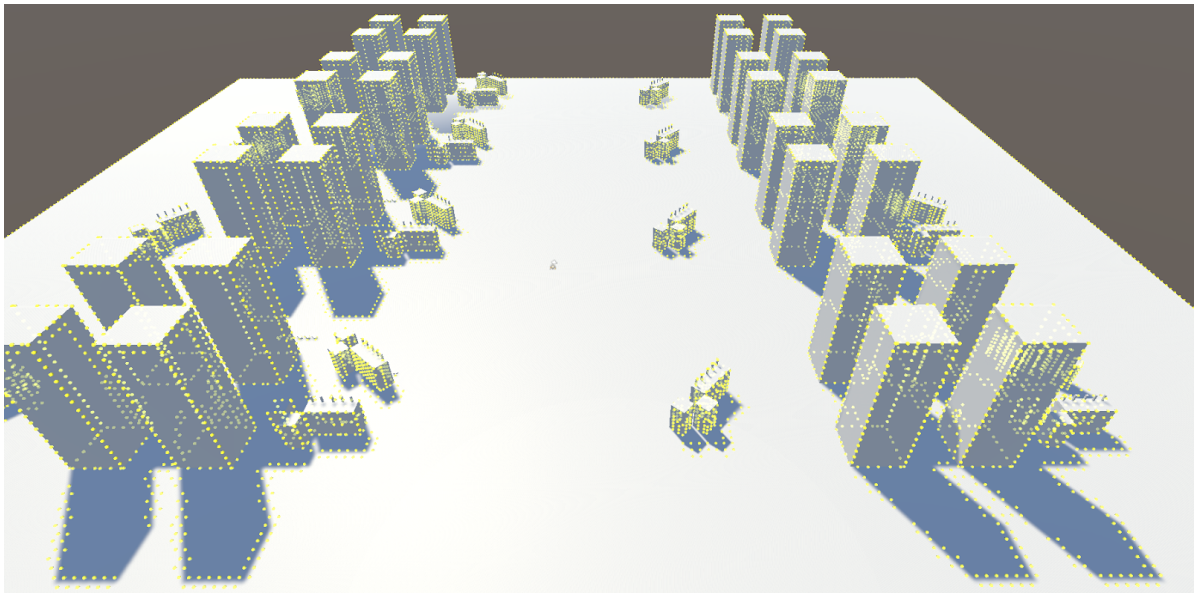
Scene Sizes

For small scenes in most cases, it is enough to place one volume with size of the whole scene. The default values of all parameters are suitable for most situations.

If your scene is large enough, it’s good practice to place one volume with size of the whole scene and adjust it so that the spacing between the probes is maximized. This will fill large spaces on the scene quite quickly and correctly. Pay attention to the "Corners Detection Threshold" parameter, it directly affects the calculation speed and the number of sub-volumes into which the main volume will be divided.

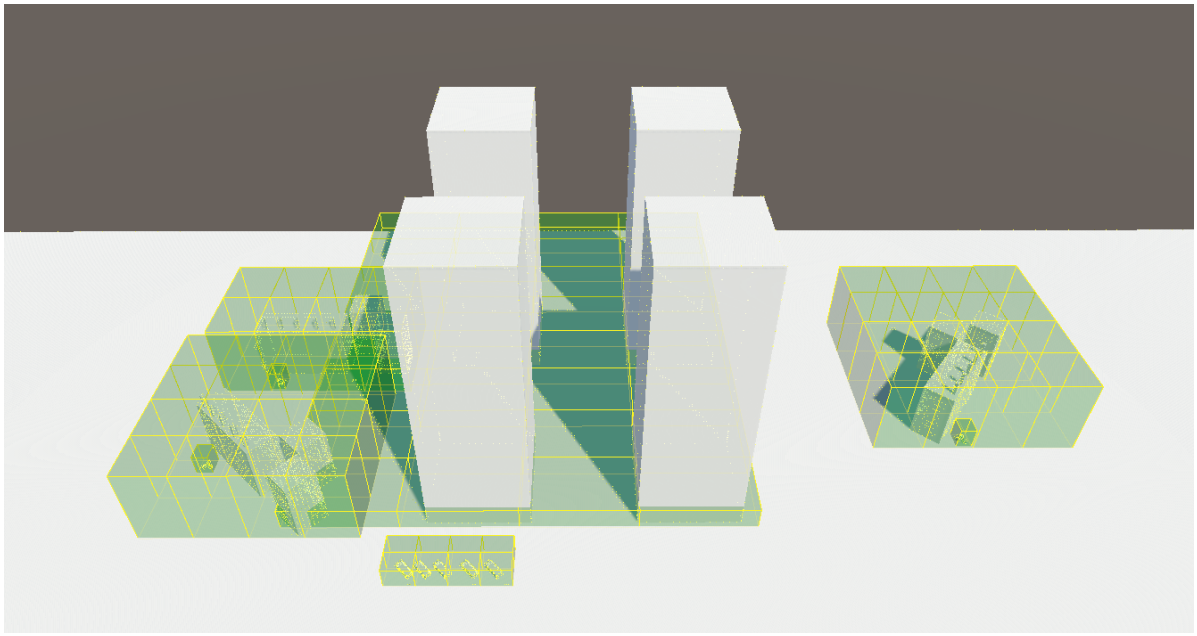
> You should also place individual volumes in those places where more accurate placement of probes is required. The settings for such volumes depend on the situation, but in most cases the default settings will do.

Whole Scene



Probes Spacing - 5; Corners Detection Threshold - 3; Probes Count - 10000

Detailed Scene Part



Eight enclosed volumes with individual settings

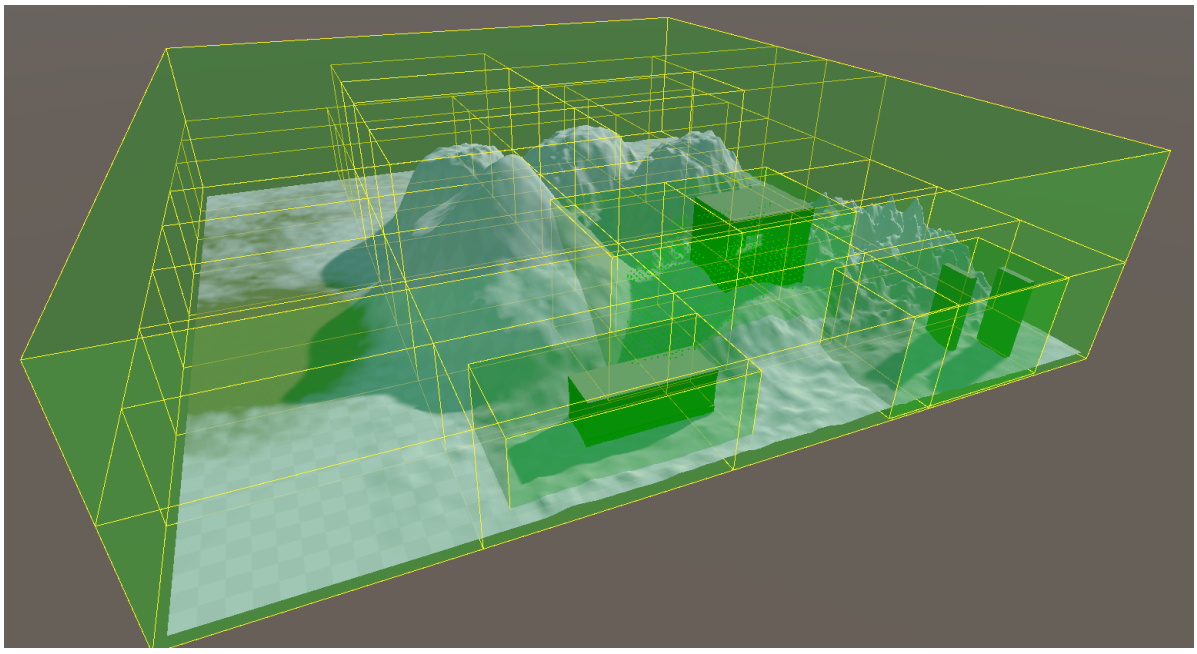
You should not place one large volume with small spacing on large scenes, firstly, it will inevitably lead to a long calculation time, and secondly it will limit you in the ability to configure individual parts of your scene for a more detailed calculation.

In addition, the size of the volume is limited programmatically in order to avoid RAM overload. When such a restriction works, you will see the corresponding warning in the main component of the plugin, as well as in the component of the editable volume. You will also be offered options to correct the situation.

Optimization For Mixed Mode

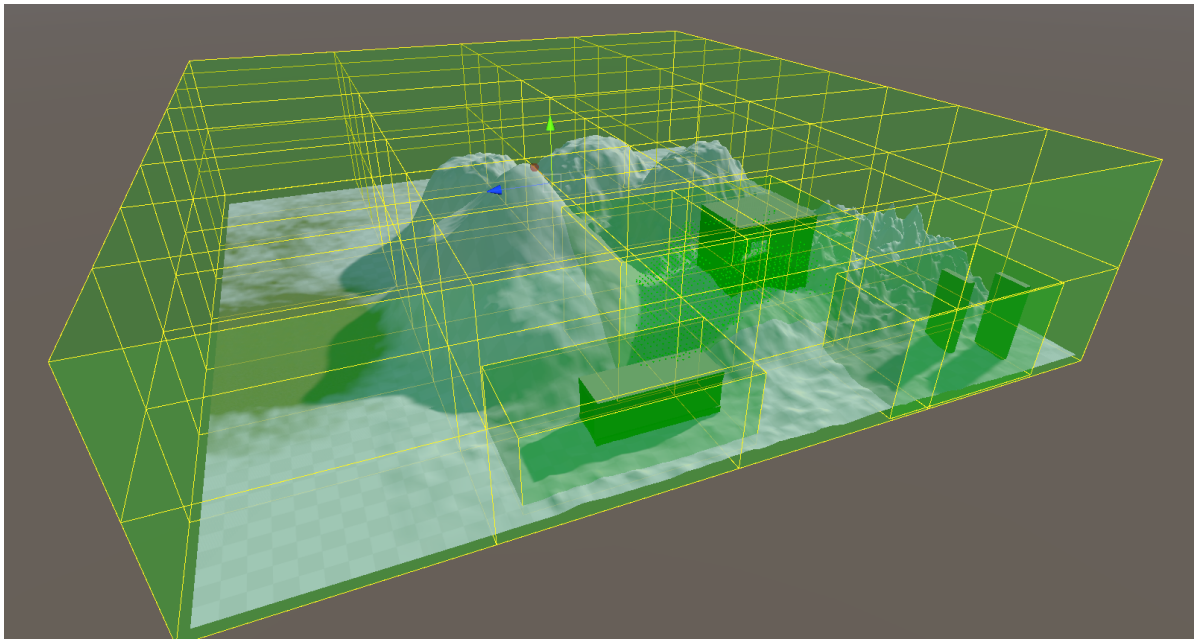
If your scene uses light sources in mixed mode, then be sure to use the "**Optimize For Mixed Lighting**" option this will remove all parts of the volume that do not contain geometry and reduce the calculation time.

Optimization Enabled



Nearly half of the volume is deducted

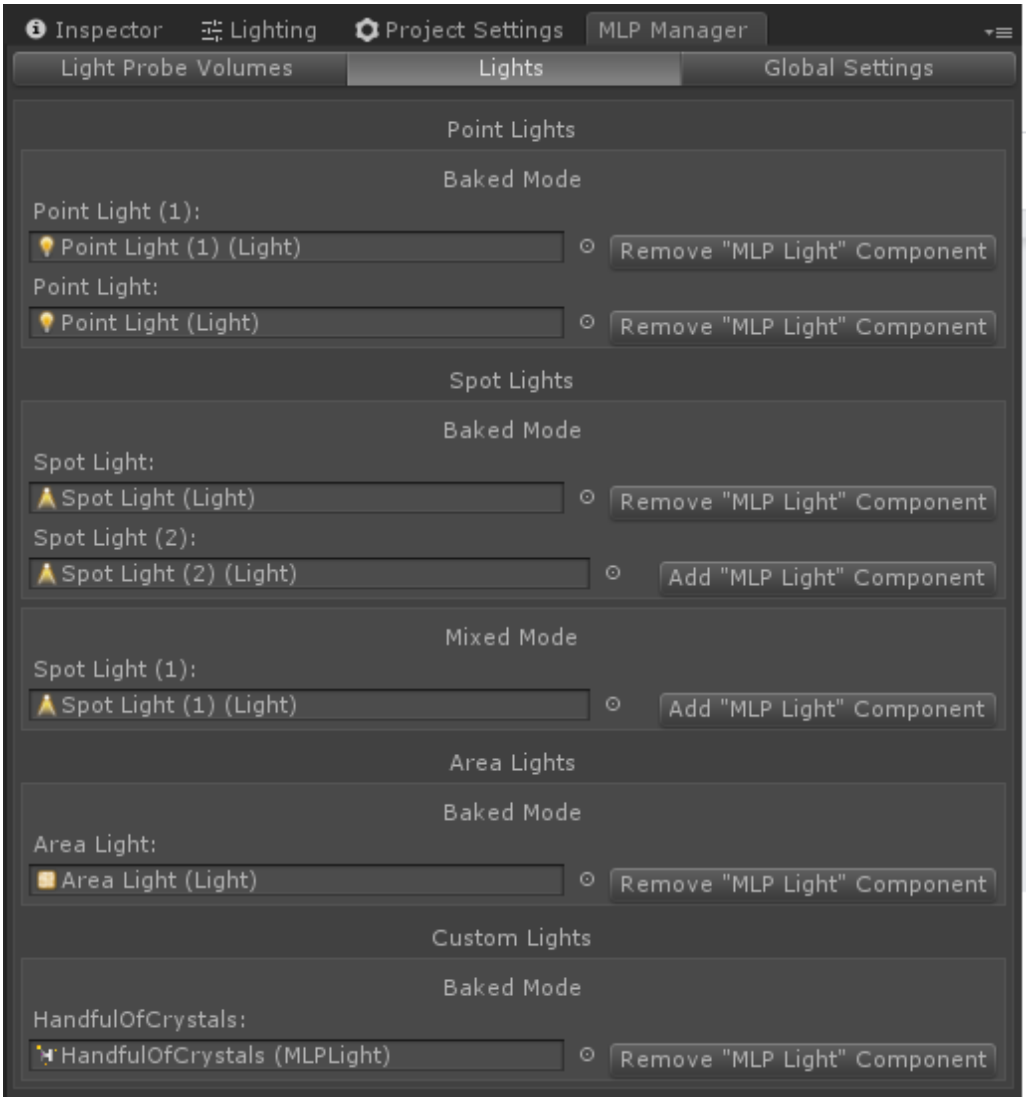
Optimization Disabled



All parts of the volume are saved

Light Source Management

If your scene has many light sources, then use the "Lights" tab in the manager. It displays all the light sources in your scene, sorted by type and mode. Right from there, you can switch between them on the scene and add or remove the "MLP Light" component.

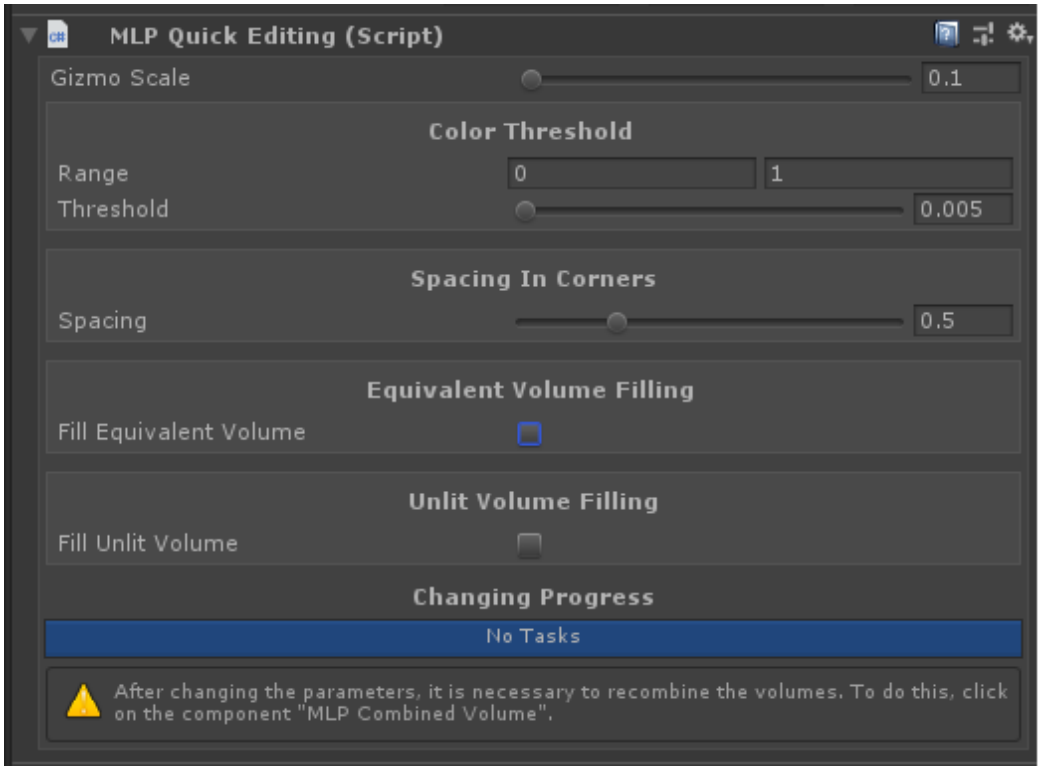


All light sources in the scene are sorted by type and mode

Quick Volume Editing

Use the "MLP Quick Editing" component to edit some volume parameters after calculating it. These changes are processed at the GPU (if your configuration supports compute shaders), so it is very fast. If the volume is divided into sub-volumes, then they are calculated one by one.

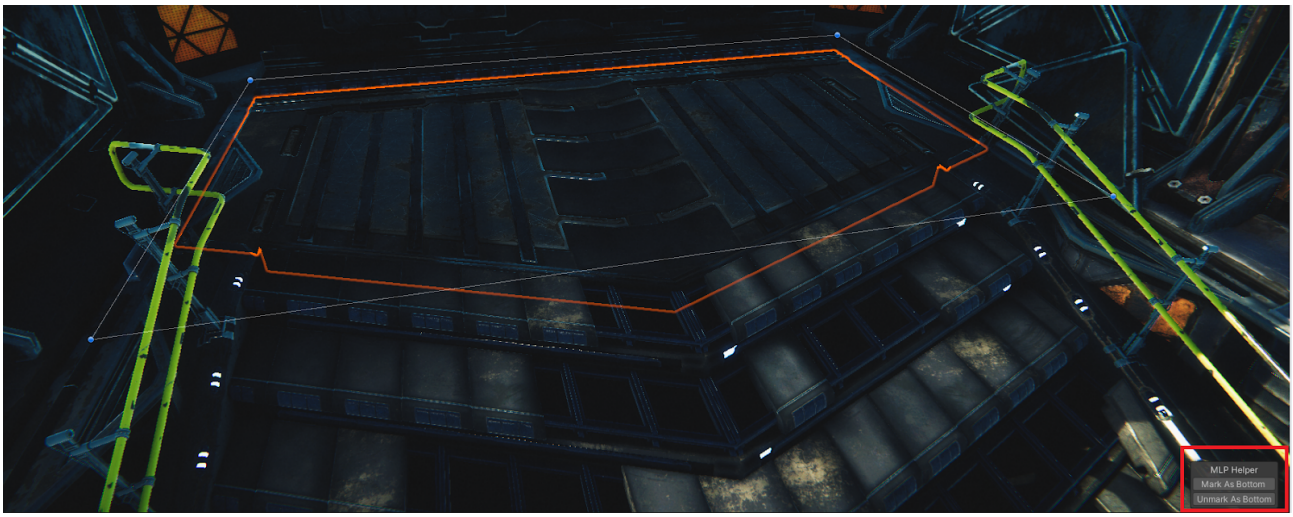
In most cases, the volume can be adjusted using this component.



Defining Scene Bottom

The system needs to know which of your objects are bounding below. It can be ground, terrain or the floor of the lower floor of a building.

To quickly mark such objects, use the "**MLP Helper**" - this is the object that appears in the scene view. To enable it, use the menu **Tools -> Magic Light Probes -> Scene GUI -> Enable**.



Now you can quickly mark and unmark such objects.

FAQ

My scene is too big, placing the volume slows down the editor

For large scenes, it is recommended to use several calculation volumes. They can be added using the "Add Volume..." button (Tools -> Magic Light Probes -> MLP Manager) or simply duplicate any of the added volumes on the scene. It is also recommended to use the "Probes Count Limit" parameter in the “Basic Parameters” tab. The larger the value of this parameter, the smaller the number of sub-volumes the main volume will be divided. The maximum value is 500,000.

The calculation takes a long time

Several parameters should be noted

- **Probes Spacing**
- **Corners Detection Threshold**

Probes Spacing parameter directly affects the final volume density. The lower this value, the denser the probes will be installed. In some cases, it is recommended to use one large volume with large spacing and smaller volumes in places that require a more detailed calculation. An example of such a scene - Examples -> Terrain in the plugin folder.

Corners Detection Threshold parameter affects the accuracy of the corners and geometry intersection detection. This calculation is performed before the main calculation. Do not use too low values of this parameter in volumes that do not require a detailed calculation, this can greatly slow down the calculation.

The description of the plugin states that it uses multithreading, but the load on my processor is almost

always very low

Unity is not a multi-threaded engine, so access to most native APIs is not possible from parallel threads. Thus, multithreading is used only in some calculation passes, mainly it is work with large arrays. You may notice a short increase in processor load during the calculation - at these moments multithreading is used. This happens pretty quickly, so you may not notice it at all. Some passes also use GPU acceleration for calculation.

After the calculation, there are no light probes on the scene

Possible solutions:

- If "**Advanced Workflow**" mode selected, You should make sure that the “**MLP Light**” component is added to the light sources
- Before starting the calculation, the system disables all objects on the scene that are not marked as static. Make sure that your geometry is not a child of one of these objects, and if so, mark the root object as static.

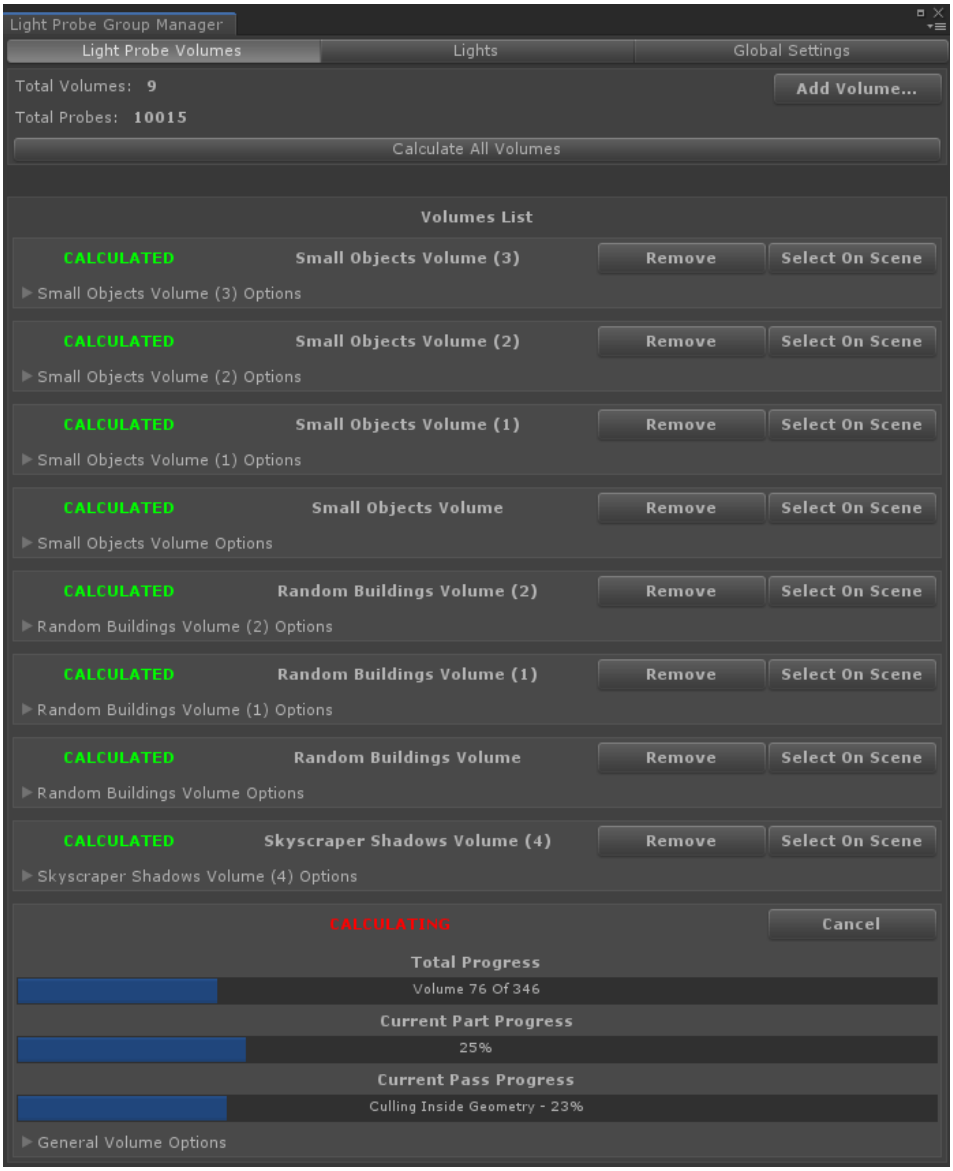
System Components

Manager

MLP Manager allows you to manage all volumes on the scene from one place, quickly view and change their settings, add new ones, delete redundant ones, start a sequential calculation of all volumes, and also manage all light sources.

To open the manager window, click **Tools -> Magic Light Probes -> MLP Manager**.

Light Probe Volumes Tab



The ”**Add Volume...**” button adds a new volume to the scene.

> You can also add a new volume to the scene simply by duplicating any of the added volumes. (just Ctrl + D)

The “**Calculate All Volumes**” button starts the calculation of all volumes.

Volumes will be calculated one by one. After the calculation is completed, all volumes will automatically be combined into one, the result is available in the "**MLP Combined Volume**" object.

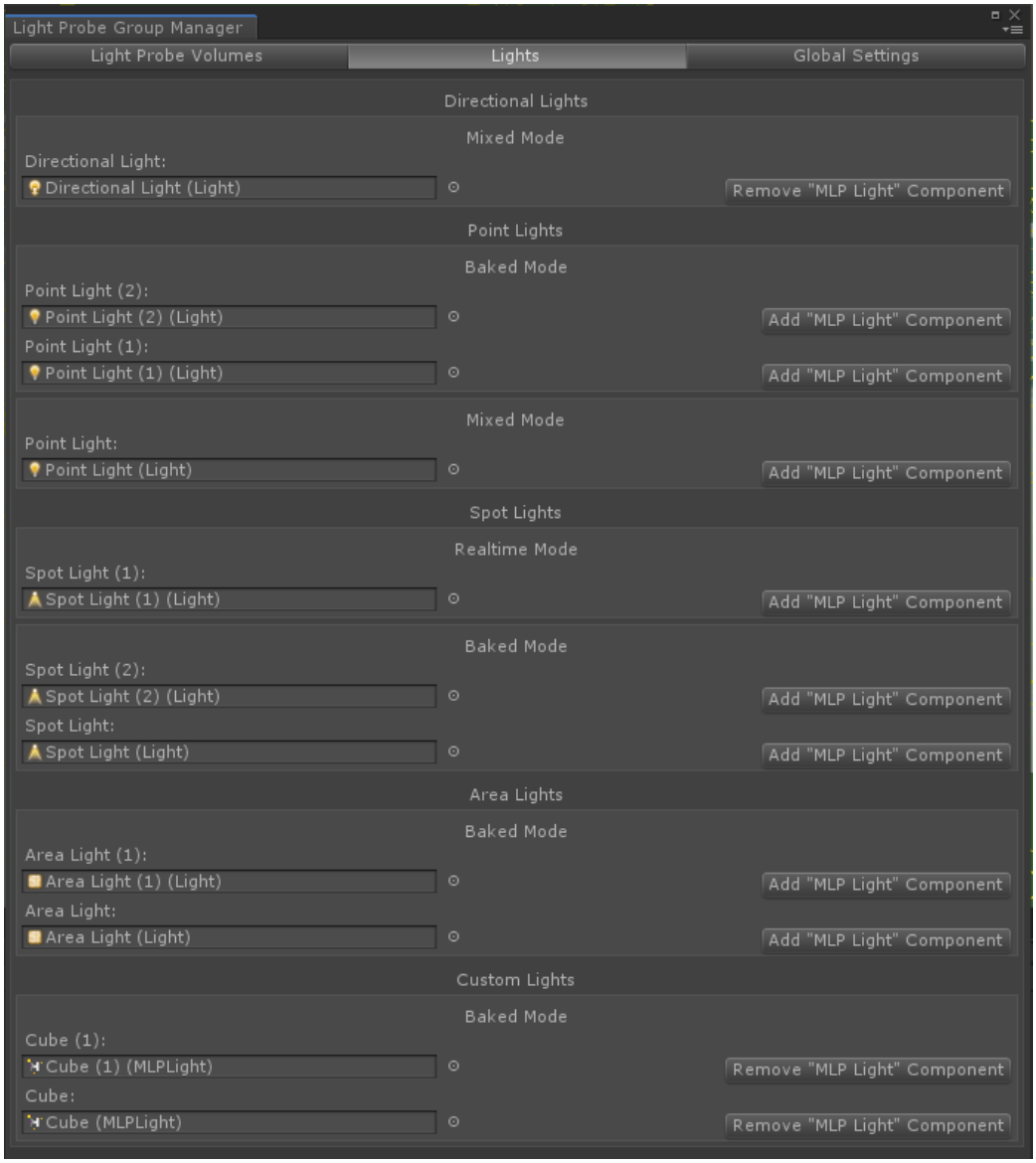
All volumes added to the scene are displayed in the “Volume List”. The “Remove” button removes volume from the scene. The “Select on Scene” button selects the volume in the scene hierarchy.

When the cycle for calculating all volumes is started, the calculation of any of the volumes can be stopped by pressing the "Cancel" button, after which the iterator will go to the next volume in the queue.

> Keep in mind that automatic volume combination will not be started until all volumes have been calculated. To exclude volume from the calculation, simply deactivate it on the scene.

Lights Tab

In the “**Lights**” tab is a list of all light sources. All light sources in your scene are displayed in this in the masonry in sorted form by type and mode.


Light Probe Group Manager
Light Probe Volumes
Lights
Global Settings
Directional Lights
Mixed Mode
Directional Light:
Directional Light (Light)
Remove "MLP Light" Component
Point Lights
Baked Mode
Point Light (2):
Point Light (2) (Light)
Add "MLP Light" Component
Point Light (1):
Point Light (1) (Light)
Add "MLP Light" Component
Mixed Mode
Point Light:
Point Light (Light)
Add "MLP Light" Component
Spot Lights
Realtime Mode
Spot Light (1):
Spot Light (1) (Light)
Add "MLP Light" Component
Baked Mode
Spot Light (2):
Spot Light (2) (Light)
Add "MLP Light" Component
Spot Light:
Spot Light (Light)
Add "MLP Light" Component
Area Lights
Baked Mode
Area Light (1):
Area Light (1) (Light)
Add "MLP Light" Component
Area Light:
Area Light (Light)
Add "MLP Light" Component
Custom Lights
Baked Mode
Cube (1):
Cube (1) (MLPLight)
Remove "MLP Light" Component
Cube:
Cube (MLPLight)
Remove "MLP Light" Component

Main Component

This is the main component of the system, it is used to configure, debug and calculate volume.

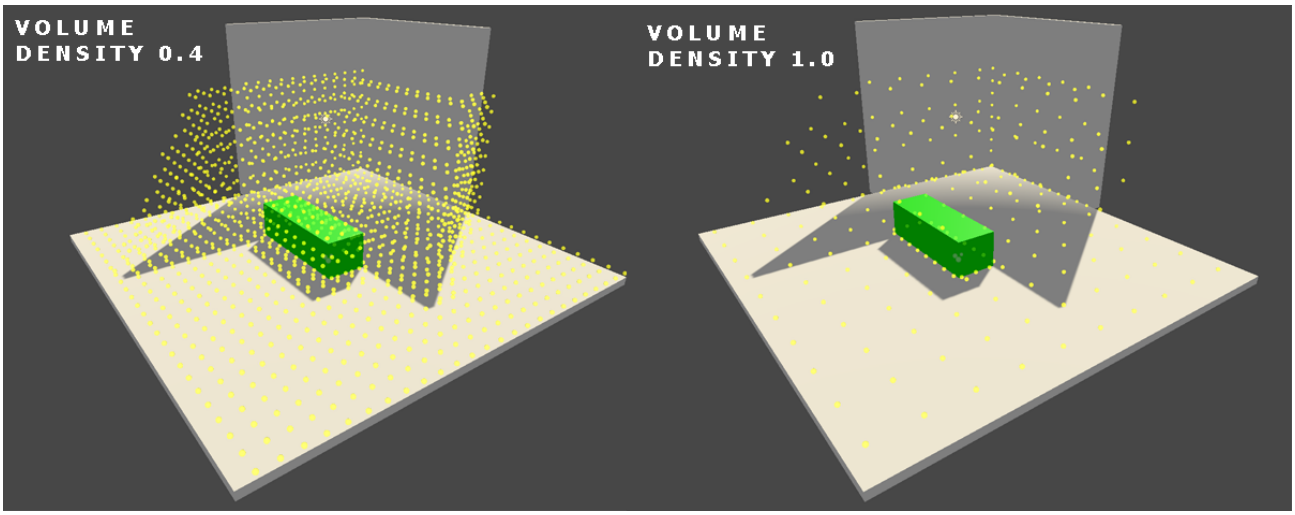
Basic Parameters

Parameter	Description

Workflow	This option allows you to select a workflow. **Simple** - In this workflow, the position of the light sources and their properties are not taken into account. You only need to add volume to the scene, make the minimum settings and click the calculation button. This allows you to calculate faster and does not require additional configuration. **Advanced** - This workflow requires the addition of the "MLP Light" component to all light sources that must be taken into account during the calculation. This allows you to achieve more accurate results, but also requires fine tuning of each light source.
Max Value	The maximum value of the upper limit of the parameter "**Probes Spacing**".
Probes Spacing	The lower spacing, the longer the calculation will take. Typically, a value of 0.4 is sufficient.
Corners Detection Threshold	The accuracy of determining intersections of geometry.
Corner Probe Spacing	Distance between probes installed at intersections of geometry.
Distance From Geometry	The distance by which the probes will be moved away from the geometry.
Probes Count Limit	If your volume is too large, it will automatically be divided into parts for faster calculation and memory saving. If the number of probes in the volume exceeds this value, then it will be divided.
Ground And Floor Objects	Use these options to select objects that border the scene below. No probes will be installed below such objects. It is assumed that in such areas the player cannot be and lighting is not needed there.

Probes Spacing

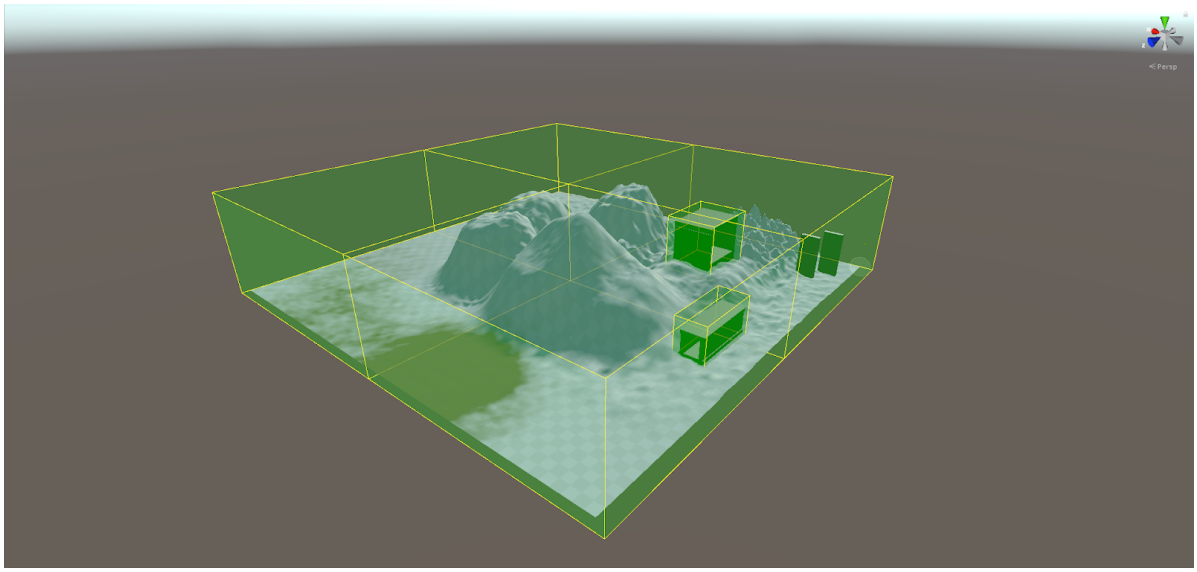
The "**Probes Spacing**" parameter is needed to adjust the calculation accuracy. The lower the value, the more accurate the calculation. Keep in mind that not in all cases and not on all scenes, high accuracy means a good result.



Probes Count Limit

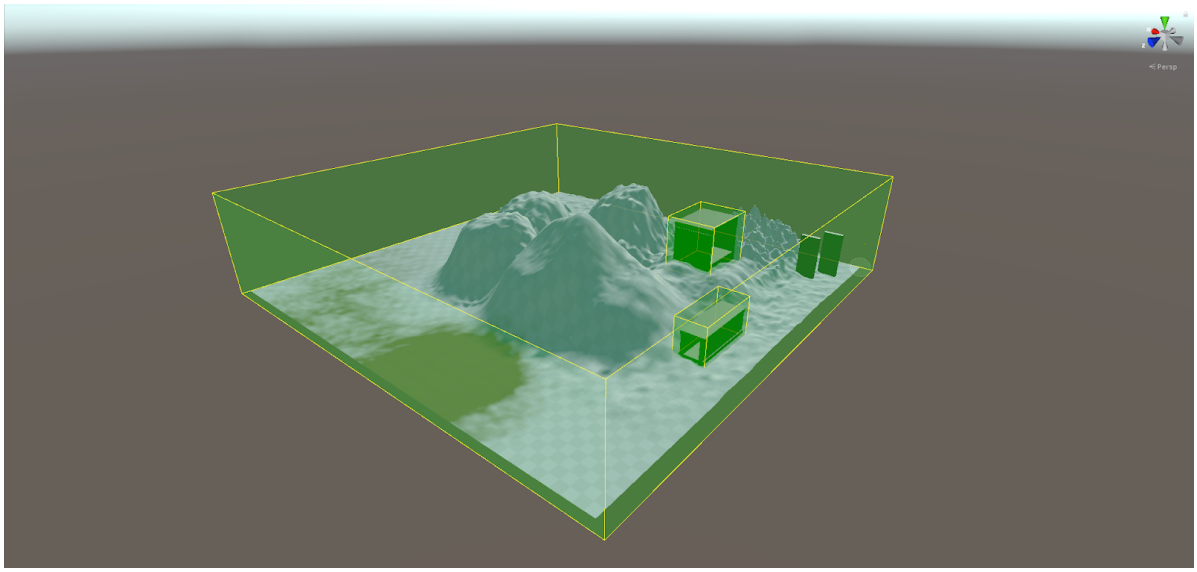
The "**Probes Count Limit**" parameter determines how many points can be placed in the volume for calculation. This is not the final number of probes in volume. This parameter determines how many parts the volume will be divided to optimize the calculation speed.

Probes Count Limit - 10.000



The volume is divided into 4 parts, in each part no more than 10.000 points for calculation

Probes Count Limit - 100.000



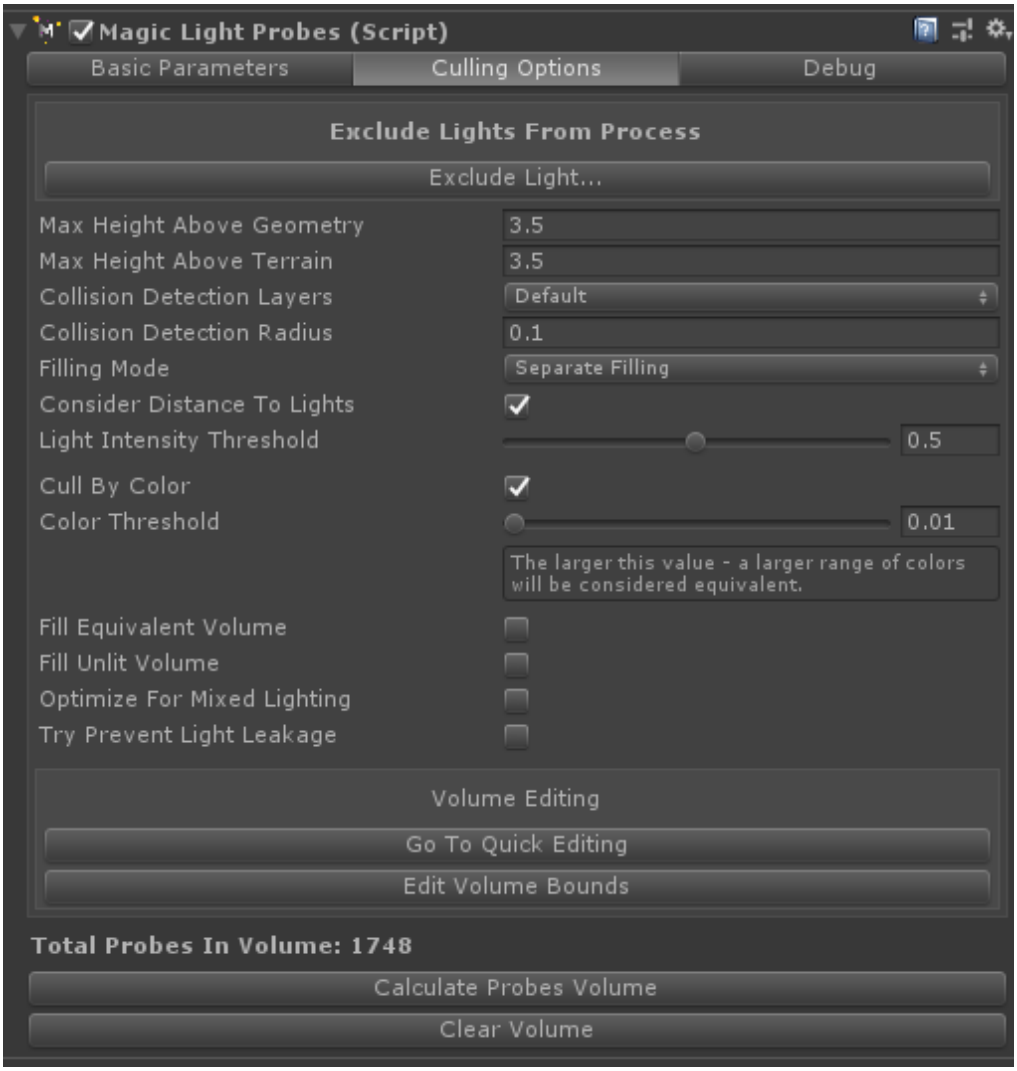
No more than 100.000 points for calculation in whole volume, so it is not divided

Culling Options

Using these options, you can configure in detail how the volume will be filled in during the calculation. The set of options varies for different "Filling Modes", as well as for Workflows.

Simple Workflow

Advanced Workflow



Paramenter	Description
Exclude Light From Process	The indicated light sources will be excluded from the calculation in this volume.

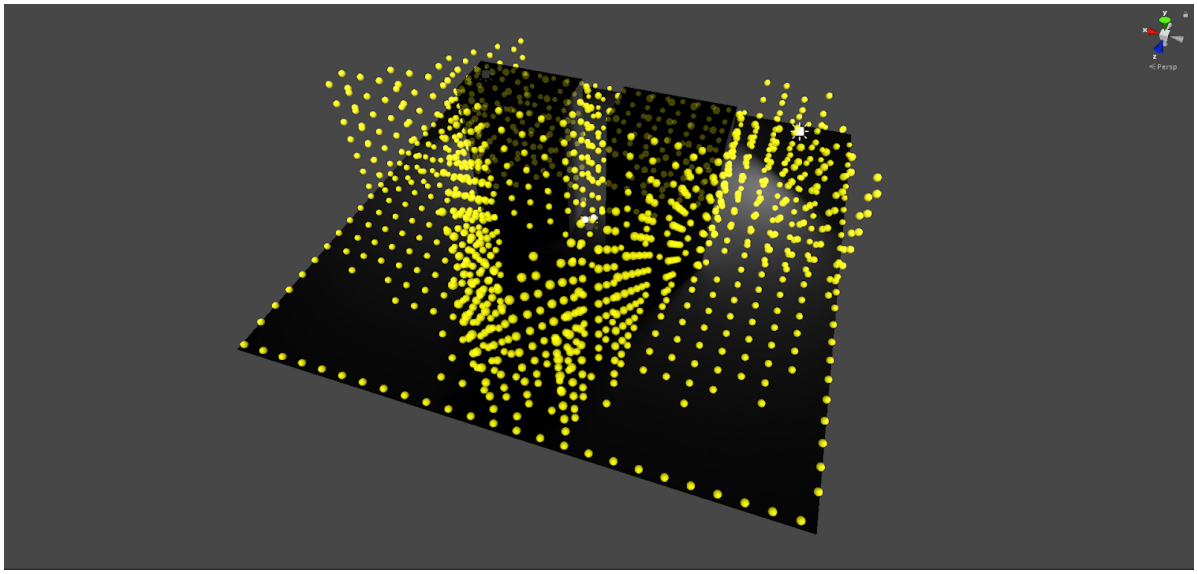
Max Height Above Geometry	All probes above the geometry whose height is higher than the specified value will be culled.
Max Height Above Terrain	All probes above the terrain whose height is higher than the specified value will be culled.
Collision Detection Layers	Selected layers will be taken into account in the calculation.
Collision Detection Radius	Probes in which geometry is detected in the specified radius will be excluded from the calculation.
Consider Distances To Lights	If checked, then the calculation will take into account the distance to the light sources.
Filling Mode	In **Advanced** workflow mode MLP can work in three different fill modes. Separate Filling, Vertical Duplicate, and Full Filling. In the “**Separate Filling**” mode, the volume will be divided into sub-volumes. This is a fully automatic mode that takes into account contrast areas (shadows, color changes, changes in light intensity, unlit areas, range and angles of light sources). In the "**Vertical Duplication**" mode, the probes will be located along the geometry and then duplicated to the specified height with the specified step. In the "**Full Filling**" mode, the probes will be located evenly throughout the volume. All probes inside the geometry will be automatically deleted.
Light Intensity Threshold	The accuracy of the culling of probes by light intensity. The lower accuracy, the greater the range of probes will be considered equivalent and will be culled.

Color Threshold	The threshold for determining the color equivalence of neighboring probes.
Fill Equivalent Volume	If checked, then the volume of culled probes according to the light intensity will be filled. **Filling Rate** - Density of filling the volume. 1 - full filling.
Fill Unlit Volume	If checked, the volume of unlit probes will be filled. **Filling Rate** - Density of filling the volume. 1 - full filling.
Optimize For Mixed Lighting	Check this option if your scene uses only mixed-mode lights. All parts of the volume that do not contain any geometry will be removed and this will increase the calculation speed.
Try Prevent Walls Light Leakage	Check this option to enable an algorithm that attempts to automatically prevent lighting leaks from neighboring rooms. From probes that are on the other side of the wall.

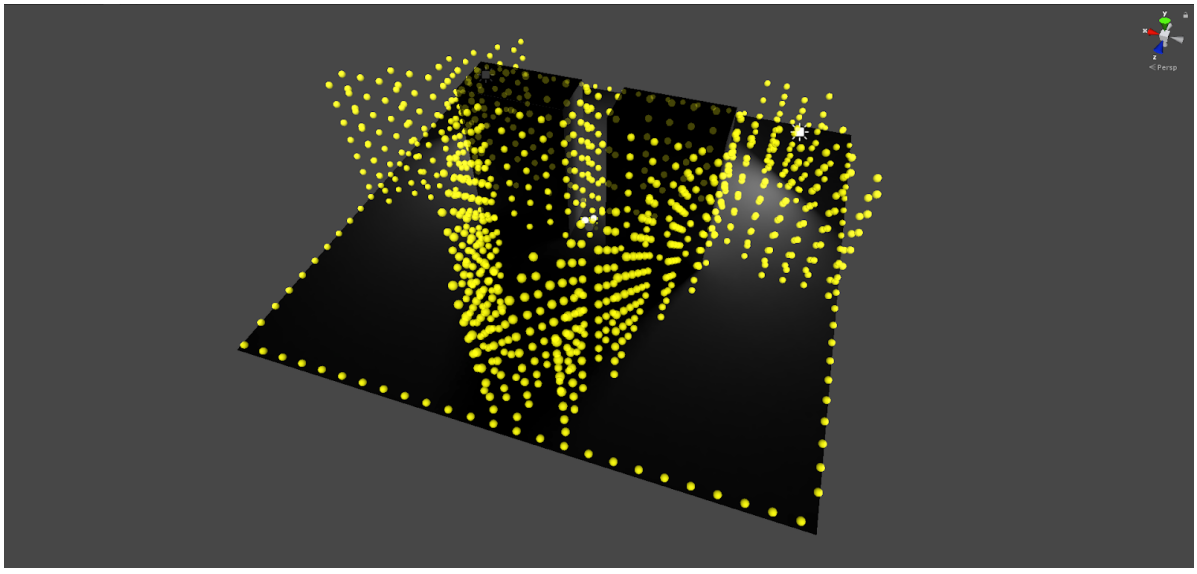
Color Threshold

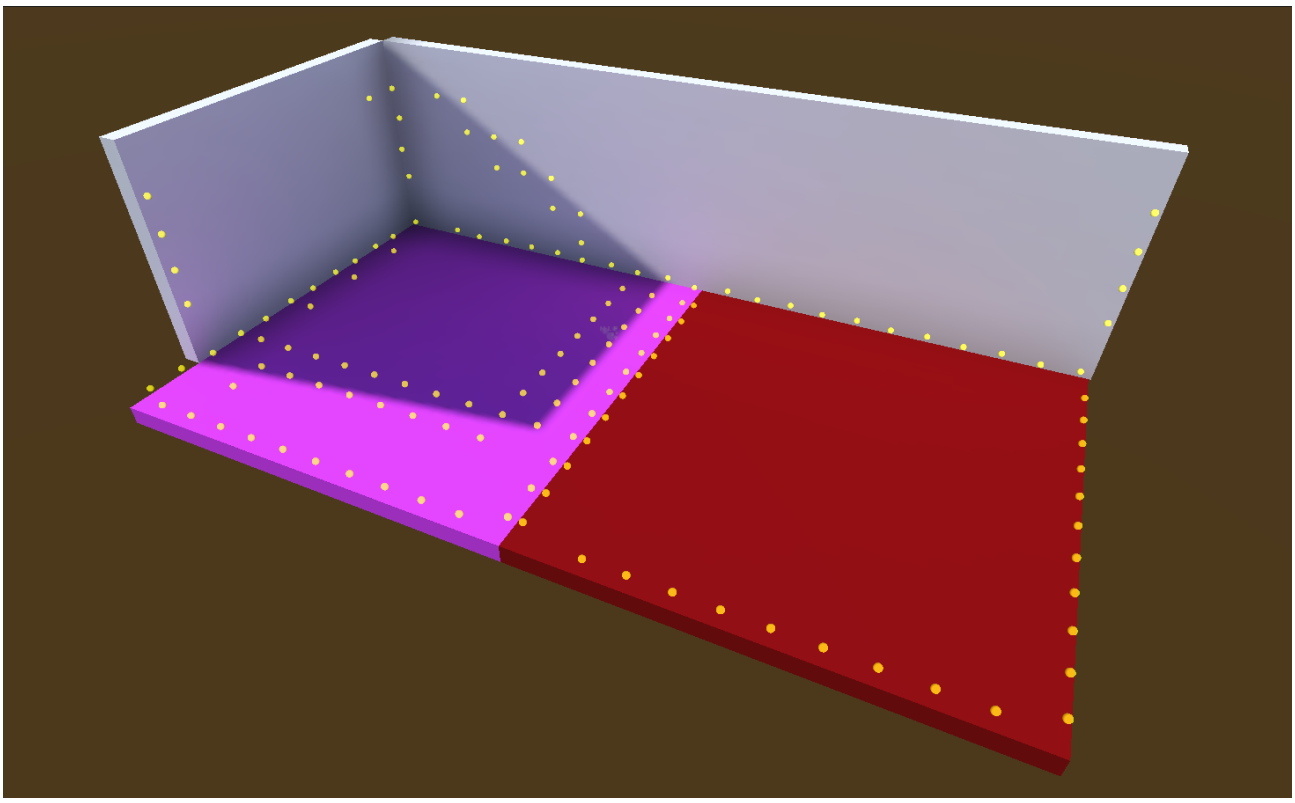
The “Color Threshold” parameter defines the range of colors that will be considered equivalent, the higher this value, the wider the range.

Color Threshold 0.01



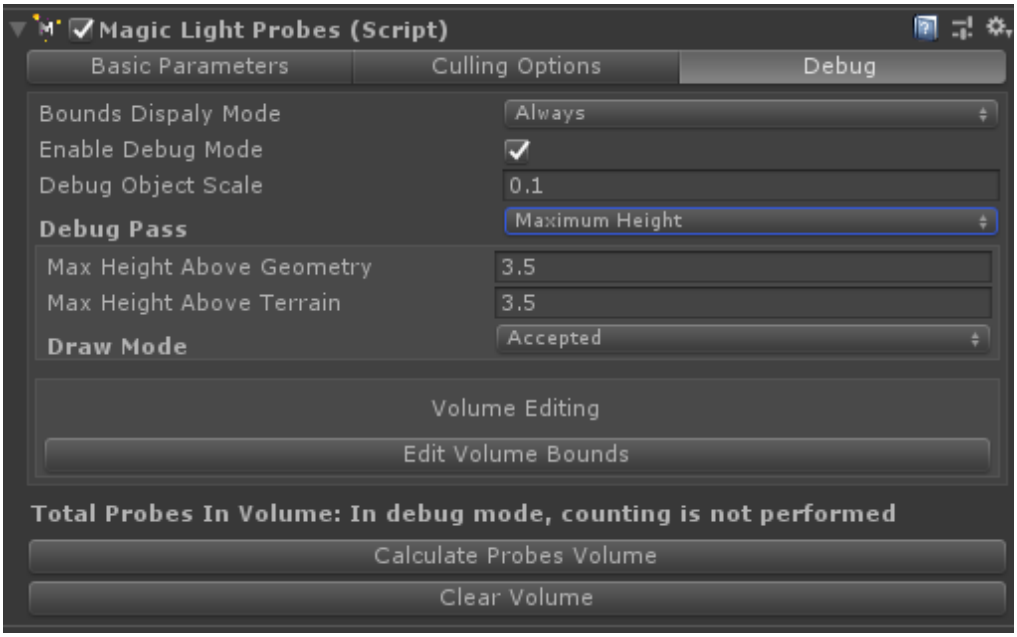
Color Threshol 0.02





Debug

In debug mode, you can configure each of the volume calculation passes in detail. In this mode, instead of adding probes to the target Light Probe Group, debugging objects will be added to the scene.



“Debug Object Scale” adjusts the scale of the objects.

Debug Passes

In some passes, rendering modes are available:

- **Accepted -** only accepted probes
- **Culled -** only culled probes
- **Both -** all probes

Accepted probes are displayed in green, culled probes are displayed in red.

Pass	Description
Maximum Height	Culling results at maximum height.
Geometry Collision	Culling results of probes that are inside the geometry.
Geometry Intersections	Only probes at intersections of geometry and in corners.
Near Geometry	The results of the arrangement of probes nearby geometry.
Out Of Range	Culling results of probes that are outside the range of the light sources.

Out Of Range Borders	Only probes that are out of range of light sources.
Shading Borders	Only probes that are at the borders of the shading.
Contrast Areas	All probes that are in contrast zones.
Near Lights	Only probes located near light sources.
Light Intensity	The probes will be colored according to the light level. Green - high intensity. Red - low / unlit.
Unlit Probes	Only unlit probes.
Equal Probes	Only probes with equivalent light intensity.
Geometry Edges	Only probes generated at the edges of the geometry.
Equal Color	Color Equivalence cculling results.

MLP Light

If "Advanced Workflow" is selected, then this component should be added to all light sources that need to be considered when calculating the volume. The light source can be either a standard Unity light source or any object you choose. The type of source is determined automatically when a component is added.

Options Description

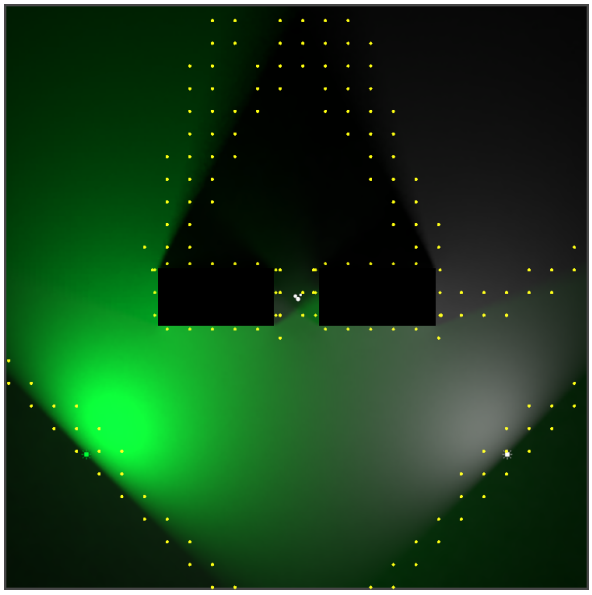
Parameter	Description
Calculation Type	Types of volume calculation for a light source. Accurate Shadows - lighting probes will be installed at the borders of the shadows formed by the light source, these probes will not be taken into account at the culling passes. Light Intensity - only probes with an intensity difference greater than the range defined by the “Light Intensity Threshold” parameter will be left.
Range	Light range.
Angle	Light angle.
Use Source Parameters	If checked, the settings will be copied from the source to which the component is attached.
Save Nearby Probes	If checked, then the probes will be saved in the indicated radius. These probes will not be taken into account at the rejection stages.
Save Radius	The radius in which the probes should be stored.
Save On Out Of Range	If checked, the probes will be stored on the border of the light source range

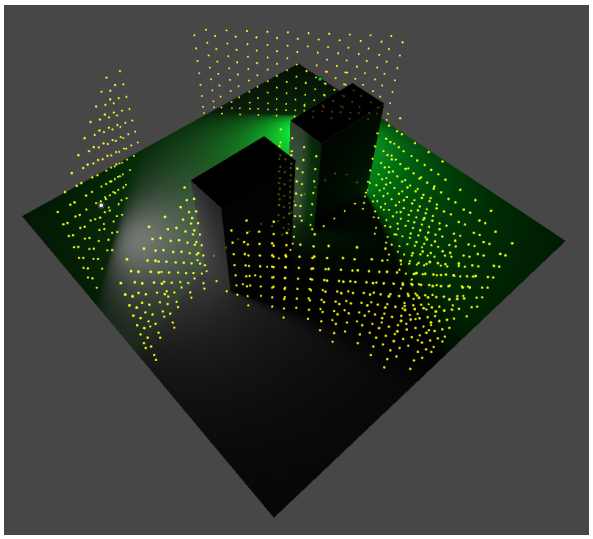
Accurate Trace	If checked, then the illuminance of the probes in the range of the source will be calculated by several points that you can set yourself (the “Add Point...” button), otherwise, by one point located in the center of the source.

Calculation Types

Accurate Shadows

The “**Accurate Shadows**” calculation type should be used when the light source casts a clear shadow. Light probes will be installed at the borders of the shadows cast by this light source.



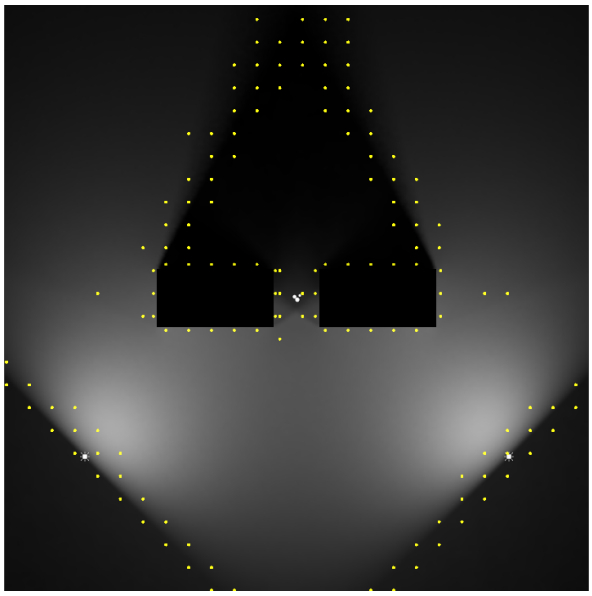


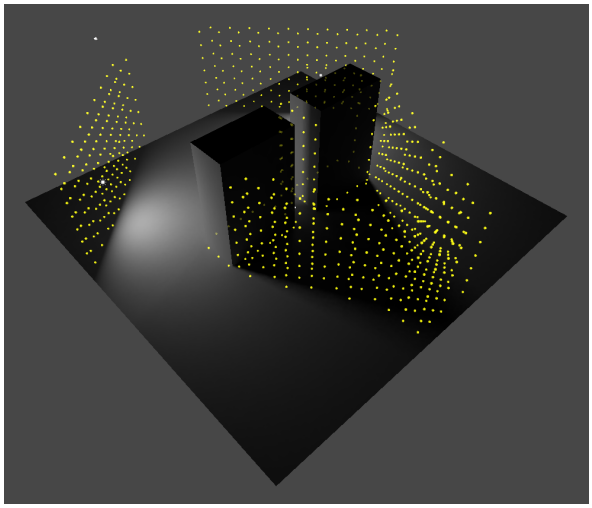
This is an example of using the "**Accurate Shadows**" option correctly. One of the light sources has a high intensity and a different color. This creates a shadow near another light source - in this place it is necessary to install light probes.

Light Intensity

The calculation type "**Light Intensity**" should be used when the light source does not cast clear shadows. For example, when multiple light sources create shading areas at different

places in the scene.





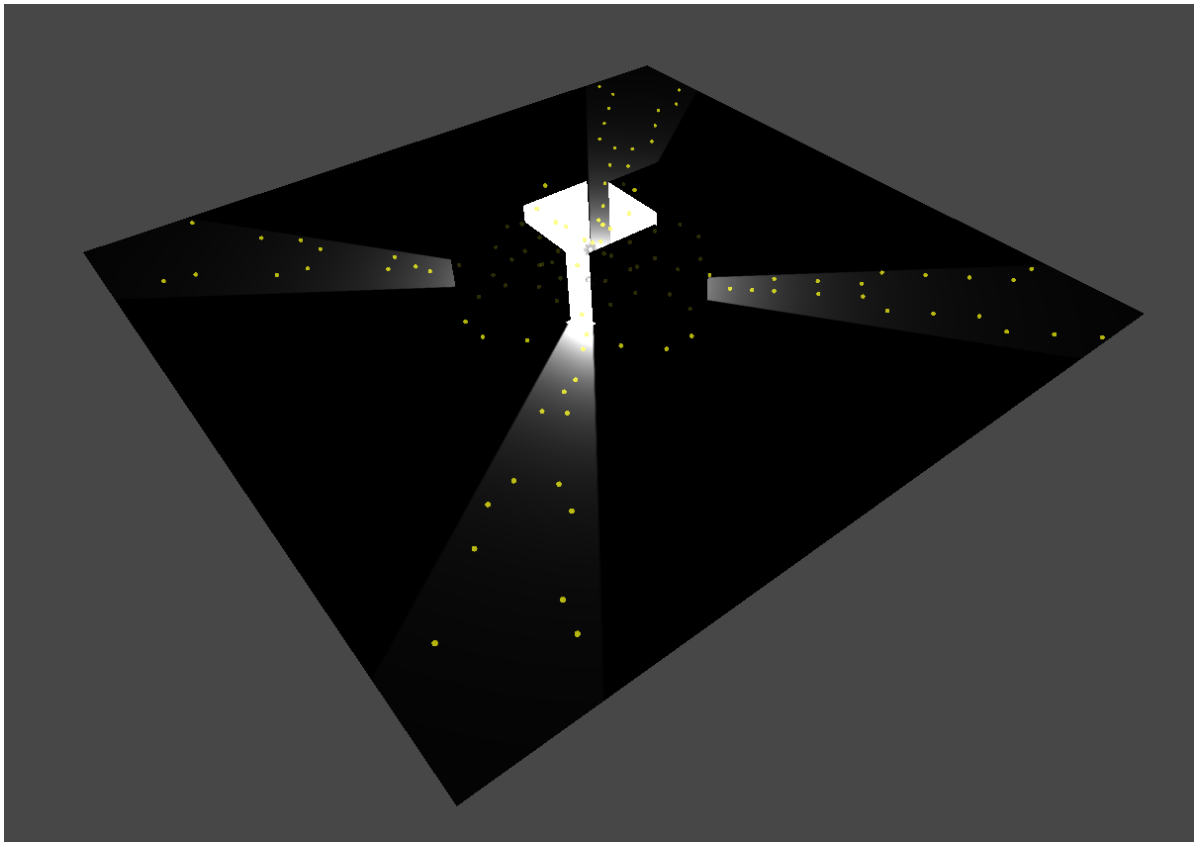
This is an example of using the "**Light Intensity**" option correctly. Both light sources have the same intensity and color. Most of the light probes have the same intensity and therefore have been removed. Those light probes whose intensity is too different are placed in contrasting areas of the scene.

Baked And Mixed Lights

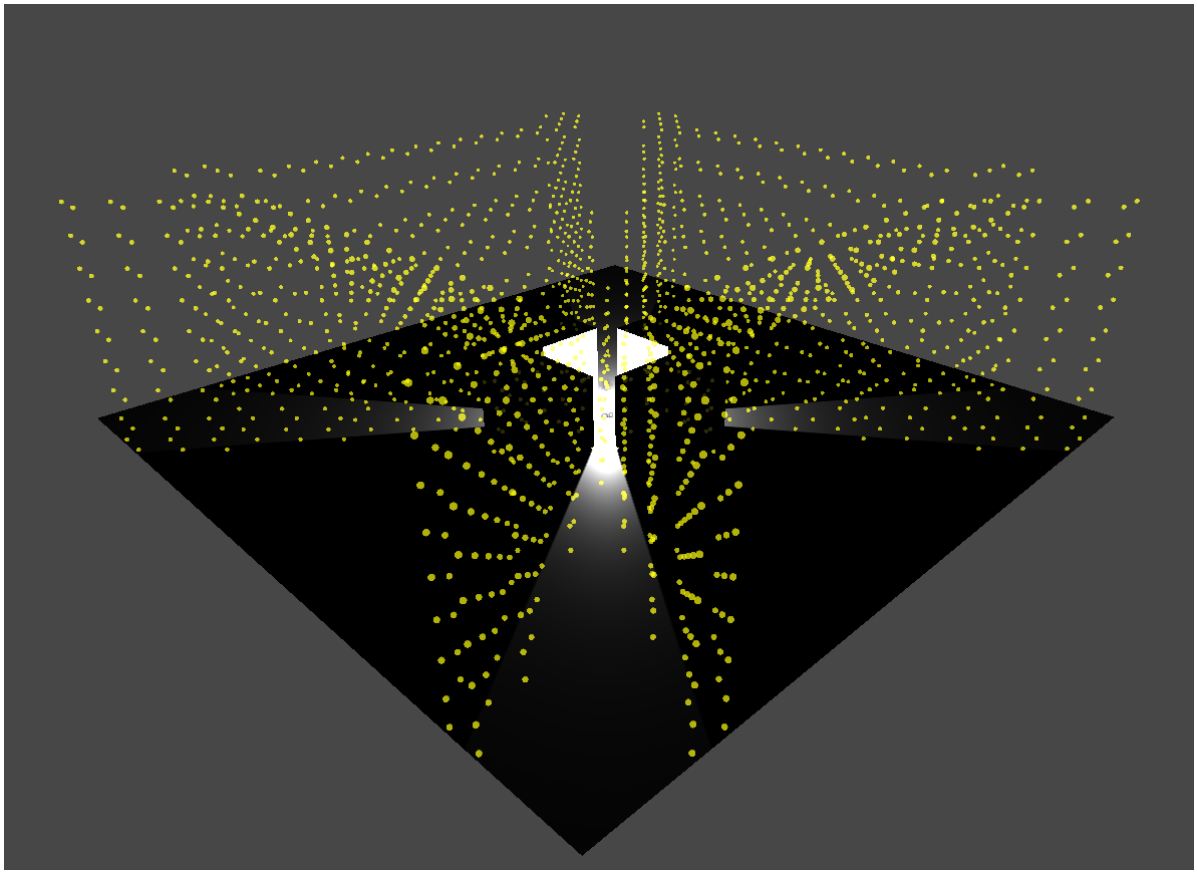
The placing of light probes is carried out differently for baked and mixed light sources. For mixed light sources, the light probes will only be placed at the borders of the shadow near the geometry to capture indirect light.

For baked light sources, the light probes will be placed both near the geometry and throughout the height of the volume in order to capture the exact place of transition from the illuminated area to the unlit.

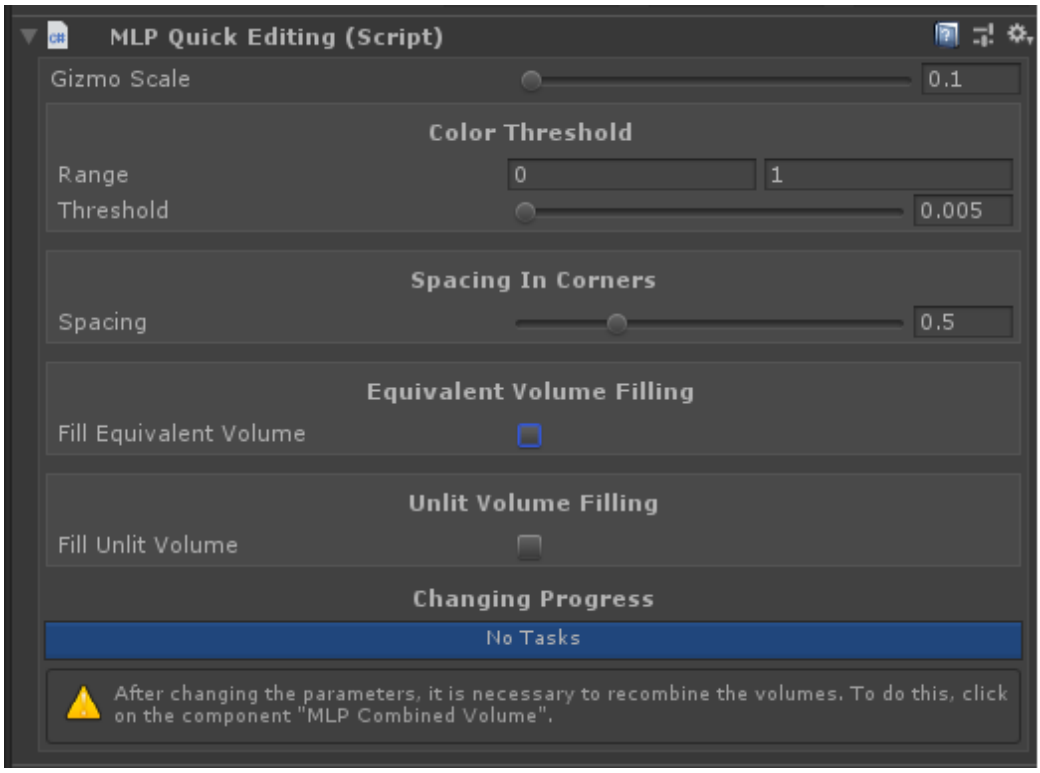
Mixed Mode



Baked Mode



MLP Quick Editing

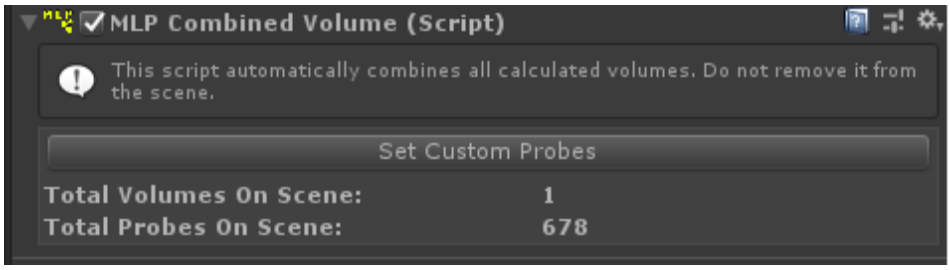


Use the “MLP Quick Editing” component to edit some volume parameters after calculating it. These changes are processed at the GPU, so it is very fast. If the volume is divided into sub-volumes, then they are calculated one by one.

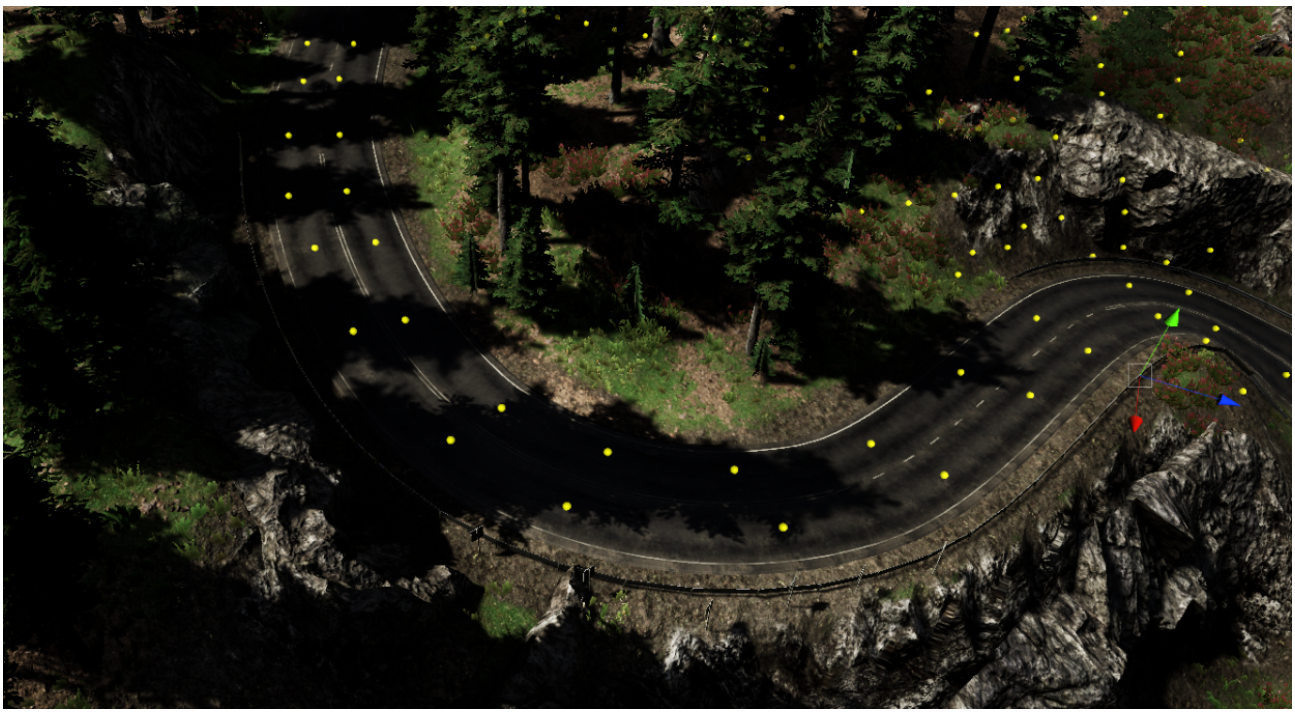
In most cases, the volume can be adjusted using this component.

MLP Combined Volume

This component contains a combination of all volumes of light probes.



“Set Custom Probes” allows you to add probes in the right places manually. To do this, press the button and specify the “Distance From Geometry” to which the probe will be moved after installation. Installation occurs by clicking on the right mouse button.



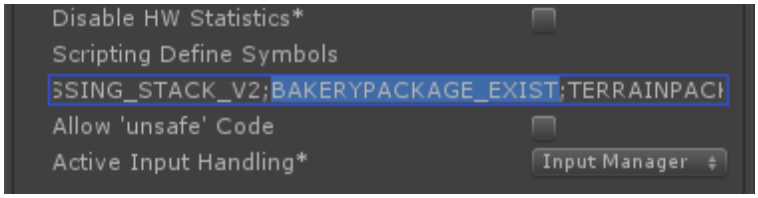
Probes along the road placed manually

INTEGRATION

Bakery - GPU Lightmapper

Magic Light Probes provides easy integration with the Bakery. The presence of a Bakery in your project will be determined automatically and the necessary sections of code will be compiled.

Deleting a Bakery package may not be properly monitored by the system, which will lead to errors in the console. To resolve them, go to the "**Project Settings ->Player**" section and edit the "**Scripting Define Symbols**" parameter, deleting the line "BAKERYPACKAGE_EXIST" from there.



Integration Features

- Support for all light sources (except sky light)
- Auto light source type detection

DEVELOPMENT

Latest Version (1.71)

Features in version 1.71

- Workflow selection
  - **Simple** (quick and easy)
  - **Advanced** (slower and more accurate)
- HDRP/URP compatible
- GPU acceleration for some passes of calculation
- Quick editing of volume parameters after calculation
  - Equivalent Volume Filling (GPU)
  - Spacing In Corners (GPU)
  - Unlit Volume Filling (GPU)
  - Color Threshold
- The light sources in the "Lights" tab of the manager are now sorted by type and mode
- Installing probes in manual mode (option "Set Custom Probes" in "MLP Combined Volume" component)
- Automatic division of large volumes into smaller ones
- Removing probes with equivalent color neighbors
- Automatic installation of probes at the edges of the geometry
- Probes optimization after volume combination
- Culling by maximum height
- Culling by geometry collisions
- Arrangement of probes along geometry
- Multithreading
- Support terrain
- The ability to divide the scene into separate volumes
- Debug volume calculation steps

> The latest version is always available on the Update Server.
>
> You can only access it if you have already bought an asset. To access you will need a username (you can use any) and your invoice number. Registration is automatic.

Changelog

v 1.71 (current)

Bug Fixes:

- Bugs fixed in debug mode when the "**Simple**" workflow is selected

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v 1.70

Added features:

- During quick editing, the volumes that are visible in the editor camera are recalculated first (prioritized view)
- Scene GUI for adding/removing objects that bound the scene from below (**Tools -> Magic Light Probes -> Scene GUI**)
- Managing a list of objects that bounds the scene from below from the main component interface

Bug Fixes:

- Fixed a bug in the inspector of the "**MLP Quick Editing**" component, which did not allow it to display correctly
- Errors in the algorithm for arranging probes along geometry are fixed
- Compute shaders do not work on OpenGL < 4.3 for Windows and Linux. For macOS only Metal Render is supported. Software verification added
- A method has been found in the search code for probes located below ground/floor that slows down the system if there are many objects on the scene.
- Errors in the "**MLP Quick Editing**" component - index out of range
- The wrong plugin’s work path makes it impossible to work system correctly

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v 1.68 (micro patch)

Added features:

- Added workflow switch - Simple (quick and easy); Advanced (slower and more accurate)

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v 1.67

Added features:

- After clicking the "Add Volume ..." button in the manager, a new volume is created in front of the camera

Bug Fixes:

- Data for quick editing is saved even after a scene is reloaded

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v 1.66

Added features:

- Added the ability to forcibly disable an algorithm that tries to automatically prevent light leaks through walls

Changes:

- Added an example of an indoor scene

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v 1.65

Added features:

- More visual display of volumes on scene
- Handles for volume size control
- Ability to quickly edit the distance between the probes in the corners
- Cancel button during volumes combining process

Bug Fixes:

- In some cases, the probes are erroneously placed below the level of the probe ground/floor
- The "MLP Quick Editing" component recalculated only for the last part of the total volume
- Errors in the search algorithm for probes at the range borders of the light source

Changes:

- The option to adjust the distance between the probes in the corners (Corners Probe Spacing) is again available
- Important documentation changes (be sure to read the Quick Start section before use)

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v 1.6

Added features:

- Quick editing of volume parameters after calculation
  - Equivalent Volume Filling (GPU)
  - Unlit Volume Filling (GPU)
  - Color Threshold
- GPU acceleration for some passes of calculation
- Display progress in editor status bar

Bug Fixes:

- In rare cases, probes were erroneously placed inside the geometry
- Incorrect partner volume for a light source
- Probes removed from combined volume after scene reload
- Incorrect type of light source in HDRP mode

Changes:

- Temporarily disabled the ability to set the distance between the probes in the corners

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v 1.5

Added features:

- The calculation can now be performed even if the editor window is out of focus
- Ability to quickly edit in real-time some parameters of the calculated volume (in the current version it is only "Color Threshold")
- The light sources in the "Lights" tab of the manager are now sorted by type and mode

Bug fixes:

- A pop-up window asking to add plug-in main component to the scene in the prefab editing mode

Changes:

- Recalculation of automatic volume separation is started only after the mouse button is released

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v 1.4.3

Added features:

- HDRP Light Source Support (experimental)

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v 1.4.2

Added features:

- Added ability to install probes in manual mode with one click ("MLP Combined Volume" component)

Bug fixes:

- The "MagicLightProbes.DependencyChecker.DoesTypeExist()" method throws an exception in some cases, which blocks code compilation
- The first time you add the "MLP Volume" component to the scene, all non-static objects are deactivated
- Minor fixes in DependencyChecker.cs file

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v 1.4.1

Bug fixes:

- Non-optimal code in the "Find Geometry Edges" pass (with a large number of objects on the scene, the editor freezes for a long time)

Changes:

- ETA calculation algorithm is now more accurate

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v 1.4

Added features:

- Saving a scene before calculation
- ETA for calculating automatically divided volumes
- Volume optimization for mixed lighting

Bug fixes:

- Terrain irregularities are perceived as geometry edges
- Colliders are still duplicated in debug mode
- Geometry intersection detection does not work correctly in some modes
- On some objects marked as static, colliders are duplicated during the calculation
- Restoring scene state after calculation in "Debug Mode" works with errors
- Violation of the queue for calculating volumes (when there are several on the scene)
- Culling by equivalent color works with errors
- Wrong progress counter in Removing Unused Points pass
- The endlessly repeating warning "This component will be automatically disabled when baking." When the main component is disabled in hierarchy
- Invalid value of probes number counter after calculation
- Warning in console "Releasing render texture that is set to be RenderTexture.active!"
- Errors in the console after building the project

Changes:

- Minor changes in the interface of the main component

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v 1.3

Added features:

- Lock settings during calculation

- Automatic division of large volumes into smaller ones
- Customizable spacing between probes in corners
- Removing probes with equivalent color neighbors
- New component "MLP Force Save Probes" for objects that need to be forced to evenly fill probes
- Automatic installation of probes at the edges of the geometry

Bug fixes:

- Incorrect light source type assignment in "MLP Light" component
- Scripting Define Symbols are not assigned at the right time (Added ability to force dependency checking)
- Some disabled objects are not activated after calculation
- Progress in "Debug Mode" now displays correctly
- Erroneous message that the light source is outside the calculation volume

Changes:

- Manager window moved to Tools -> Magic Light Probes -> MLP Manager
- Added menu item for forced dependency checking Tools -> Magic Light Probes -> Check Dependencies
- Added menu item Tools -> Magic Light Probes -> About MLP...

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v 1.2

Added features:

- Bakery GPU Lightmapper integration (support all light types)
- Probes optimization after volume combination
- More visual display of Gizmo for some light sources
- Highlighting console MLP messages
- Detailed progress bar in the manager
- New "Global Settings" tab in the manager (editing general settings for all volumes)

Bug fixes:

- Invalid demo shader
- Fixed bugs in probes placement algorithms
- Fixed a bug due to which the baking involved probes that should have been disabled

Changes:

- Manager window moved to Windows -> MLP Manager

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v 1.1.0.1

Bug fixes:

- Uncontrolled duplication of an object "– MLP Combined Volume –" in 2019.2 or newer

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v 1.1

Added features:

- Duplication to a specified height with a given step
- The calculation mode "One by one" (for a large number of volumes on the scene)
- Progress bars in the manager window

Bug fixes:

- The manager window does not update the list of volumes when the volume is duplicated on the scene
- Rare cases of light probes placement far beyond the volume
- Double light probes near geometry
- Uncontrolled duplication of an object "– MLP Combined Volume –"

- Invalid shader for displaying light probe positions in debug mode
- Exception during scene unloading
- Error restoring scene state after calculation

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v 1.0

First release.

CONTACTS