GDOC Documentation

Version 1.2

Contents

Resources

Support forums: https://forum.unity.com/threads/wip-dynamic-gpu-occlusion-culling.618586

Discord: https://discord.gg/hMUTyfZ
PM your invoice number to drcrack#4575 to get access to the customer-only discord section.

Quick start

Add GDOC component to your main camera

Assign your main **Directional Light** if it's not set automatically

Disable *Background Scan* if you don't create new objects at runtime

Disable *Show Info* and *Enable Hotkeys* for release builds.

Version 1.2 notes

Restart Unity and delete Assets/Bearroll/GDOC folder (if exists) before importing.

New component GDOC_Group allows to override update mode for its child objects. It has higher priority than layer rules.

Now supports VR Multi Pass (can be enabled in the GDOC settings when VR is on).

Version 1.1 notes

Namespace GDOC renamed to Bearroll
Scripts used in the demo moved to Bearroll.GDOC_Demo
Internal types moved to Bearroll.GDOC_Internal

To enable LWRP support:
Project Settings → Player → Other settings → Scripting Define Symbols → Add GDOC_LWRP.
Also you'll need to convert the materials used in the demo. You can simply change their shader to LWRP/Lit.

VR single pass mode is enabled automatically if used.
Multi pass and instanced single pass are not supported yet.

Important notes

1. Currently only DX11 on Windows x64 is supported
2. HDRP, Linux/Mac, OpenGL, Metal, mobile devices, consoles are not supported.
3. Maximum number of static occludees is 100000, dynamic — 10000.
4. Maximum number of visible shadow sources is 1024
5. ShadowCastingMode.TwoSided is not preserved for renderer groups
6. During onload or background scanning, every object is processed once.
7. Scanning is x5 slower in Editor than in builds.

Tips

General

❌**DON'T** use GDOC to cull short-living and/or fast-moving objects like bullets, arrows, rockets or non-looped particle systems (explosions, splashes). Put them on a separate layer and exclude it in the GDOC settings.

Dynamic occludees

GDOC supports dynamic occludees but they have serious performance impact and you should avoid using them if possible.

❌**DON'T** make occludees dynamic when their movement is heavily restricted (example: door, elevator). Instead, make a big static bounding box that encapsulates all the available positions.

❌**DON'T** use dynamic occludees for simple meshes with cheap materials that are very fast to render. For example, a flock of birds.

✅**DO** use dynamic occludees with manually created bounding boxes which encapsulate many objects. For example, an animated character with many skinned mesh renderers.

Settings

General

Enabled
Enables/disables occlusion culling
Unlike enabling/disaling the component itself, this setting doesn't affect stats UI and hotkeys

Directional Light
Main directional light used for culling

Accuracy
Set to 100% to always hide invisible objects
Set to 0% to show many objects around camera that are not visible but might become visible in the next frames.
Default: 50%

Minimum distance
Makes OC ignore objects within this distance of the camera.
Default: 10

Player object
Makes OC also ignore objects within *minimum distance* of this object.
Default: null

Debug settings

Suspend OC
Suspends OC, but keeps occludees in their current states.
Default: false

Additional settings

preCullThreshold
Excludes small distant objects without additonal checks. It's like a global LOD setting. If you don't see distant small objects when you think you should, reduce this value.
Default: 0.001

psOmnidirectionalBounds
Extends bounding boxes of static particle systems to they become equally sized in all directions.
Use when static particle systems are affected by wind and this wind can change its direction at runtime.
Default: false

hideTime

Time in seconds required for an object to stay invisible to get hidden.

Default: 1

fullDisableDistance

Objects further this distance from the camera will be completely disabled in the hierarchy when they are not visible.

Default: 100

maxQueuedFrames

Controls QualitySettings.maxQueuedFrames

(See https://docs.unity3d.com/ScriptReference/QualitySettings-maxQueuedFrames.html)

Default: 1 (higher values are not recommended due to the GPU→CPU readback lag)