

THANK YOU FOR CHOOSING

VRDOC DYNAMIC OCCLUSION CULLING!

VRDOC is a Dynamic Occlusion Culling system that culls objects that are not in the camera view frustum. This means that it effectively disables their rendering which results in fewer draw calls and better performance.

USING VRDOC (STEP-BY-STEP):

1. Make sure the gameobjects you want VRDOC to manage have a collider attached (a trigger works too)
2. Create a new layer named *VRDOC_ObjectLayer*
3. Create a new layer named *VRDOC_TransparentLayer*
4. Put all your gameobjects you want to be managed by VRDOC (including transparent ones) to the layer *VRDOC_ObjectLayer*
5. Add **VRDOC_Camera** component to your main camera. If you're using VR, this should be your eye camera.

(At your **VRDOC_Camera** component)

6. **VRDOC_Layers** should be set as the *VRDOC_ObjectLayer* layer you created
7. **VRDOC_TransparencyLayer** should be set as the *VRDOC_TransparentLayer* layer you created.
*NOTE: When transparent objects are visible, their layer will change from *VRDOC_ObjectLayer* to this.*
8. **Raycast Field of View** should be around ten units larger than your camera field of view.
A value of 120 is good for the HTC Vive and Oculus Rift.
9. **Raycast count** depends largely on the size of your objects and how far away from the camera they are. Small rooms and corridors usually require a smaller value than large open areas.
A starting value of 1000 is recommended.
10. Max frame time specifies the time it takes for an object to hide after the last raycast hit.
Example:
Max frame time: 120
Current in-game framerate: 90
When your camera turns away from an object, it takes 120 / 90 seconds for the object to turn off (which equals ~1.33 seconds).
Max frame time should be about 30% larger than your target framerate.
11. **Use Realtime Shadows** should be set if your game uses real-time shadows.

VRDOC RECASTING

Recasting is a VRDOC exclusive addition to Dynamic Occlusion Culling specifically designed for VR. When enabled, it will massively reduce object popping and required raycast count while trading away raycast accuracy.

When a raycast hits an object, recast will cast a sphere at the hit point with the size defined by the field **Recast Proximity Range**. All objects inside this sphere will be considered visible and don't need any rays to hit them.

Recasting is most useful in large open scenes where distant objects are only slightly visible to the camera. It can be enabled by ticking **UseRecasting** in the **VRDOC_Camera** component.

NOTES

- **VRDOC_Object** component is automatically added to gameobjects which reside at *VRDOC_Layers*
- The **isTransparent** boolean in the **VRDOC_Object** component specifies if an object can be seen through. If your game uses the Unity Standard shader, this flag is set automatically by VRDOC if any of the materials are marked as "Transparent". If you use a custom shader, add the **VRDOC_Object** component manually and set **isTransparent** to true
- You should not have any gameobjects at the *VRDOC_Transparent* Layer. This layer is only used to raycast through transparent objects

TROUBLESHOOTING

Q: My objects pop on/off in the distance!

A: Try to raise the **max frame time** and **raycast count** in your **VRDOC_Camera** component. If they still pop, enable recasting by ticking "UseRecasting" and adjust the **Recast Proximity Range** to approximately the size of your distant gameobjects.

Q: I have enabled Recasting but I don't see a difference!

A: Raise the **Recast Proximity Range**. A proximity range of three means that when a raycast hits an object, all objects within three distance units are set visible too.

Q: My transparent object blocks other objects!

A: Make sure the transparent object is on the same layer (*VRDOC_ObjectLayer*) as all the other gameobjects. If you're using a custom shader, you can manually add the **VRDOC_Object** component to your transparent objects and tick "isTransparent"

SUPPORT

If you have any questions, don't hesitate to contact me at anton.korhonen@viversion.com



Facebook <https://www.facebook.com/viversion>

Twitter <https://twitter.com/ViversionGames>

Instagram <https://www.instagram.com/viversiongames>

YouTube <https://www.youtube.com/channel/UCNtGbApCw1iI7e8T-30ImnQ>