# Occluder fusion

This document is a rough description of occluder fusion algorithm implemented in Virtual Occluder Demo (test\_VOCC.exe).

## Algorithm

Initially we have a set of occluders (grey rectangles in the demo). Occluders are convex polygons. And also we have a camera with its view and projection transformations.

As a first step we transform all occluders to post projection space. All further calculations will be done in post projection space.

Next we sort the occluders by their lowest Z coordinate in ascending order.

And then we sequentially create virtual occluders (red segments in the demo) from initial occluders.

When we create a virtual occluder we first find the most left and the most right points of initial occluder (the points with the lowest and the highest X coordinate). Then we check if the new virtual occluder is occluded by virtual occluders already added. It the new occluder is completely occluded we skip it. If it is partially occluded we extend it in appropriate direction.

When all virtual occluders are created we transform them back to world space.

The virtual occluders are used to check scene objects visibility.

## Demo controls

To move an occluder – just drag it.

To resize an occluder – drag a handle on its corner.

To add a new occluder – right click a point where to create it and select in pop-up menu “Occluders->Add”.

To remove an occluder – select it, than right click and select in pop-up menu “Occluders->Remove”.

To exit the demo – press Alt+F4.