**Level-of-Detail Advanced**

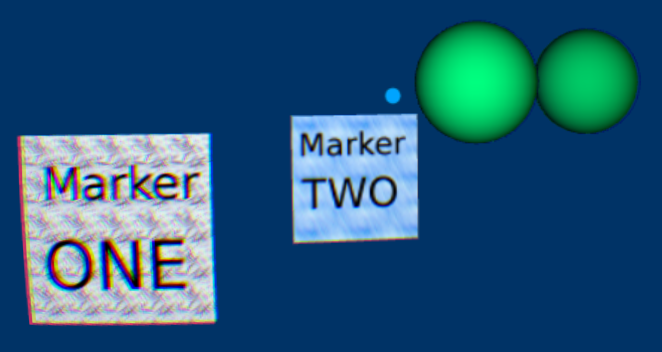
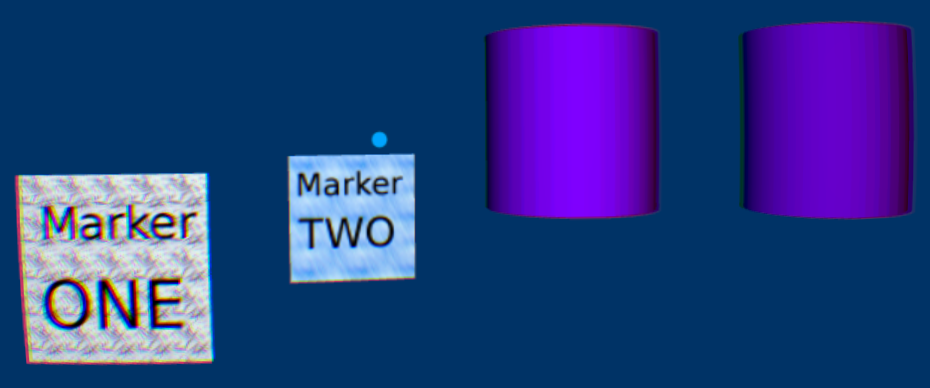
Advanced Demonstrations of Level-of-Detail (LOD) where the levels contain multiple 3d objects. This requiring several of those 3d objects to be inside a <Transform> or <Group> node, instead of just a single 3d object per level inside a <Shape> node without <Transform> or <Group>.

**Levelofdetail\_circle01.x3d**

Demo has an object rotate around a center at (0, 0, -10). The inner object is 4 units from the center, while the outer object is a child of the inner object and 3 units further from the center. The outer object will be slightly darker than the inner object

The Level-of-Detail ranges are 8 and 12 as noted by “Marker ONE” and “Marker TWO” respectively.

Closer than 8 units will display orange Cones, between 8 and 12 units will be purple Cylinders, and further than 12 units will be green Spheres.



**Levelofdetail\_mult\_obj\_Group.x3d**

Demo has 3 levels of detail. In level 1, from 0 to 4 units from the camera, “Level 1” texture map is shows with child objects with a dog and train (upper left image). The animation moves back just before “Marker ONE” panel 4 units from the camera, then slowly animates behind “Marker ONE” and reveals “Level 2” with its two child panels, both textured with “North-East-West-South” (upper right image).

Level-of-Detail 2 animates back to “Marker TWO) (lower left image) 9 units from the camera. The animation slowly passes “Marker TWO” at 9 units from the camera and changes to the third level-of-detail, which shows the single panel “Level of Detail 3”.

The animation continues moving back, reaches a final depth, then quickly animates back to its closest position, cycling through the 3 levels of detail and starts again.

There is also a panel with diagonal yellow and black stripes that animates forward and back in the same 30 second animation, but it is not part of the Level-of-Detail. It just adds another object to test the scene.

The three panels with “Level of Detail” 1, 2 and 3 use the <Group> node, a superclass of the <Transform> node that has no translation, rotation or scale information.



**Levelofdetail\_mult\_obj\_Shape.x3d**

Same as the previous animation, but instead of <Group> nodes, it has just the <Shape> node.

**Levelofdetail\_mult\_obj\_Transform.x3d**

Same as the previous two animations, but instead of the <Group> node containing a <Shape> node, it has a <Transform> node containing a <Shape> node.

**Levelofdetail\_mult\_children.x3d**

A variation of the previous three animations, however the “Level of Detail 1” panel has a child object of the dog, which has a child object of the train. “Level of Detail 2” panel has a child panel with “North-East-West-South”, which has a child object with a “C” in the center of its texture map.



**LOD\_TransformContainInline.x3d**

Tests <LOD> that has <Inline> nodes surrounded by <Transform> nodes.

<Transform DEF="lodTest01">

<LOD range='4 9'>

<Transform DEF='lvl1' translation='-1 -1 0'>

<Inline url="planemesh1.x3d" />

</Transform>

<Transform DEF='lvl2' translation='1 1 0'>

<Inline url="planemesh2.x3d" />

</Transform>

<Transform DEF='lvl3' translation='0 0 0'>

<Inline url="planemesh3.x3d" />

</Transform>

</LOD>

</Transform>

**lod\_TouchSensor.x3d**

Plane textured with “Level of Detail 1” when hovering over will animate a green Cylinder in a rectangle pattern. Hovering over the plane textured with “Level of Detail 2” will rotate the orange Cone clockwise. The plane textured “Level of Detail 3” has no interactivity associated with it..

