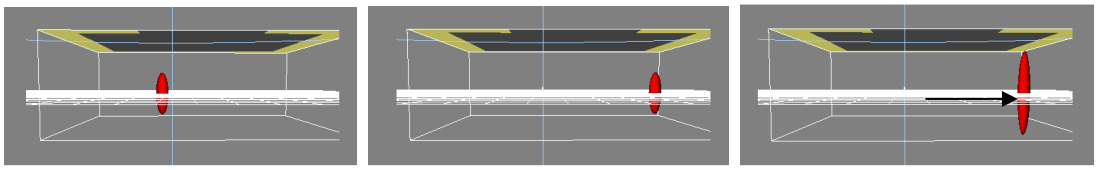
Introduction to Game Production
Part 3- Designing schematics and game mechanics - collisions
Virtools tutorial

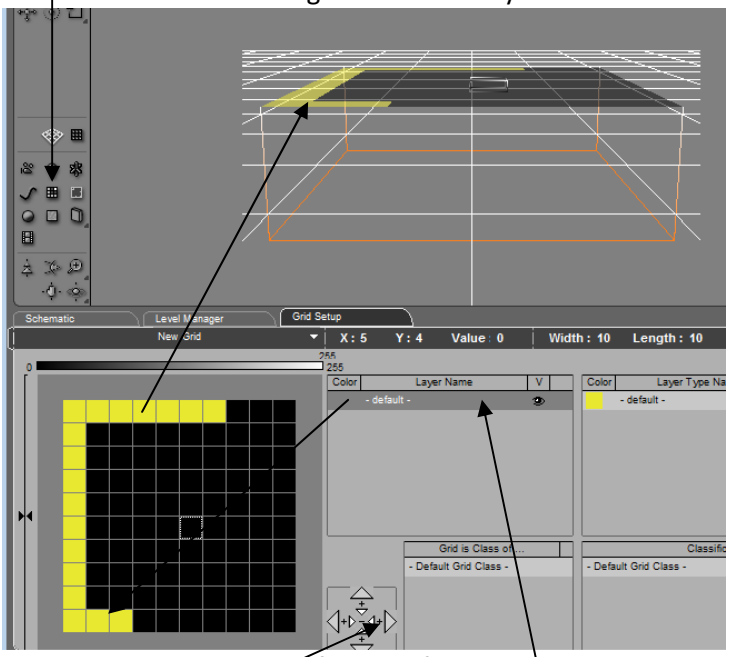
Jean-Marc Gauthier - Fall 2008



This tutorial illustrates how to create collision constraints between a red sphere moving inside a Yellow level. Part 1 of the tutorial shows how to script the moving sphere and to scale the sphere when there is a collision. Part 2 shows how to apply the effect of the collision on another object in the scene. Part 3 shows how to move sphere animated on a path inside a level. Part 4 shows how to create a collision between an object moving on a path and a fixed object.

Part 1 - how to script a moving sphere and to transform the sphere when a collision happens

Hit here in order to add a grid to the 3D Layout

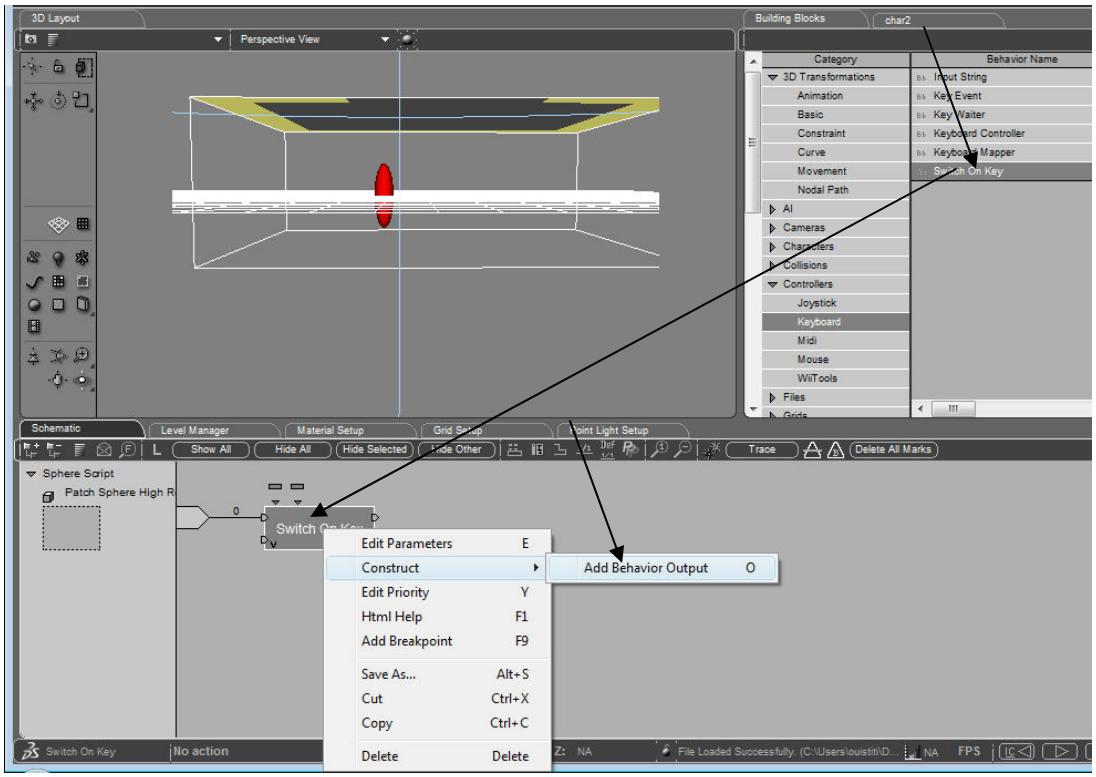


You can change the level of detail of the grid container

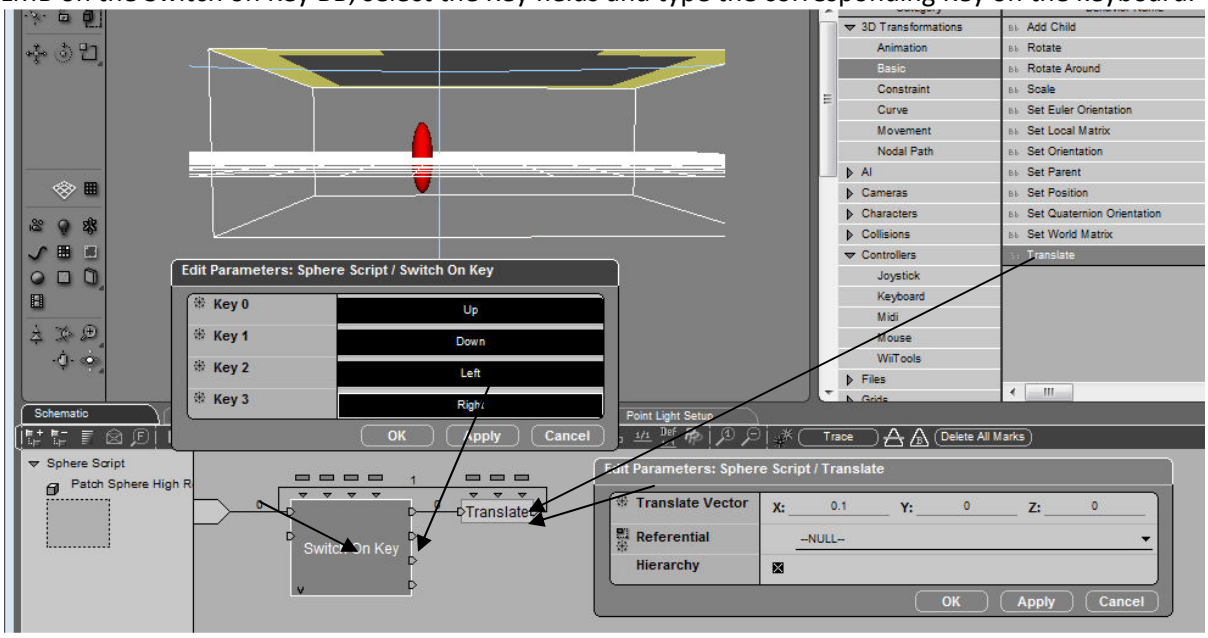
Hit the “Grid” button in order to create a grid on the white reference plane, scale the grid in order to place the sphere in the center of the grid container.

In grid Setup > Select for example the Layer “Default” > Paint the walls (yellow blocks) and leave an opening.

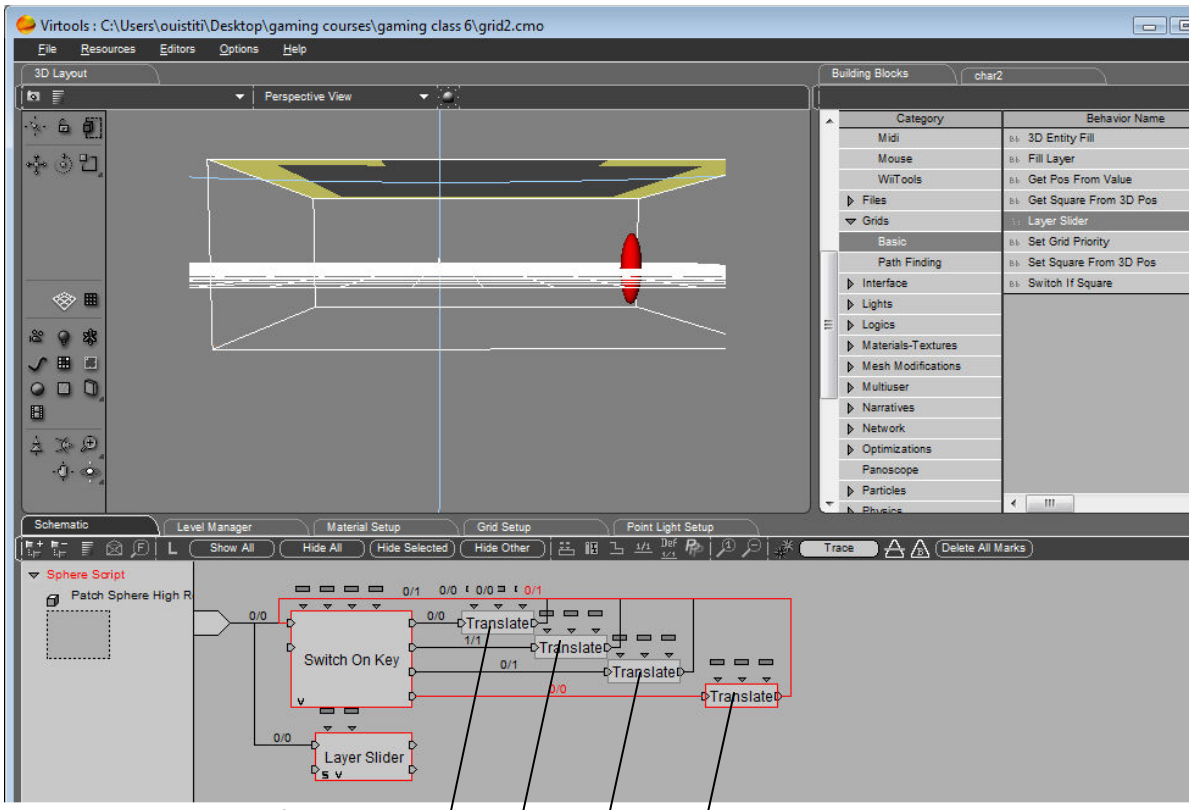
Import a polygonal sphere and place inside the grid container..



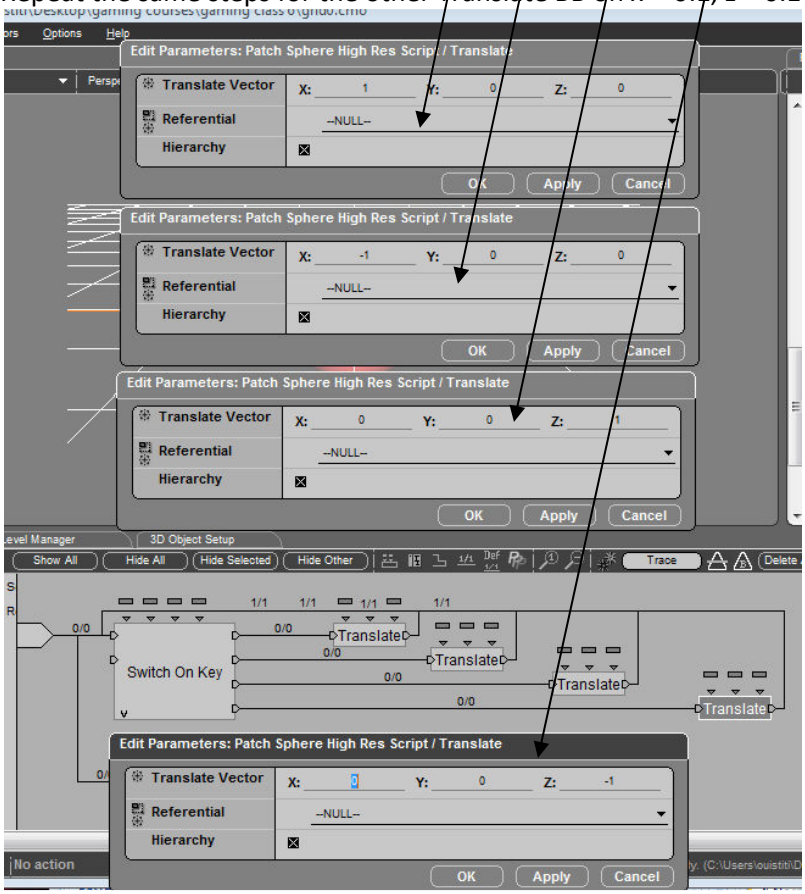
Create a script for the sphere. Go to > BB > Controllers > Keyboard > Switch on Key. In Schematics, RMB on the BB > select Construct > one output to the BB. Repeat until you get 4 outputs.
LMB on the Switch on Key BB, select the Key fields and type the corresponding Key on the keyboard.

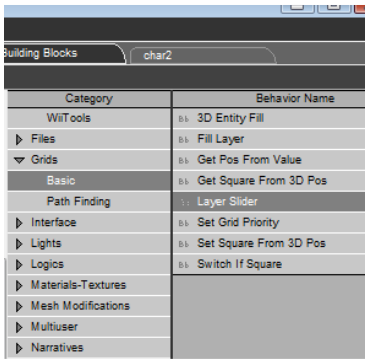


Let add a Translation BB. Go to BB > 3D Transformations > Basic > Translate. Edit with a small translation on the X axis = 0.1

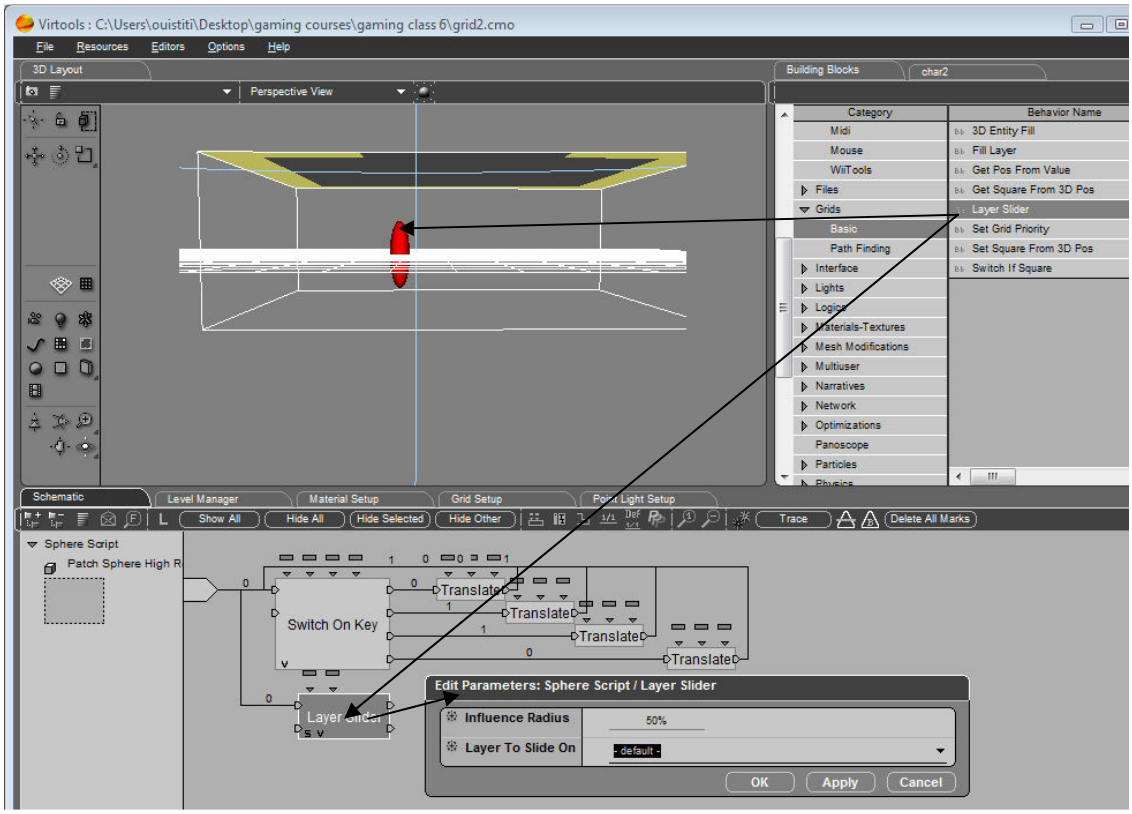


Repeat the same steps for the other Translate BB on x =-0.1, z = 0.1 and z = -0.1

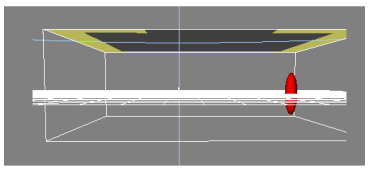




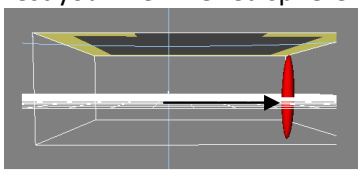
Go to BB, Grids > Basic > Layer slider > drag on the Red sphere in 3D Layout or on the Red Sphere script in Schematics



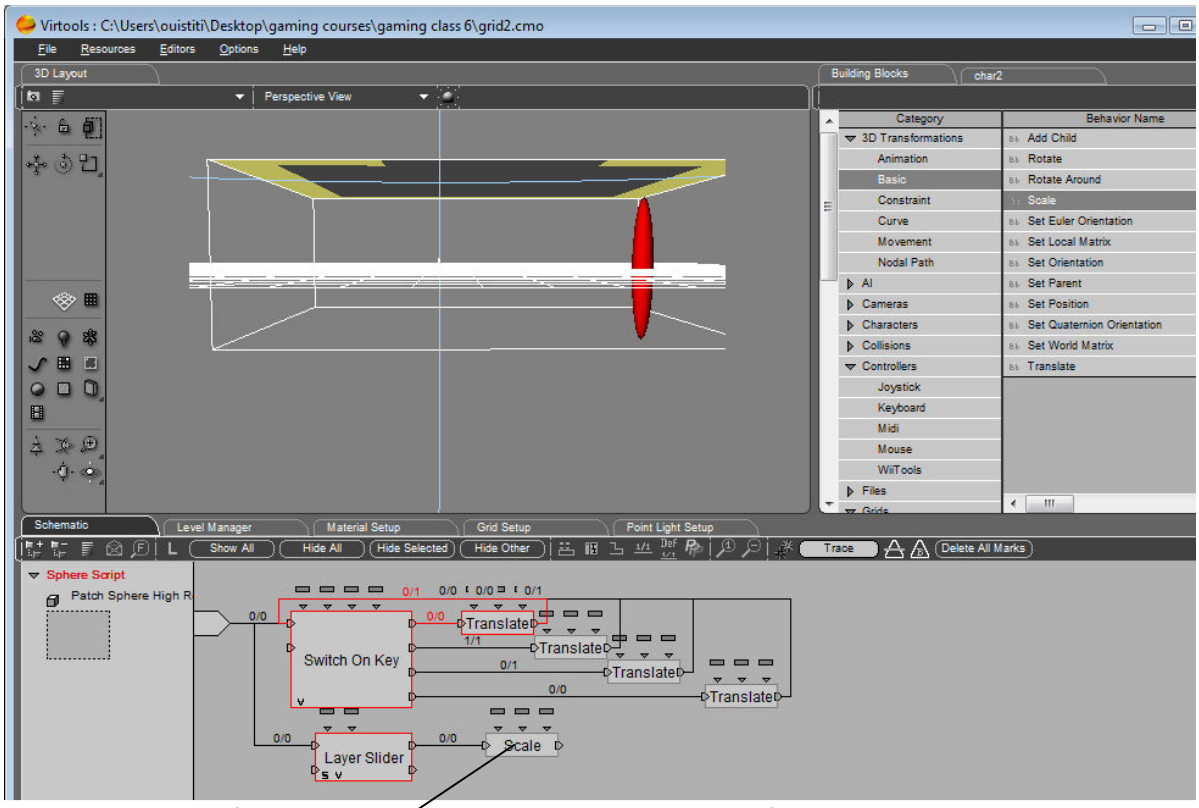
Double LMB on Layer Slider > edit the layer = Default



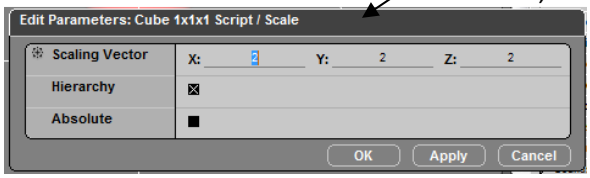
Test your file. The red sphere moves until it stops when it hits the edge of the Yellow level



Let’s add a scale BB when the collision happens.

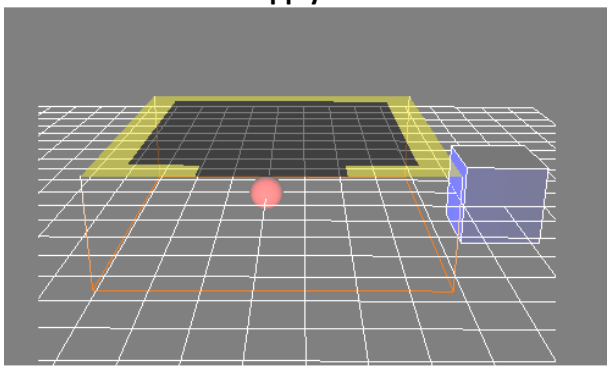


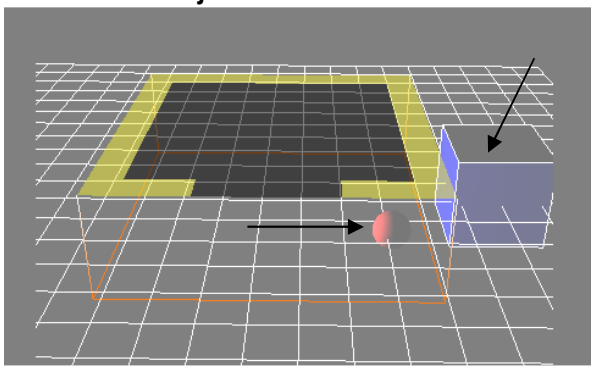
Go to BB . 3D Transformations > Basic > Scale, Edit the Scale bb, for example y = 2



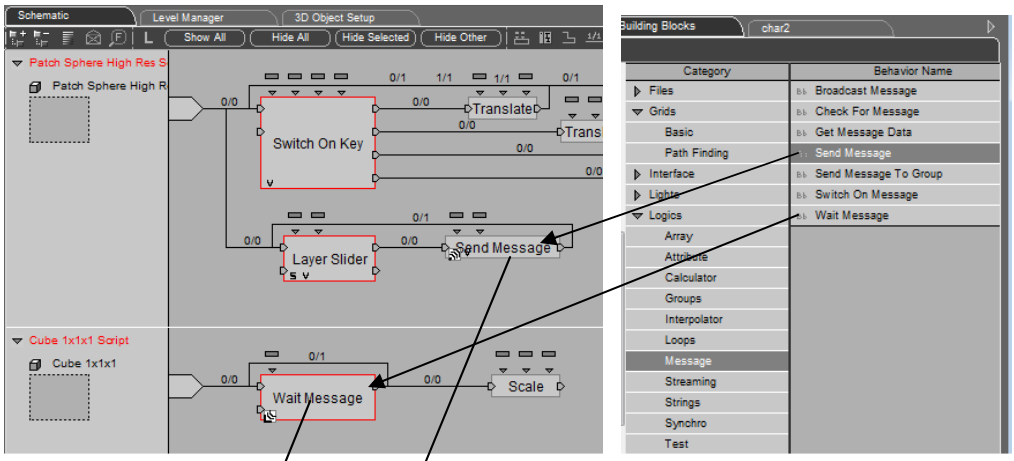
Test and Save your scene

Part 2 shows how to apply the effect of the collision on another object in the scene

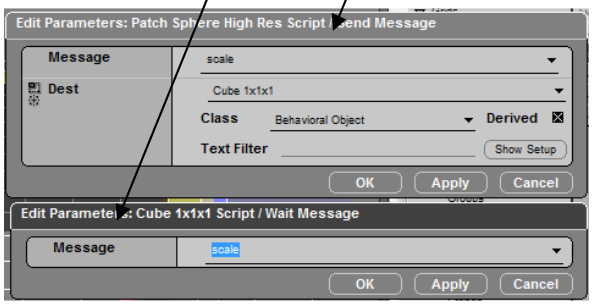




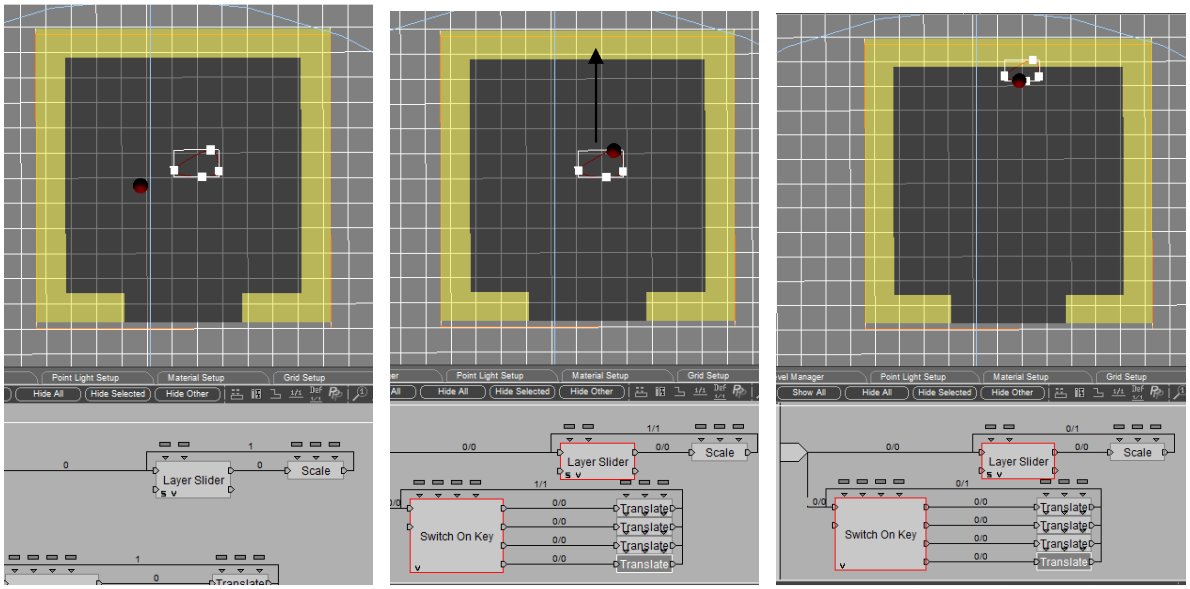
In this case, we reuse the previous collision system including the sphere and the yellow level in order to send a message to the blue cube. The Blue cube receives the message and scales up.

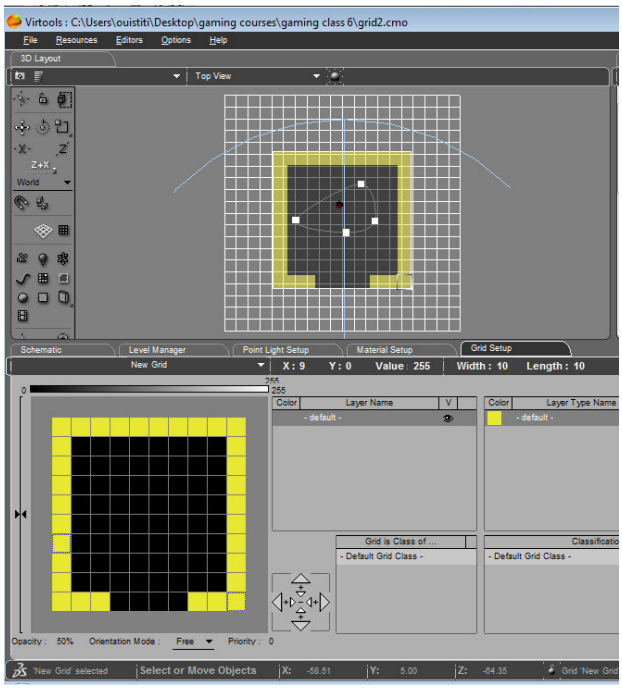


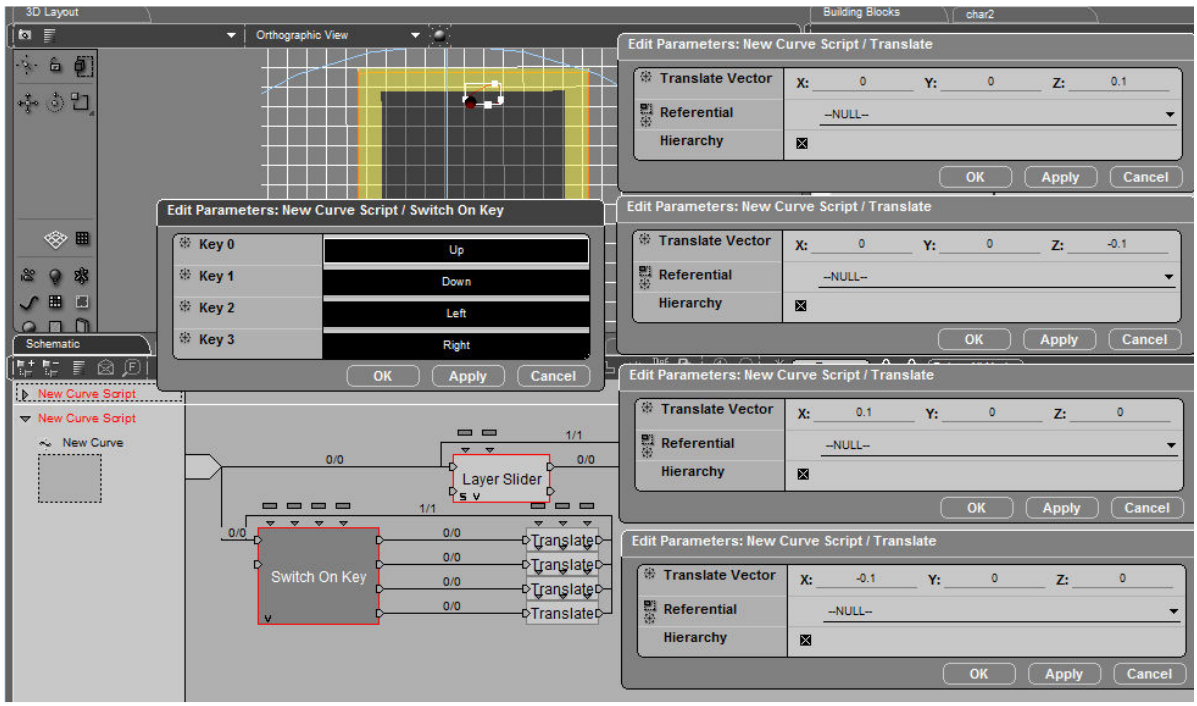
Go to BB > Logics > Message > Send Message > Add the BB to the Red sphere script
Double LMB on the Send Message BB, Edit the BB
Go to BB > Logics > Message > Send Message > Add the BB to the Blue cube script
Double LMB on the Send Message BB, Edit the BB



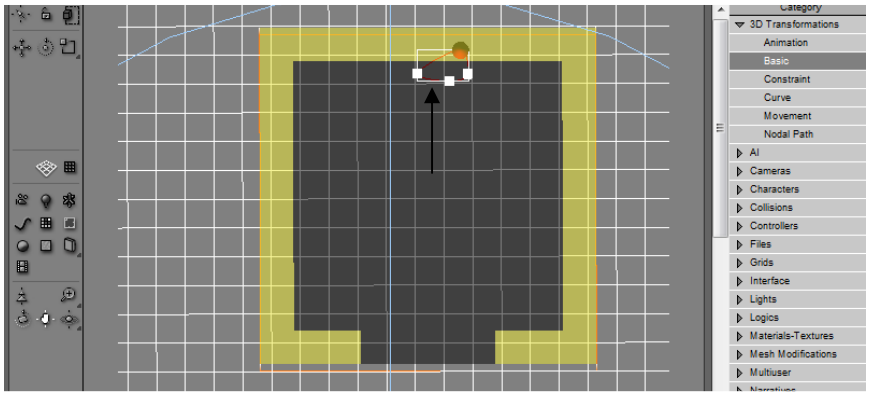
Part 3 shows how to move sphere animated on a path inside a level
We use a sphere moving on a path using Curve Follow. Sphere and Path are inside the yellow grid container



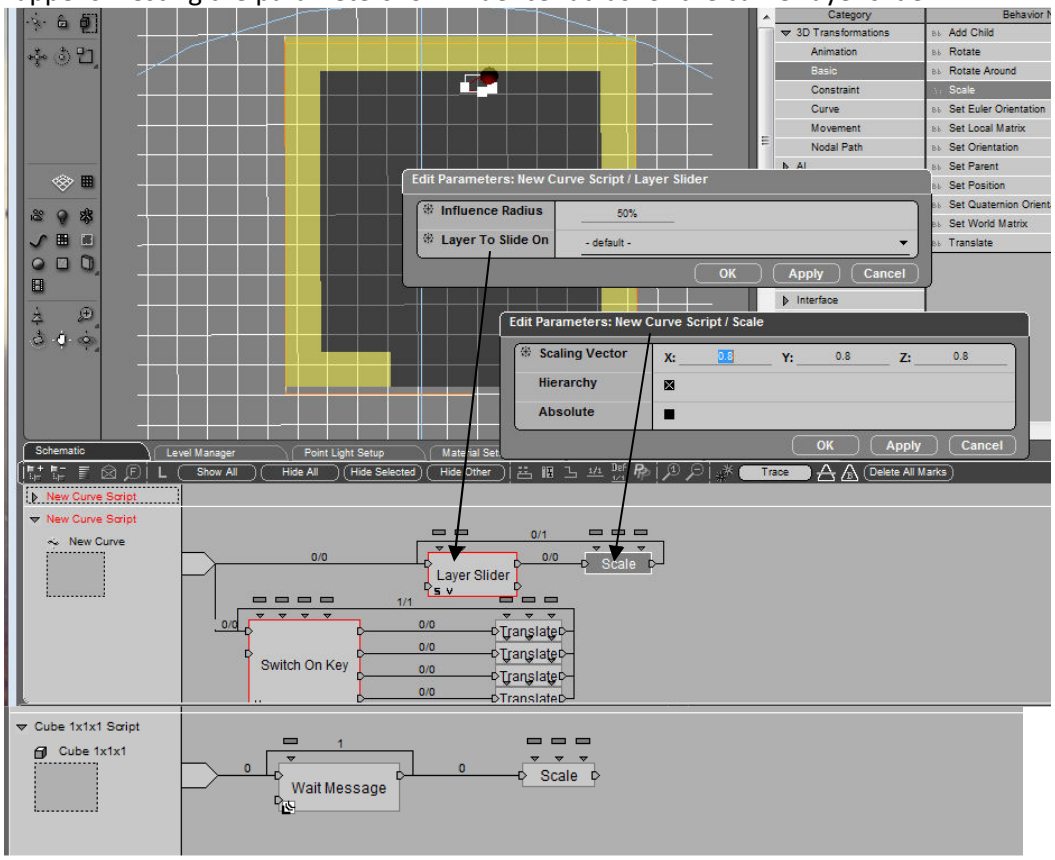




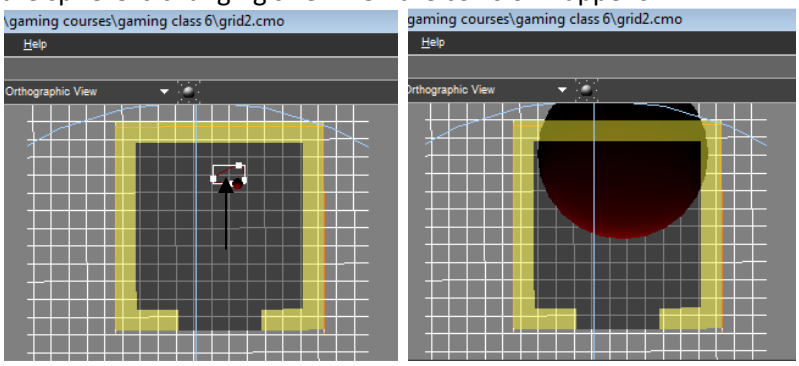
Setting up the path or the curve controlled by the keyboard keys. The collision detection Layer Slider is placed on the curve

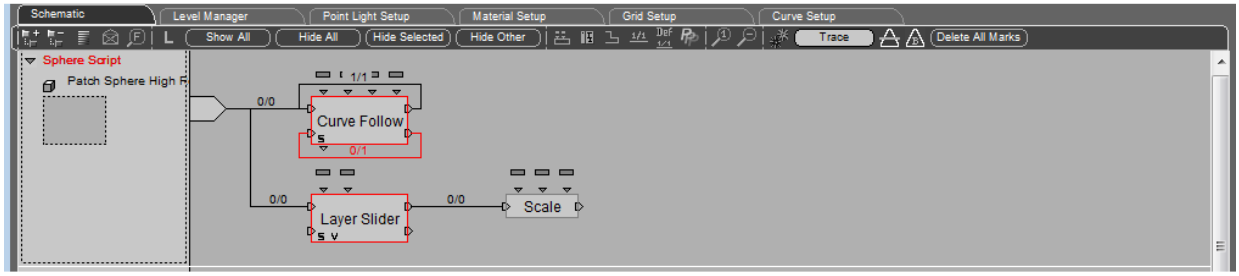


Top view the path is going to hit the yellow band. Bottom view, the path scales down when the collision happens. Testing the parameters for influence radius for the curve Layer slider



In the following example the collision detection Layer Slider is applied to the sphere only. For example the sphere is changing size when the collision happens

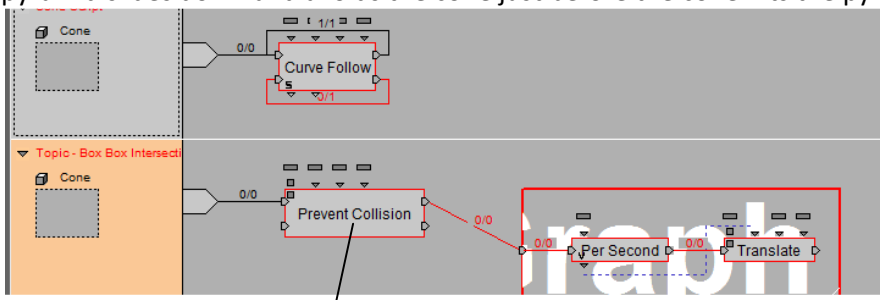




Test and compare both methods

Part 4 avoiding a collision between an moving object on a path and a fixed object.

This example shows the relationship between a moving object or camera and a crowd of objects that opens up in order to avoid collisions. A green cone moves on a path and hits an orange pyramid. The pyramid slides down and avoids the cone just before the cone hits the pyramid.



We use the “Prevent Collision” BB found under Collisions > Intersection > Prevent Collision