



3D GAME STUDIO – TUTORIAL EXERCISE #5 USE MED TO SKIN AND ANIMATE A CUBE



This tutorial covers basic model skinning and animation in MED – the 3DGS model editor. This exercise was prepared using MED v6.846. By the end of it you will be able to skin a cube and animate it. These basic principals apply to most animated models used in 3D games in which models consist of a wire frame mesh and a flat skin image which wraps around the mesh.

GENERAL



The four windows in MED are arranged as follows:

TOP VIEW	3D VIEW
FRONT VIEW	LEFT SIDE

Use the icons down the left hand edge to arrange the window views. The “fit all” command  is useful for making sure your model fills as much of each view window as possible. Tools for inserting primitive shapes such as cubes are on the left of the top tool bar. 

On the top tool bar “vertex mode” and “triangle mode”   are selected to work with corner points or with faces. For this exercise we will use faces (the default). Also on the tool bar are tools such as select, move, rotate and enlarge which are the same as in WED. Note: you can enlarge an item equally in all directions by pressing Shift as you drag.

To build shapes from scratch, use the tools are the far right of the top tool bar.

These include “create vertex” and “build face”   . The other tools are used to manipulate and deform shapes.


A useful function on the Tools Menu called Background Image allows placing of reference in the background for building a model of a character for example.

To view a grid in MED (essential!). Go to File > Preferences > Video Out and select 2D grid. To change the color of the grid, go to Preferences > Color.

Refer to the Help documentation for more information.

SKIN A CUBE

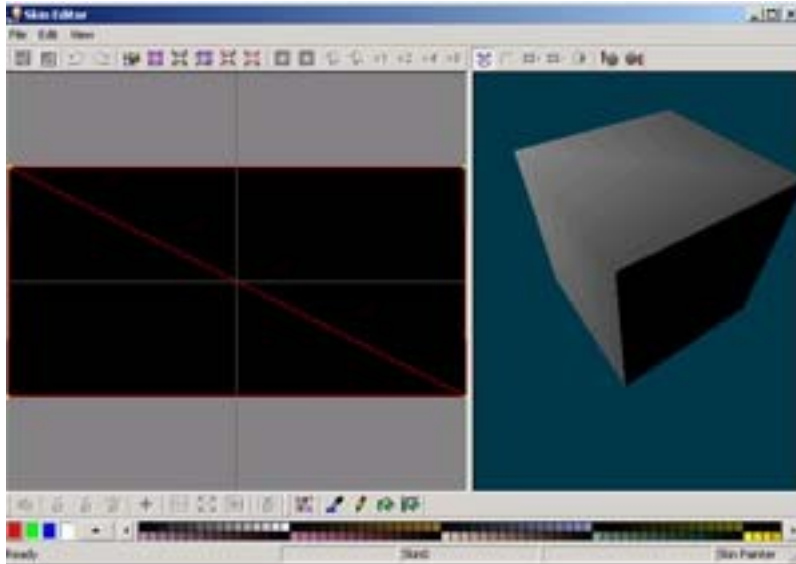
“Skinning” is the process of making a 2D image that will wrap around a 3D model to give the appearance of a realistic surface.

1. Insert a cube  . Save the model in MDL7 format (the default).
2. Make the “canvas” for your skin. We are just making solid colors so a large size is not required. The smaller the skins the faster the game will run. For this exercise, something like 512 pixels wide by 256 pixels high will be OK. Create a 512x256 image in Photoshop, fill it with black (or any solid color) and save it as cube_skin.bmp. [Note: the sides of the skin should be a power of 2]
3. Load the skin. Go to Edit > Manage Skins. Click “New Skin”. Skin0 will appear.
4. Check the “Texture” box then select “Texture File”. Load the cube_skin.bmp file that you just made. The skin is now loaded.
5. Apply the skin to the model by opening Manage Skins, selecting Skin0 and clicking on “Set Skin”. The skin is now applied. The surfaces of the model now need to be mapped onto it.
6. Select the front face of the cube (bottom left corner window) by control-clicking its two triangles. Then go to Edit > Create 6-sided mapping.

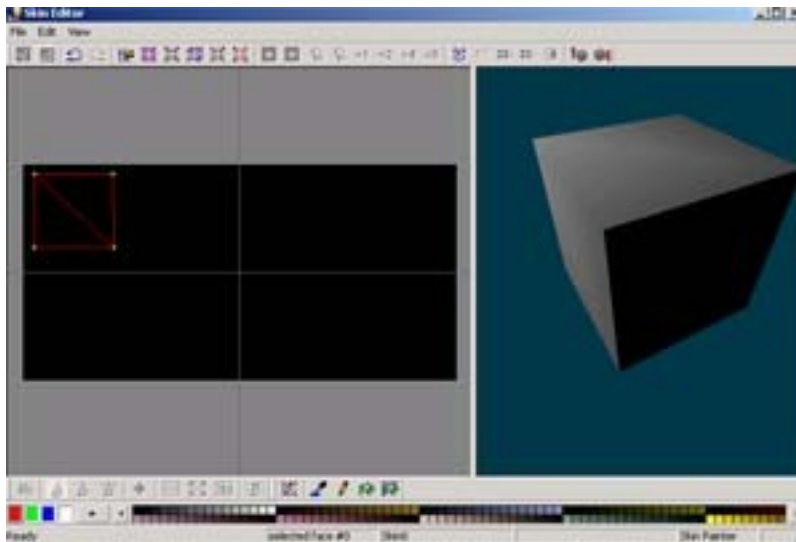
[This means that an element of the skin will be projected onto one of the six faces of the model (front, back, left, right, top, bottom). More than one element of a skin can be projected onto each of the faces – for example, a character face image might be projected onto the front of the model, and a separate clothing image might also be projected onto the front.]

Make sure that “Front” is selected.

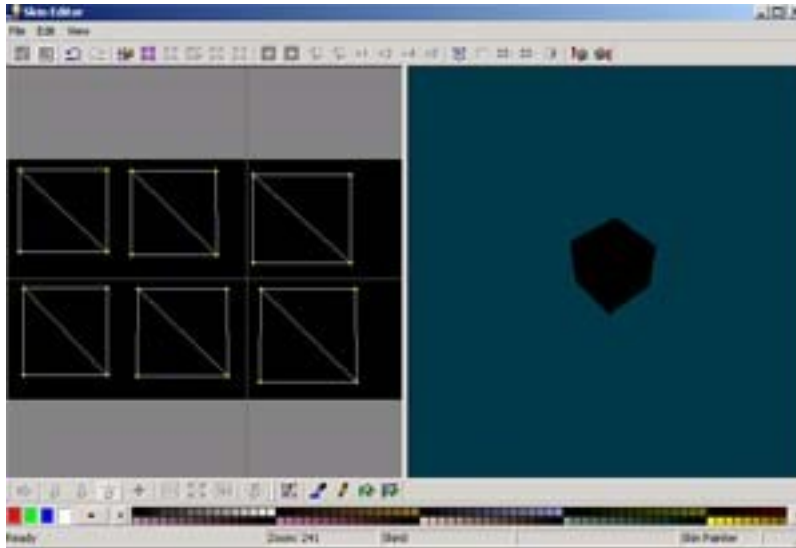
7. Open the Skin Editor from the File menu. You will see the front face of the cube stretched across your skin. In the 3D view to the right you will see the front of the cube now has the color of the skin. Rotate the 3D view with the left mouse button and zoom in and out with the right mouse button.



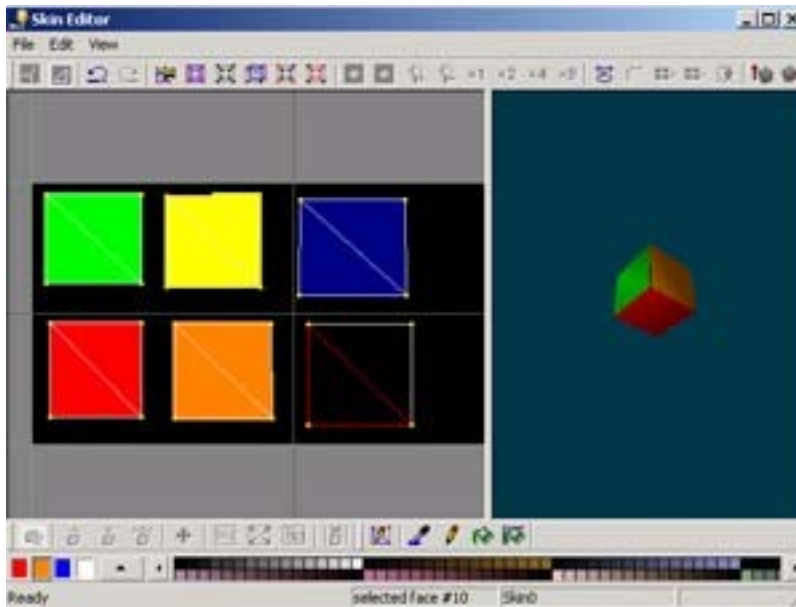
8. All the faces of the cube need to fit onto the skin, so resize the stretched out face so that six of them will fit on the skin. The scale tool is at the bottom of the window. Before scaling be sure to ctrl-click to select the two triangles that make up the front. It is not critical that the face is a perfect square. It is also not critical where the faces are placed on the skin. The main thing is to save space.



9. Carry out the same process (6. through 8.) to map the remaining five faces onto the skin. Be sure to select the correct face orientation during the mapping (front, back, left, etc).



10. The faces can now be colored directly in MED using the painting tools at the bottom of the window. Note that the painting color is the middle one in the palette, not necessarily the one that is select (this appears to be a bug).



11. For more complicated designs, export to Photoshop. In the Skin Editor File > Export Current Image to bmp. The open in Photoshop and paint designs over the faces. It is best for any artwork to extend slightly beyond the face's edge so there are no gaps at the edges.



ANIMATE THE CUBE

This is the same basic procedure for animating any game model.

1. Open Edit > Manage Frames. Add three new frames Frame0, Frame1, Frame2. [Note: for our purposes the names of the frames don't matter. For a character model in the game there is a strict naming convention, e.g. the frames of the characters standing animation must be named Stand0, Stand1, Stand2, etc]. Close Manage Frames.

2. Click on "Animate" at the bottom of the screen. It will turn yellow.

3. Frame0 is the current resting state of the cube. To get to Frame1, move the slider to the right until Frame1 is displayed.



4. Now set up the cube state for this frame. In the front view, drag around the cube so that the entire cube is selected. Click on the move tool and move the cube up a height roughly equivalent to its height.

5. Move the slider to the right until Frame2 is displayed. Select the entire cube again and drag it back to its starting position.

6. Play the animation by clicking on the Play Cam button  at the lower left of the screen.

7. Save the model and insert it into your level in GameStudio by Object > Add Model. Build the level. You should see it bouncing up and down continuously.