

Texture Mappings

This example will give you an understanding of how to create and use texture mappings, the "Texture mapping Palette" and how texture mappings work.

What are texture Mappings

A texture mapping is a saved entry which is stored in Creators "Texture Mapping Palette", the mapping entry stores details of how you have previously applied a texture to a face or faces, which you can then use to quickly apply textures to faces without having to start one of the texture application tools.

For example of the usefulness of using the Texture Mapping palette:

If you have a large scale terrain which needs to be covered with a specific texture, rather than having to select all of the faces or groups and then applying the texture using a Put Texture tool each time, you can simplify the process by applying the texture once, and then save the mapping in to the Texture Mapping palette.

Then you can continue to apply the texture mapping from the Texture Mapping palette. When you need to adjust the texture mapping, all the faces will updated with the changes, so you that you do not have to modify the mapping for each faces or group of faces, this results in different UV's texture coordinates for the geometry

Texture mapping problems

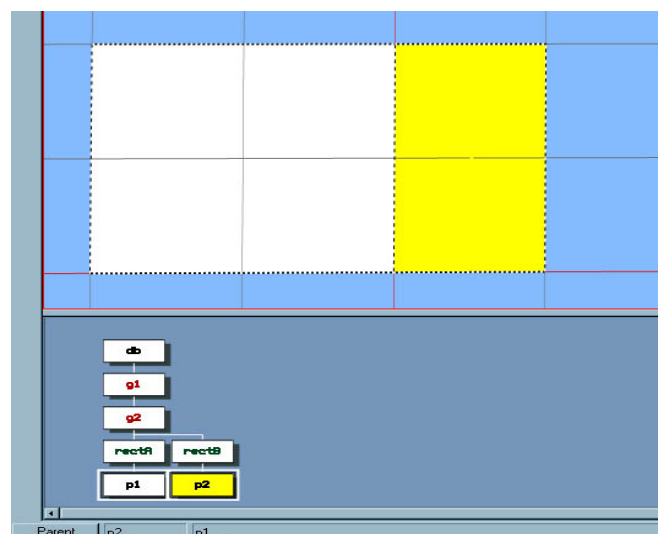
New users and even experience users can misunderstand the use of Texture Mappings and how they actually work.

When you create a texture mapping and then reuse the mapping by applying textures on to "new" geometry, the texture is applied as if you applied the original mapping to the original geometry and the "new" geometry at the same time, such that the original "From" and "To" points are used for both sets of geometry.

This means that the "new" geometries UV's mappings will be different, which can cause confusion when first encountered

Create a simple example to illustrate texture mapping

1. First close any Open Flight files that are Open
2. Next create a **new** database
3. Next save the file, set the file name as "**texMappingExample.flt**"
4. Create 2 rectangles called **rectA** and **rectB**, create them on the XY plane
5. Create **rectA** and make it square and set its color to white
6. Create the second rectangle **rectB** next to and to the right of **rectA**
7. Make the "Y" axis dimension of **rectA** and **rectB** the same



(Image 1: Rectangles **rectA** and **rectB**)

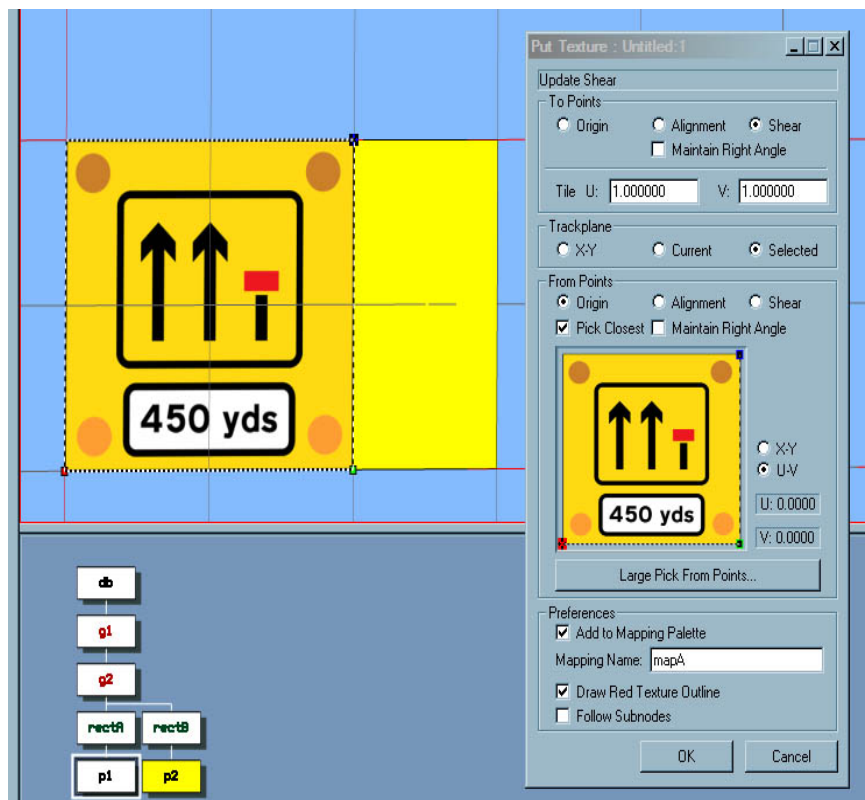
8. Make "X" axis of **rectB** half as wide **rectA**
9. Set the color to yellow for **rectB**
10. Save the file (*control + S*)
11. You should have some geometry similar to that shown in image 1

Add a Texture and Create a Texture Mapping Entry

12. Load a texture into your texture palette if you have not done so already and select the texture (a square texture is best for this example)

13. Select the **rectA** geometry
14. Start 3 Point Put texture tool
15. Set the "Add to Mapping Palette" check on, this will ensure that the texture mapping applied with be saved to the mapping palette
16. Set the mapping name to **mapA**, naming the mappings makes them more meaning full and easier to identify

17. Apply the texture on to the rectangle **rectA**, such that texture spans the whole of the geometry and does not repeat. If a square texture is used then the U and V coordinate will be 1.0 and 1.0

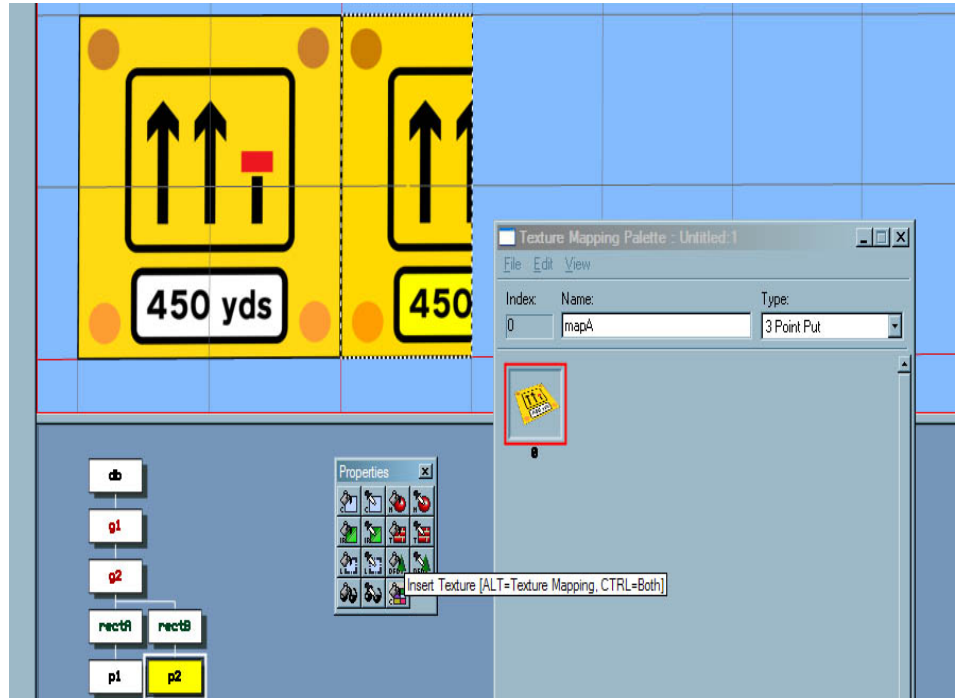


(Image 2: Apply Texture to **rectA**)

18. Click the "OK" button on the 3 point Texture Put tool
19. Save the file (*control + S*)
20. You should at this point have textured geometry similar to that shown in image 2.

Using the Texture Mapping

21. Open the texture Mapping Palette
22. Select the texture Mapping **mapA** from the Texture Mapping Palette
23. Select **rectB** and apply the texture mapping **mapA**, we apply the texture mapping by using the Insert Texture tool found in the Properties Tool Box, (*using the Control + Left mouse on the Insert texture button*)
24. Save the file (*control + S*)
25. You should see something similar to that in image 3

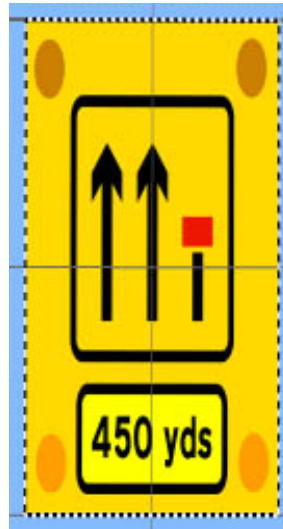


(Image 3: Mapping Applied to **rectB**)

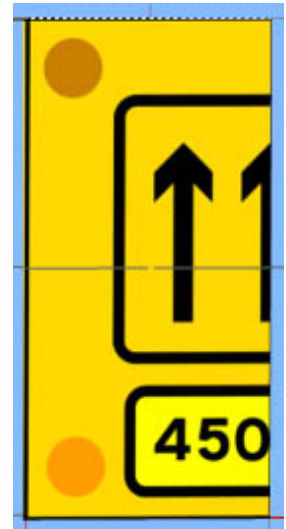
When the texture mapping **mapA** is applied to the geometry **rectB**, many user expect the texture to fully fill **rectB** just as it has filled **rectA** as in image 5

You can already see though that this is not the case and this is what can confuse many users at first. (See images 5 and 3)

If you examine the UV texture coordinates of both the rectangles, you should see that the geometries texture coordinate **V** ranges on **rectB** will be from 0 to 1 and in this example matches that of **rectA** but texture coordinates **U** on **rectB** ranges from 1 to 1.5 and not 0.0 to 0.5 like it does on **rectA**, the texture mapping applied is as if you did the original 3 Point Put on both **rectA** and **rectB** at the same time.



(Image 4)
Expected

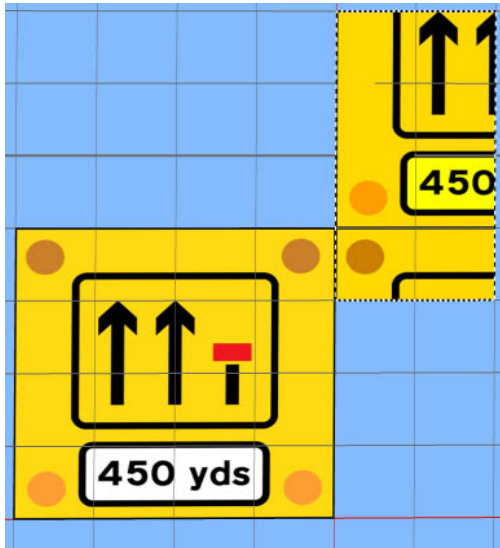


(Image 5)
Actual

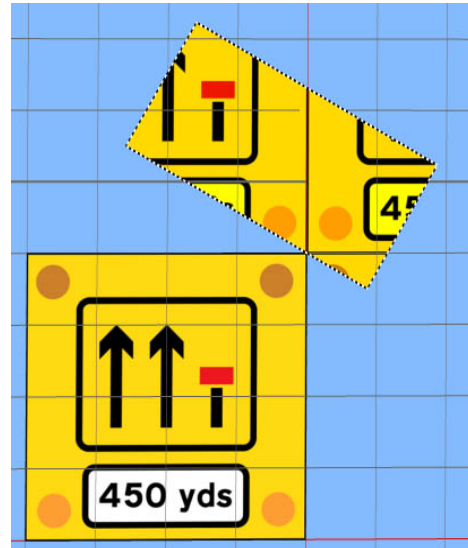
Texture Mappings on Translated Geometry

Now that we the 2 rectangles **rectA** and **rectB** both have the texture applied and a mapping to **mapA** on **rectB**, so lets now apply a translation and rotation of **rectB** and see how they effect the texture mapping

26. Set selection mode to face Mode (*shift + F*)
27. Select rectB geometry
28. Now use the Translation tool found in the Maneuver Tool box, and to translate rectB to a position similar to that seen in image 6
29. Now use Rotate Around point tool again found in the Maneuver Tool box, and to rotate rectB to a position similar to that seen in image 7
30. Save the file (*control + S*)



(Image 6: **rectB** Translated)



(Image 7: **rectB** Rotated)

You will notice that again the texture coordinates UV's are not fixed and the texture appears to move on the geometry as you moved it around. This is correct because a texture mapping is applied as a position in the 3d world and thus the texture does not move with the geometry and the geometries UV's are applied with respect to this fixed world position (Which can be update the texture mapping tools.

Think of texture mapping as applying the texture to 3d world space rather than on to the Geometry

How do I keep Texture UV's if I want to move my Geometry?

To remove a texture mapping from a face, open the face attribute dialog and enter -1 into the Texture Mapping field. To do all your faces at once, select all faces, open attribute dialog, make sure Modify All is selected, enter -1 into the Texture Mapping field.

This will remove the texture mapping from all selected faces and at the same time, stamp/burn the textures UV's onto the vertices of the selected faces. Now when you translated, rotate or scale your geometry the textures will move as expected with the geometry.