

## TUTORIAL GIMP



## IMAGE CONSTRUCTION

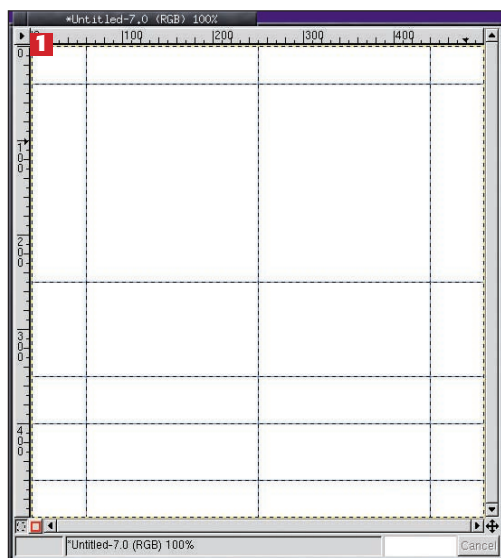
# 3D Design with The GIMP



Perspective views can turn any image into 3D artwork. All it takes is a little organisation, a little crafty lighting and **Michael J Hammel's** expert tutelage...

**T**he *GIMP* isn't designed to do 3D work – such tasks are generally left to tools like the recently open-sourced *Blender* (Jono Bacon's tutorials are in *Linux Format* issues 39–50), SoftImage's *Maya* and SideFX Software's *Houdini*.

But not all 3D tasks require some complex tools. In this issue's set of tutorials we'll look at the processes for creating some basic 3D shapes using *The GIMP* and how such simple shapes are processes can be used for meaningful work.



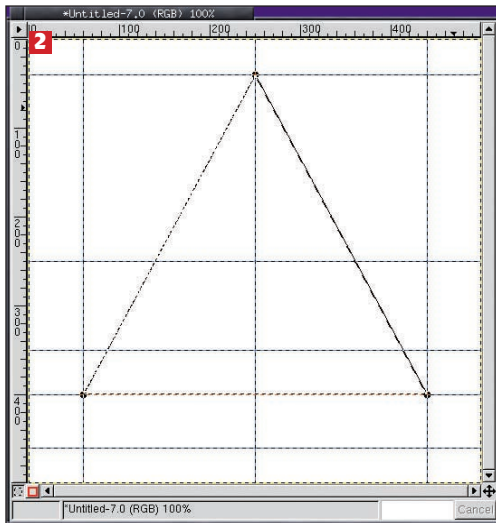
## SIMPLE SHAPES: 3D CONE WITH TEXTURE

Aside from a sphere, the cone is the most simplistic 3D shape we can make with *The GIMP*. It requires only a little optical illusion through the use of a merged selection and properly applied gradient.

### Guides

**1** Start with a new window with a single white background layer. Make the image square, 500x500 pixels for this example. Now add some guides to make it easy to outline the cone. Use **Guides> Center Guide** if you have it, or simply place a vertical guide offset 250 pixels from the left edge. Add two more guides offset 40 pixels from the top and bottom. Add two more guides 60 pixels offset from each side of the window. Finally, add another guide 350 pixels from the top. Your canvas should look like this example (the horizontally centered guide will be there if you used **Guides> Center Guide**, otherwise it won't).



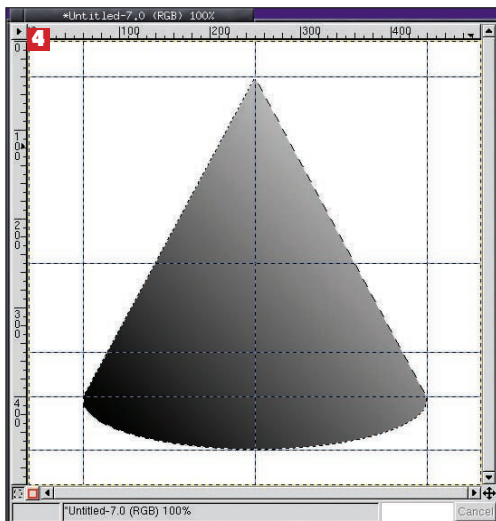
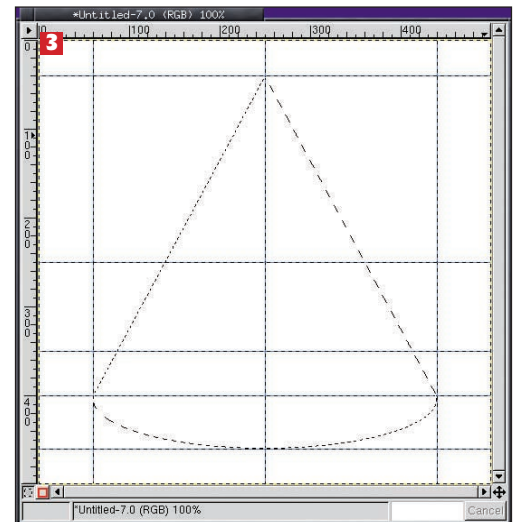


## Triangular Selection

**2** Choose the Bezier Selection Tool from the Toolbox. Click on the guides where they intersect at X/Y locations 250/40, 60/400, and 440/400. Be sure to close the triangle by clicking on 250/40 again, then click inside the outline to create the selection.

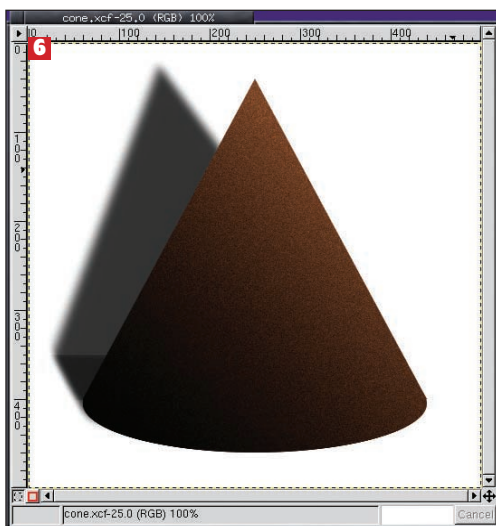
## Cone Selection

**3** Select the Elliptical Selection Tool from the Toolbox. Starting at the guide intersection at X/Y location 60/350, hold the Shift key down, and then press and hold the left mouse button down. While holding the mouse button down, release the Shift key and drag the mouse to the guide intersection at 440/450. When you release the mouse button, the elliptical selection will be merged with the triangular one.



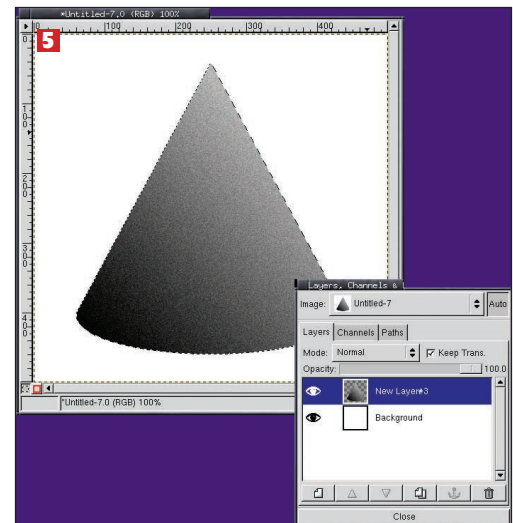
## Gradient

**4** Add a new, transparent layer to the image. Set the foreground colour to white and background to black (which is opposite of the default setting). Select the Gradient Tool in the Toolbox. Click at the guide intersection at 440/40 in the upper right of the image, then drag to the guide intersection at 60/400 in the lower left. This causes a lighter shade of grey on the right side of the cone and black on the lower left of the cone.



## Noisify and Multiply

**5** Turn off the guide visibility (View>Toggle Guides). Turn on the Keep Transparency For This Layer option (see the Layers and Channels Dialog). Add noise to the image (Filters>Noise>Noisify) set to a low level: about 0.10 for all channels. Duplicate this layer and set the new layer to Multiply. Reduce the new layers Opacity to about 70%.



## Colorize

**6** Duplicate this new layer. Set the foreground color to #cc4a00. Fill this new duplicate layer with this color. Remove the selection (Ctrl-Shift-A). Add a drop shadow (Script-FU > Shadows>Drop Shadow).

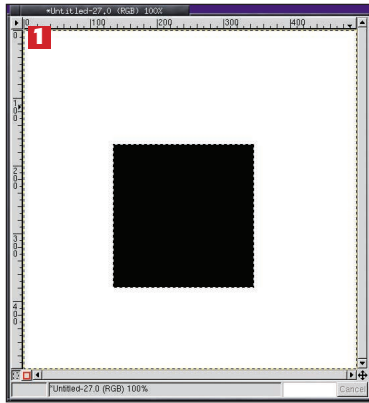


## TUTORIAL GIMP

## SIMPLE SHAPES: 3D BOX

While the cone was simple, it wasn't exactly perfect. The top of the cone was a perfect point and made that part of the effect appear a bit 2D. The drop shadow (which we angled at the bottom to make the cone appear to be sitting on a table) helped,

but we can do better. In this tutorial, we'll create a box using multiple square pieces that we'll align and shade with gradients to get an even better effect. This effect is just as easy as the last, but does require a steady hand to align the layers manually.

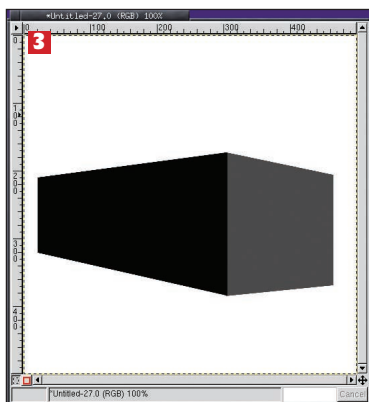
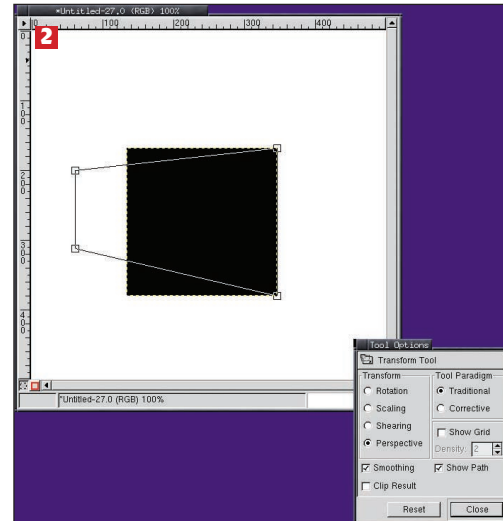


## Black square

**1** Start with a new canvas, preferably square – but it doesn't have to be for this tutorial. Add a transparent layer. Select the Rectangular Selection tool from the Toolbox. Create a square selection by holding down the Shift key while you drag the mouse. The size doesn't matter – we'll be modifying this in a moment anyway. Fill the selection with black.

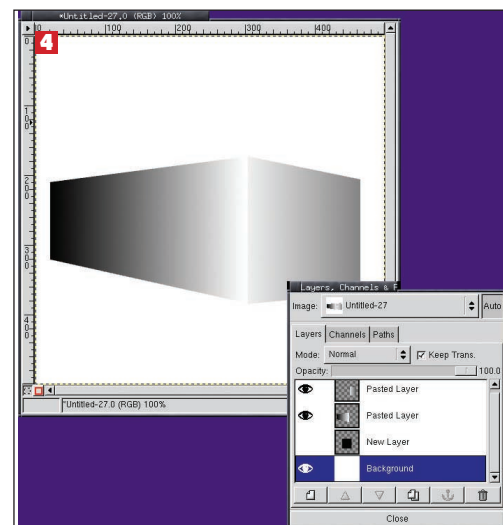
## Side Perspective

**2** Copy and paste (Ctrl-C, Ctrl-V) the selection to create a new layer with the black square. Turn off the original layers' visibility for a moment while we work on the new layer. Double-click on the Transforms Tool from the Toolbox and select its Perspective Transform. Click inside the black square to show the drag boxes on the corner of the square. Drag the left side squares toward each other and the left side. Leave the right side boxes where they are. Click on the Transform button. This is the left side of the box.



## Side Perspective

**3** Paste another black square into the image as a new layer. Open the Transform Tools>Tool Options window again and click on the black square. Move the right side drag boxes toward each other a small amount, with top box moved down more than bottom is moved up, and in toward the left side of the black square. Click on the Transform button. Reduce the opacity of this layer to 70%. Move the layer so its left edge butts up against the right side of the previous layer. You may have to move both layers a bit to make them both fit in the canvas properly. This is the front of the box.



## Side Perspective

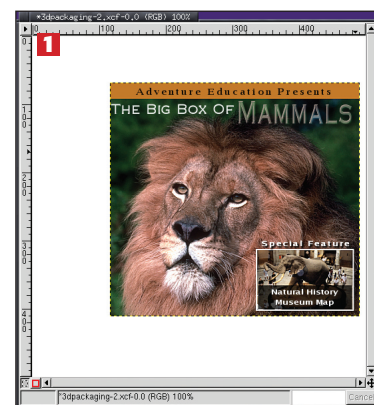
**4** Make sure the Foreground color is set to black, and the Background is set to white. Make the left side of the box layer active. Drag from the left of this layer to the right using the Gradient tool. Make the front size of the box layer active, and drag the gradient from outside the right side of this layer to outside the left side of the layer. The left side will go from black to white, but the front will go from dark grey to light grey. This makes the edge where the side and front meet stand out a bit more while still giving the appearance of directed lighting.

## REAL WORLD: 3D PACKAGING

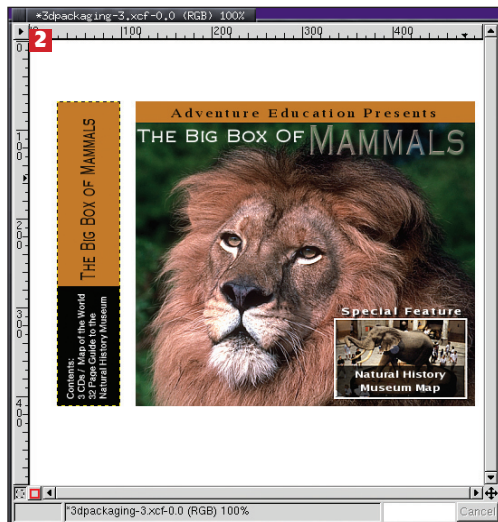
Our first design used shadows (via gradients) to simulate the effect of three dimensions. Our second design used the Transform Tool to change the perspective of an object (a square) to give the appearance of depth. Lighting (via gradients) enhanced the result. Transforms are powerful tools in simulating depth in *The GIMP*, as these next two real-world tutorials will show. This Packaging method described here is sometimes used in *Linux Format* to create images of books or boxed products for reviews.

## Box cover

**1** Start with a blank canvas at 500x500 pixels. Open an existing image to use as the front cover of a box. Make it about 375 pixels wide. Here we've created a separate image for our out cover and pasted it into our blank canvas. Move the image to the right side a bit to leave room for the side of the box we're about to create.

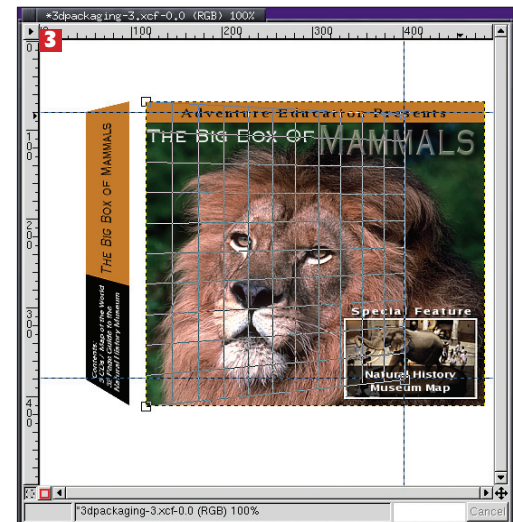






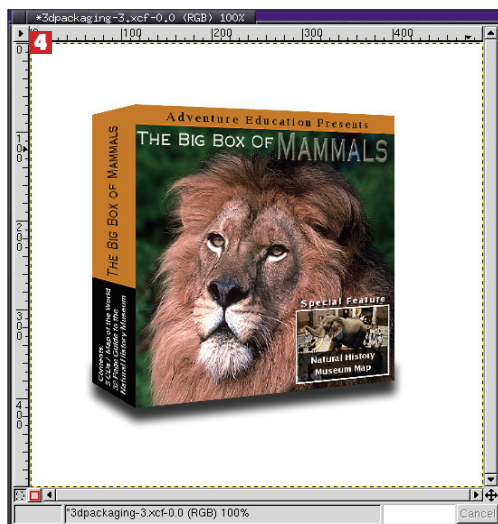
### Box side

**2** Duplicate the cover layer and resize its width only to about 70 pixels. Select the entire layer (Ctrl-A) and fill it with a solid colour. Adding multiple sections of colour will add to the final effect. Add a text layer and rotate it 270 degrees. Merge the side and text layers into a single layer. You should now have a side layer and a cover layer along with the white background layer. Make sure the side and front layers are aligned at their tops.



### Perspective both

**3** Add two horizontal guides, one 30 pixels above the bottom of the side layer and one 15 pixels below the top. Add a vertical guide 20 pixels to the right of the left side of the side layer. Select the Transform Tool from the Toolbox and choose the Perspective transform. With the side layer active, click on it once to display drag boxes. Grab the upper left drag box and move it down and in to where the upper horizontal and vertical guides intersect. Grab the lower left drag box and move it to where the lower horizontal and vertical guides intersect. Click on the Transform button to perform the transformation. Add a vertical guide about 90 pixels in from the right side of the cover layer. With the cover layer active, click on it once and drag the upper right and lower right drag boxes to the intersections of the upper and lower horizontal guides with the new vertical guide. Click the Transform button to perform the transformation.



### Drop shadowed

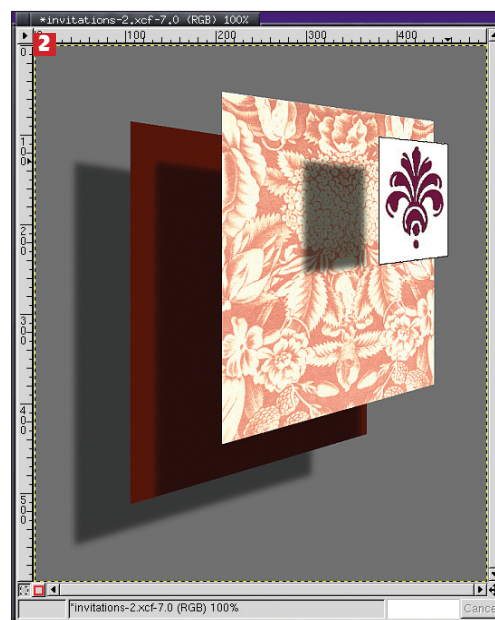
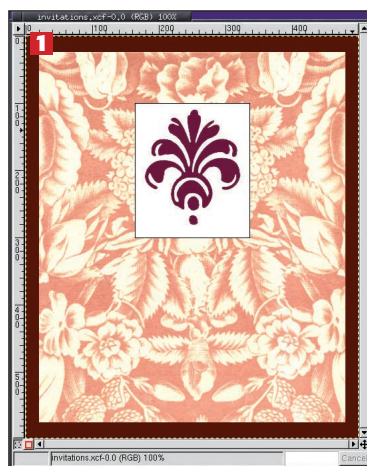
**4** Now align the left edge of the cover layer with the right edge of the side layer. Make sure the tops of both layers are aligned as well – if all went well, the sides you are aligning should be the same size so the corners of the front and side will align perfectly. Merge the side and top layers. Make a rectangular selection of the bottom 1/5th of this merged layer, copy and paste it back in. Make a drop shadow this is new layer, then delete that layer (keeping the shadow). Move the shadow layer below the merged side/top layer. Adjust the position of the shadow layer as needed.

## REAL WORLD: 3D LAYERING

The last real world example uses the exact same methods as the previous tutorial. In this case, a layered card design for an invitation is shown in an exploded view so that the multiple layers become obvious.

### Head-on view

**1** Starting with an image with multiple layers, we show a head on view of a layered card design. Viewers see only the two dimensions of this image and miss the 3D aspect the actual card will have. In order to fix this, we show an exploded view that uses perspective transforms on each layer. The key here is that each of the multiple layers of the card have their own layers in *The GIMP*.



### Exploded view

**2** Each layer is transformed manually. The trick here is one of trial and error – experimenting with the transformed edges so they look real and in proportion to each other. This is very much an artists playground – while we could explain how to do this mathematically and by using the measure tool and lots of guides, its much quicker to experiment, undo, and experiment again to find the right transforms. Adding shadows enhances the 3D view.