Add Ripples to a Flag

By J.P. Kabala

Paint Shop Pro 9 added the ability to create and use displacement maps. Similar to, but actually far more flexible and easier to use than similar features in other programs, displacement maps serve many different functions. Let's look at a few of them. The first and most typical use is to bend a 2D image so that it appears to conform to a 3D shape. It does this by using a trick of the light, mind, and eye-- dark colors, our brain says, appear to recede, light colors appear to come forward. In software terms, in a displacement map a black area moves the pixels down and to the left and a white area moves pixels up and to the right.

What you'll need:

- Jasc® Paint Shop™ Pro® 9
- A flag from Show Your Colors

When you complete this tutorial, you'll be able to:

- Create a New Image
- Rotate and Warp an Image
- Create a Displacement Map
- Use Picture Tubes™
- Add Selections
- Work with Gradients

Create a New Image

1. I'm going to be using an American flag, but you can use any flag you like. Choose **File > New**. Create a new 24-bit image with a **raster** background color **#8080FF 500** pixels x **500** pixels. To change the background color, first make sure the Transparent box is cleared, then click inside the color chip in the center of the New Image dialog to access the Material Properties dialog. When it opens, type **8080FF** in the box marked HTML and click **OK**. 8080FF is the HTML color code number for a light blue color.
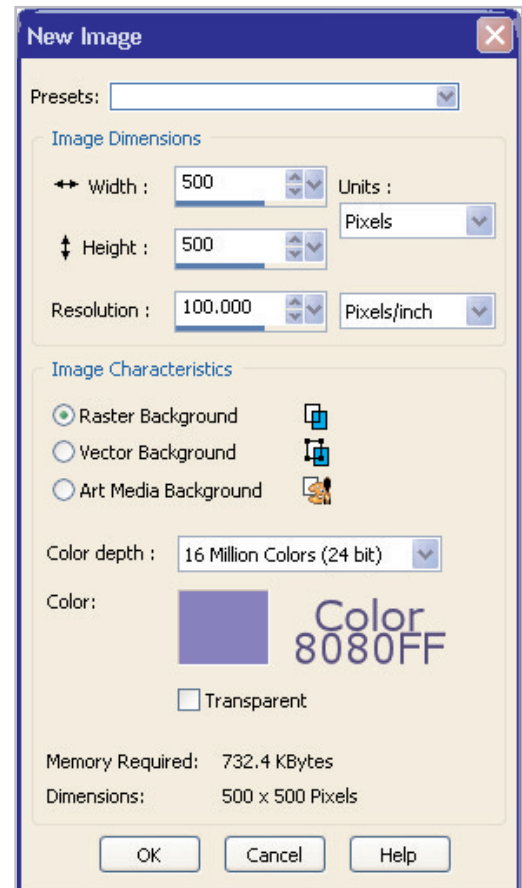

Copy Your Flag

2. Open your Web browser and navigate to Show Your Colors. Choose the country or other entity whose flag you would like to use. When the image opens, right-click the image and choose **Copy** to copy it to the clipboard.

3. Return to Paint Shop Pro. Choose **Edit > Paste > Paste As New Layer** and paste it into your Paint Shop Pro image as a new layer. Pasting as a new layer automatically centers copied information on the image.
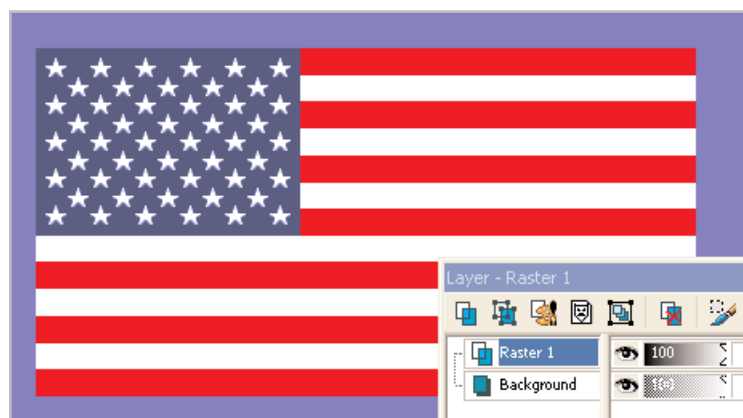
Create a Sketch Layer

4. Flying flags do not ordinarily sit at a perfect 90 degree angle to the ground (that pesky gravity, you know) so let's rotate it a little. Press **CTRL+R** to open the Free Rotate dialog and set the:

- Direction: **Right**
- Degrees: **Free- 10**
- Clear the box beside All Layers
- Mark the Rotate single layer around canvas center box
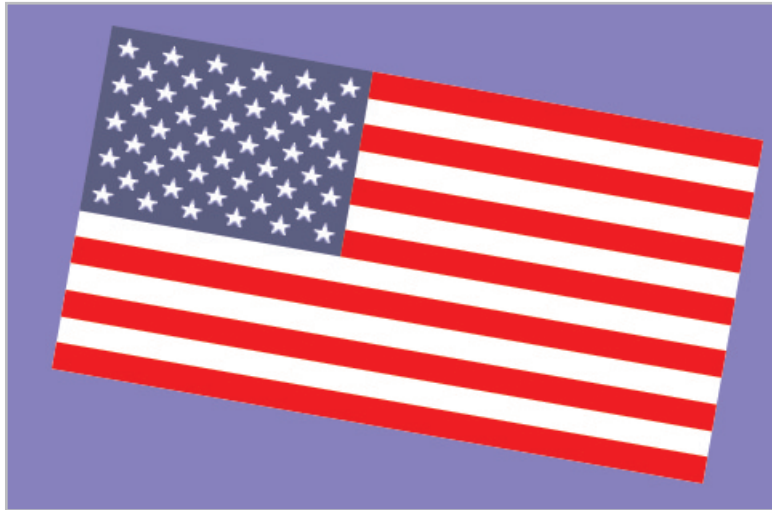
5. Flying flags (except in hurricane force winds) don't usually have perfectly straight edges, either. To add a little realism, we're going to need the Warp Brush. Select the **Warp Brush** from the Tools toolbar (it is nested with the Paintbrush and Airbrush) and set the tool options as shown here.

Notice that I'm using a very big, very soft brush. We only want to mess up just the outside edges and just a little bit. The displacement map will do the rest.

With this large, soft Warp Brush, push and pull on the edges just a tiny amount.
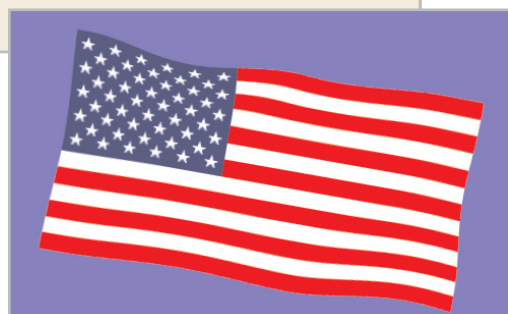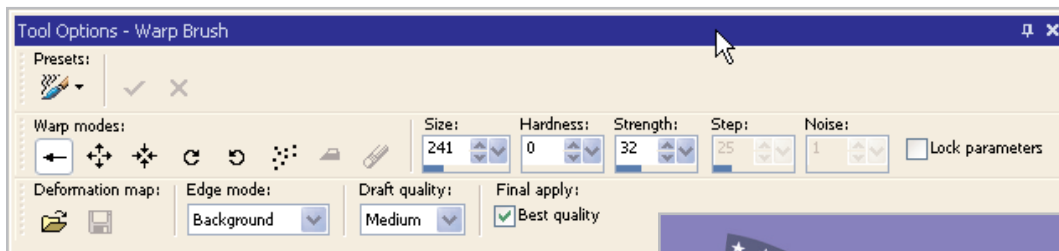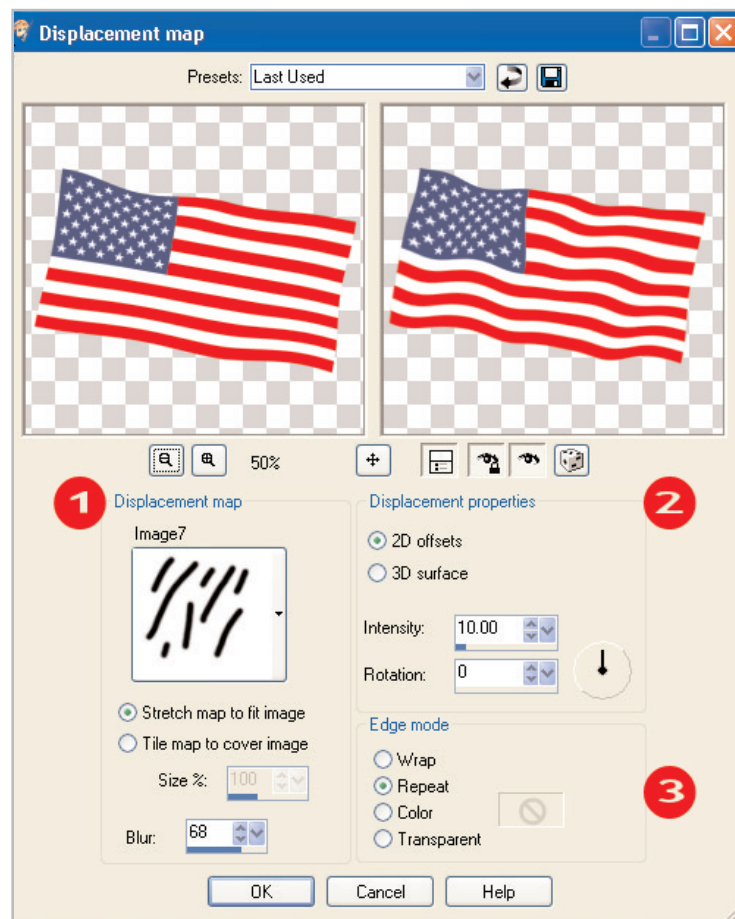
Create a Displacement Map

6. Now we're ready for the displacement map magic. Open a new image, exactly the same size and shape as the first one (it doesn't always have to be the same, but let's make it easy on ourselves). Paint Shop Pro remembers the last image you created, so all you'll have to do is choose **File > New** and when the dialog opens, change the background color to white and click **OK**.

7. When your new white image opens, take the Paintbrush (the default settings are fine) and some black paint and paint a few thick diagonal lines on the canvas--just a few lines and you don't have to be very precise. In fact, the result will be more realistic if your lines are not perfectly spaced and perfectly straight. You've just created a displacement map. Now let's find out how to use it.

8. Make your flag image active again. Look at the Layers Palette or the title bar of the image to make sure that the layer with the flag on it is the active layer (it was named "Raster 1" by default when you pasted your flag into it). Choose **Effects > Distortion Effects > Displacement Map**. For the purposes of this project, set the options as shown.

But, before you click OK, let's look at the dialog box for a minute. There's a lot of power here, and it is so much more user-friendly than similar controls found in other software that it bears looking at closely.

Section 1 The Displacement Map

In this section, you will choose the image that will distort your primary image. If you click the tiny arrow on the right side of the square picker box a menu of available images will appear. This includes all images stored in your Displacement Maps folders, plus any images currently open in Paint Shop Pro. There's even a Resource Manger inside there that will let you add folders and locations on the fly!

The next option answers the question "how do you want Paint Shop Pro to treat the map if it is smaller than your image?" This option, while not important in this particular exercise, allows for some creative options.

And the last option is my favorite in this section, the Blur. Why, you ask? Because (unlike some other software programs which use displacement maps) Paint Shop Pro allows you to preview and adjust the intensity of the displacement without a lot of guesswork. Folks familiar with other displacement map programs may have wondered why I didn't tell you to blur and save the map image beforehand. Now you know why! That's an unnecessary step in Paint Shop Pro.

For the purposes of this exercise, locate the image you created in Step 7 in the picker (it will be near the top) and set the blur to about **68** to get nice, smooth ripples. A lower value will produce wrinkles, a higher value will produce softer hills and valleys.

Section 2 The Displacement Properties

This section is also unique to Paint Shop Pro. You have the option of 2- or 3- dimensional offsets. To give an appearance of movement, volume, or curvature to a flat object, choose 2D. To emboss or engrave a shape into a surface, choose 3D. Rotation and intensity allow you to compensate for the lighting and other particulars of a given image.

Feel free to experiment with it, but for our purposes with the flag an Intensity setting of **10** and a Rotation setting of **0** is fine.

Section 3 The Edge Mode

As in many other effects in Paint Shop Pro, you are being asked here what you want the software to do if distorting the image results in empty spaces at the edges of the canvas. In this project, it doesn't matter which option you choose, because there is so much empty space around our flag. In other projects, you may need to make a choice.

- Wrap fills in empty spaces with the equivalent pixels from the opposite side. If there are missing pixels on the right edge, it will fill the void with a copy of the pixels from the left edge (top and bottom edges work similarly).
- Repeat fills the empty space with a repeat of the last pixel color on the distorted edge. This is often an excellent choice when you are distorting against a solid background.
- Color fills the gaps with a color of your choosing. When this option is selected, the swatch to the right is activated, and clicking in the swatch opens a color picker.
- Transparent does not fill the gaps. It leaves them empty.

When you have completed reading this section and are ready to proceed, click **OK**.

Add Highlights and Shadows

9. Our flag is starting to look good, but it's not quite complete yet. It needs highlights and shadows. The good news is you've already created them! Go back to your black and white image created in Step 6, and copy it to the clipboard by pressing **CTRL+C**, then return to the flag image and Paste it as a New Layer, by pressing **CTRL+L**.

10. If your Layers Palette isn't visible, make it visible now by pressing the **F8** key. Change the Layer Blend Mode of this new layer to **Darken**, and decrease the opacity to **45-50%**.

11. Now Choose **Adjust > Blur > Gaussian Blur**. In the dialog, choose a setting of **18** and click **OK**.


12. With the Eraser, simply erase any shadows that fall outside the flag.

13. With the shadow layer still active, Choose **Layers > Merge > Merge Down** to permanently bond the shadows to the flag.

Add Clouds

14. Click the **Background** layer to make it active and in the Materials Palette place white in the foreground color swatch. With the Airbrush set to a very low opacity, paint in a cloud behind your flag.

15. Add a new raster layer between the flag layer (Raster 1) and the sky layer (Background). Paint Shop Pro will name this layer Raster 2.

Add the Flagpole

16. On Raster 2, make a long, thin selection for your flagpole.

17. Click the foreground swatch. When the Materials palette opens, choose the Black-white gradient with settings as shown. Click **OK**. Choose the **Flood Fill** Tool (the paint bucket icon on the Tools toolbar) and click once inside the selection to create the flagpole. Press **CTRL+D** to deselect.
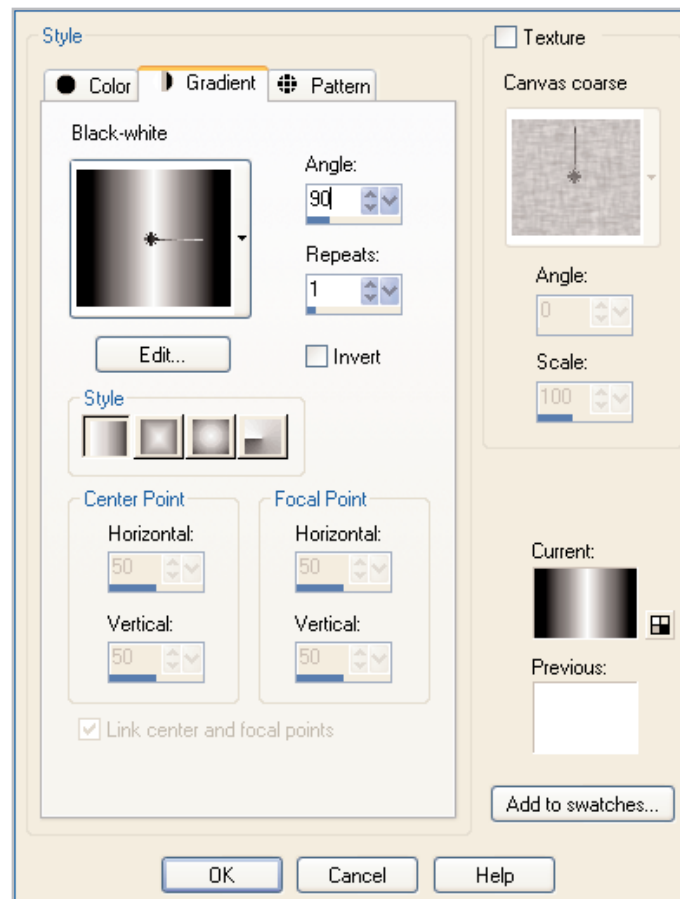
18. Add a new layer above Raster 1 (the flag layer) Paint Shop Pro will name this layer Raster 3. Use the Metal Rivets Picture Tube to place grommets above the two left corners of the flag. You will need to change the Scale to approximately **38**. Then Merge Down Raster 3 with Raster 1.

19. Add a new raster layer between Raster 1 (flag) and Raster 2 (pole). Using the Metal Rivets Tube again, increase the scale to approximately **60** and place connectors on the pole for the ropes to hold the flag in place. Use the Warp Brush or the Raster Deform Tool to distort them to an oval shape, if you like. Then use the Rope Picture Tube (set the scale to approximately **40**) to create the cords that bind the flag to the pole.

20. A single click with the 3D Gold Tube set to a scale of **60** forms a simple finial to the flagpole.

21. Merge all your layers! Your colors are flying high!

Next Steps:

Now that you know how to create this optical illusion you can bend images around all kinds of things. Next time try top wrap a logo around a photo of a coffee mug, or add a tattoo to an arm.