Bend Lightning Like Zeus

Disclaimer

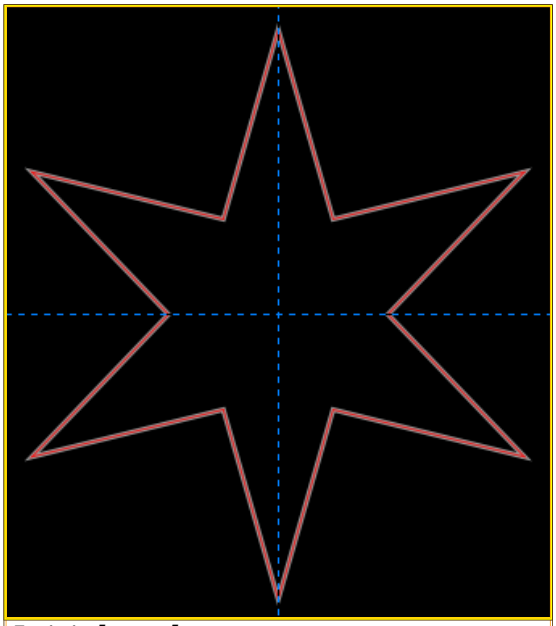
This method for creating lightning is something I saw in a couple YouTube tutorials. My contribution was forming lightning into shapes rather than random squiggles and coming up with a better way of masking the lightning.

1. Create your shape

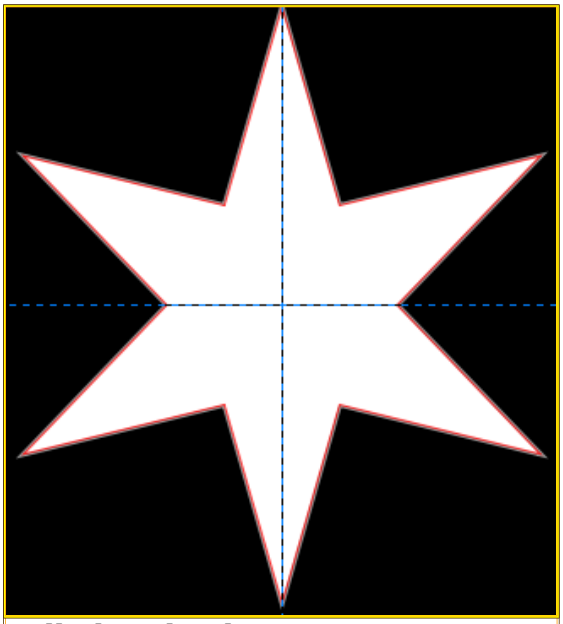
1a. Design

I've used one of ofnuts' scripts to create a 6-point star. Pretty much any shape will work. Just be aware that fine details will be lost in the process. Text needs to be bold, simple, and fairly large to come through clearly.

You can either create a path, run path-to-select, and fill the selection as I have done here. Or you can draw your shape, select it, and run select-to-path. Whichever way you do it, you need a black & white image with a path outlining the shape. It doesn't seem to matter if it's black/white or white/black.



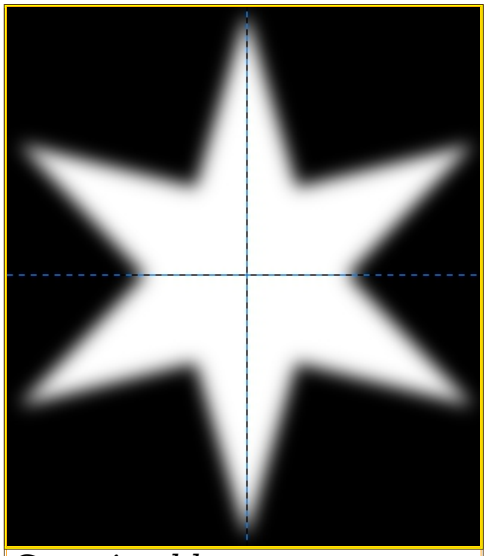
Initial path



Filled with white

1b. Blur

Now that you have your black & white shape layer it's time to run gaussian blur. The size of the blur is entirely dependent on the size of the shape, the detail you want to keep, and how “wiggly” you want your lighting to be. A small blur will protect detail, but the lightning will look more like a hand-drawn pencil line than lighting. A big blur will produce wild lighting, but the shape may lose too much detail to be recognizable. You'll have to experiment. My star is somewhere around 800x800 and I used a 38 on the blur. Just to give you an idea of the range to play with. I'll show the difference the blur makes in the next step.



Gaussian blur

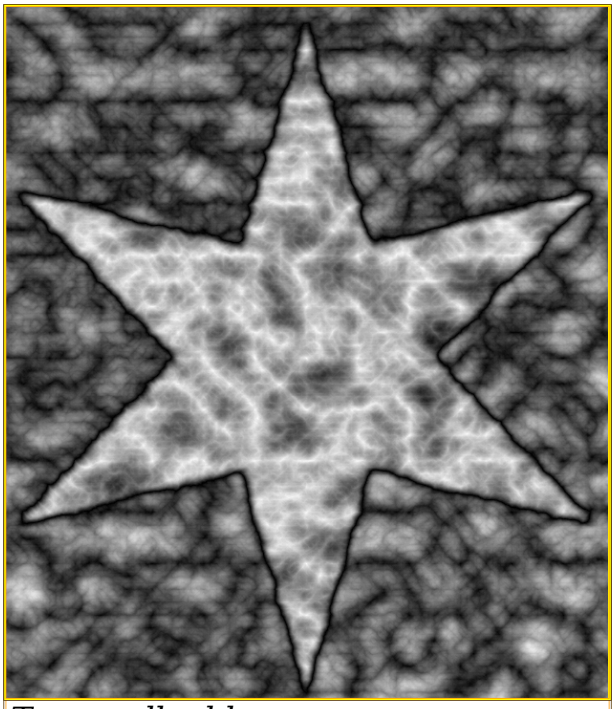
2. Make it Squiggle

If you want to make a GIF now is the time to duplicate the layer to produce the frames. I have five layers in the GIFs that accompany this tutorial. I think any fewer would look less sparky. And I doubt you need very many more. But feel free to experiment. Obviously, if you only want a single image you don't need to duplicate the layer.

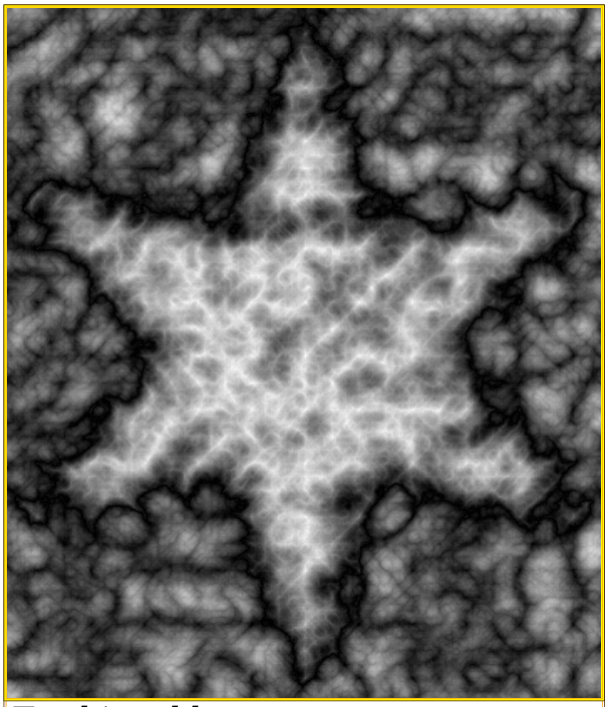
The next step is to run Filters>Render>Difference Clouds on your shape layer(s). Set everything to maximum. Check the “Turbulent” box. And, if you are making a GIF, check the “Randomize” box.

To speed up the GIF process, after you run Difference Clouds on the first layer all you need to do is select each layer in turn and hit Ctrl+F to repeat the filter. The “Randomize” setting ensures that each layer will get a different result.

Somehow, I forgot to take a snapshot of this step. But here is the comparison I mentioned of how the initial gaussian blur affects the final result. A small blur is on the left and a big blur is on the right.



Too small a blur



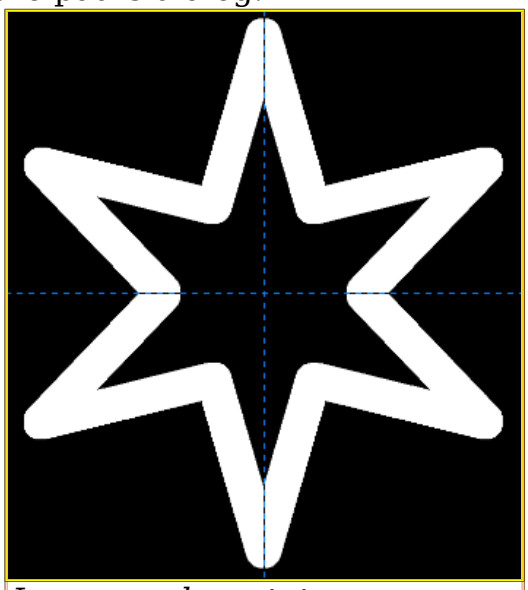
Too big a blur

3. Creating the Mask

- Add a new layer at the bottom of your stack and fill it with black.
- Set your paint brush to the standard, hard brush-- %100 opacity, size about the same as the size of the gaussian blur you used to blur your shape earlier.
- Set the foreground color to white.
- Open the paths dialog.

- Select the path that outlines your shape.
- Hit the “stroke path” icon at the bottom of the paths dialog.
- Select “Stroke with a paint tool” in the popup menu.
- Select the paintbrush in the dropdown menu.
- Make sure “emulate brush dynamics” is unchecked.
- Stroke the path.

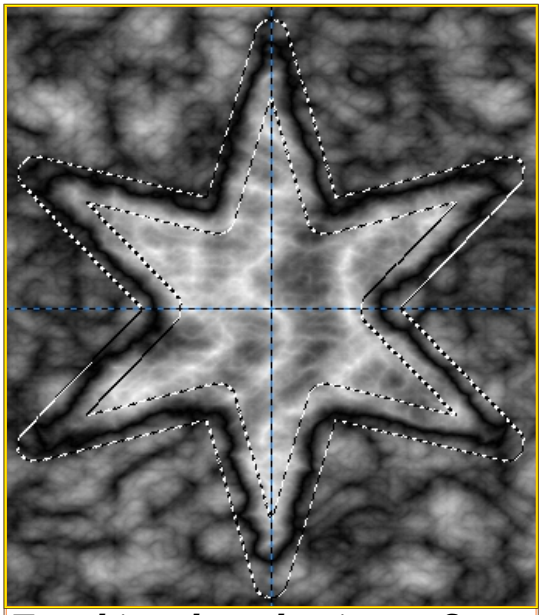
Now you should have a something like the picture to the right.



Layer mask prototype

4. Mask Adjustment

Use the fuzzy select tool to select the white outline you just created. Toggle the visibility of your shape layers to see how each one fits within the selection (as in the picture to the right). Use Select>Grow or Select>Shrink if you feel the selection doesn't fit one of the layers well enough. A little oversized is better than undersized since we can hide excess later. Optimally, you want the solid black streak completely within the selection on all the layers. This step is somewhat optional. We are going to blur this mask in a minute. So it's up to you how “perfect” you want it to be. Once you are happy with the selection leave it active for the next step.

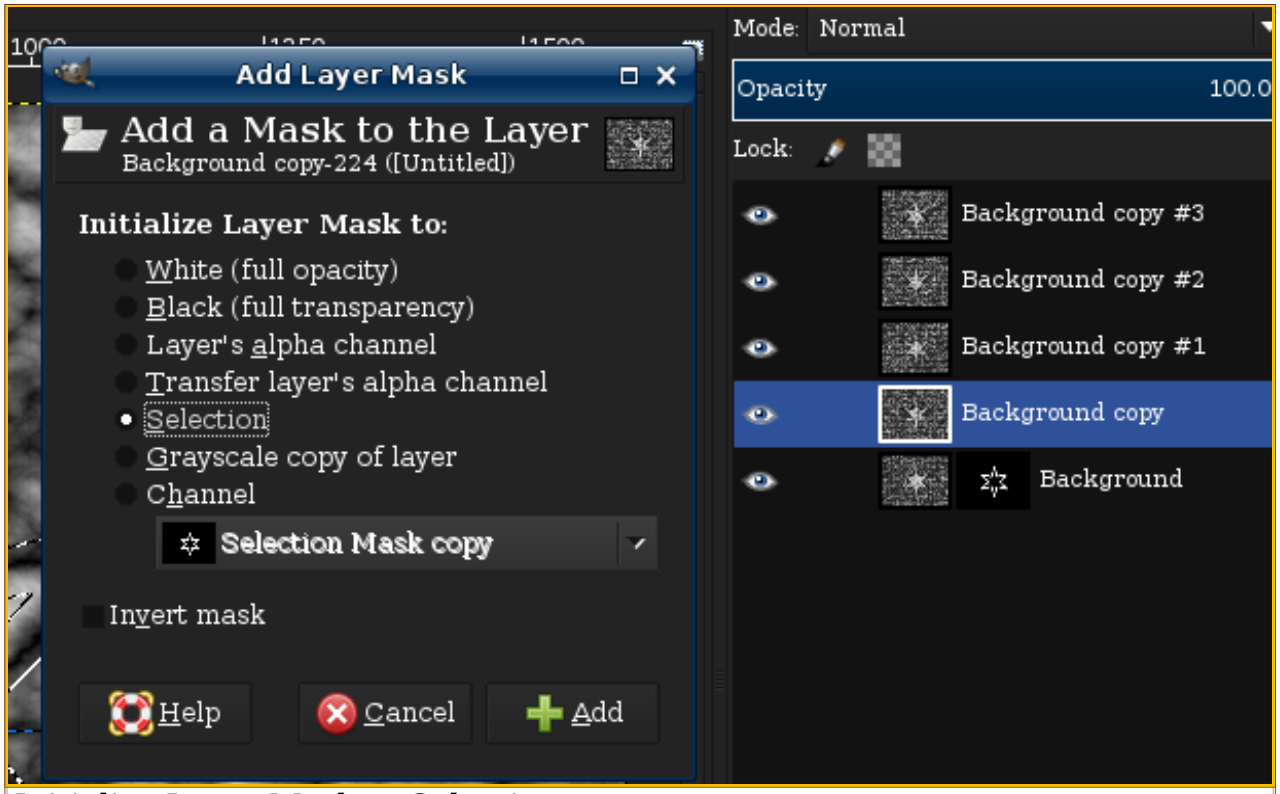


Tweaking the selection to fit the bolt

5. Add the mask

The simple way to add the mask is to choose “Selection” from the “Add Layer Mask” dialog. This gives each layer an identical mask in a matter of seconds. In the picture below I already have one mask in place and the dialog is open, ready to add the next.

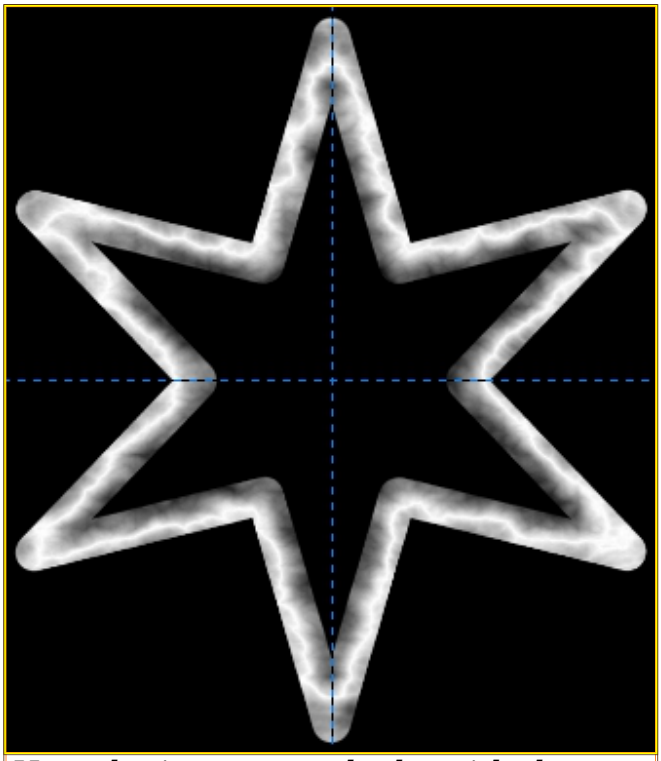
Once all the masks are in place, fill the bottom layer with black again to provide contrast so you can see the next steps. This will eliminate your mask prototype. But you can always save the mask to a channel as you can see I did in the picture below. There's no black layer in the picture because I deleted it by mistake and had to add it again.



Initialize Layer Mask to Selection

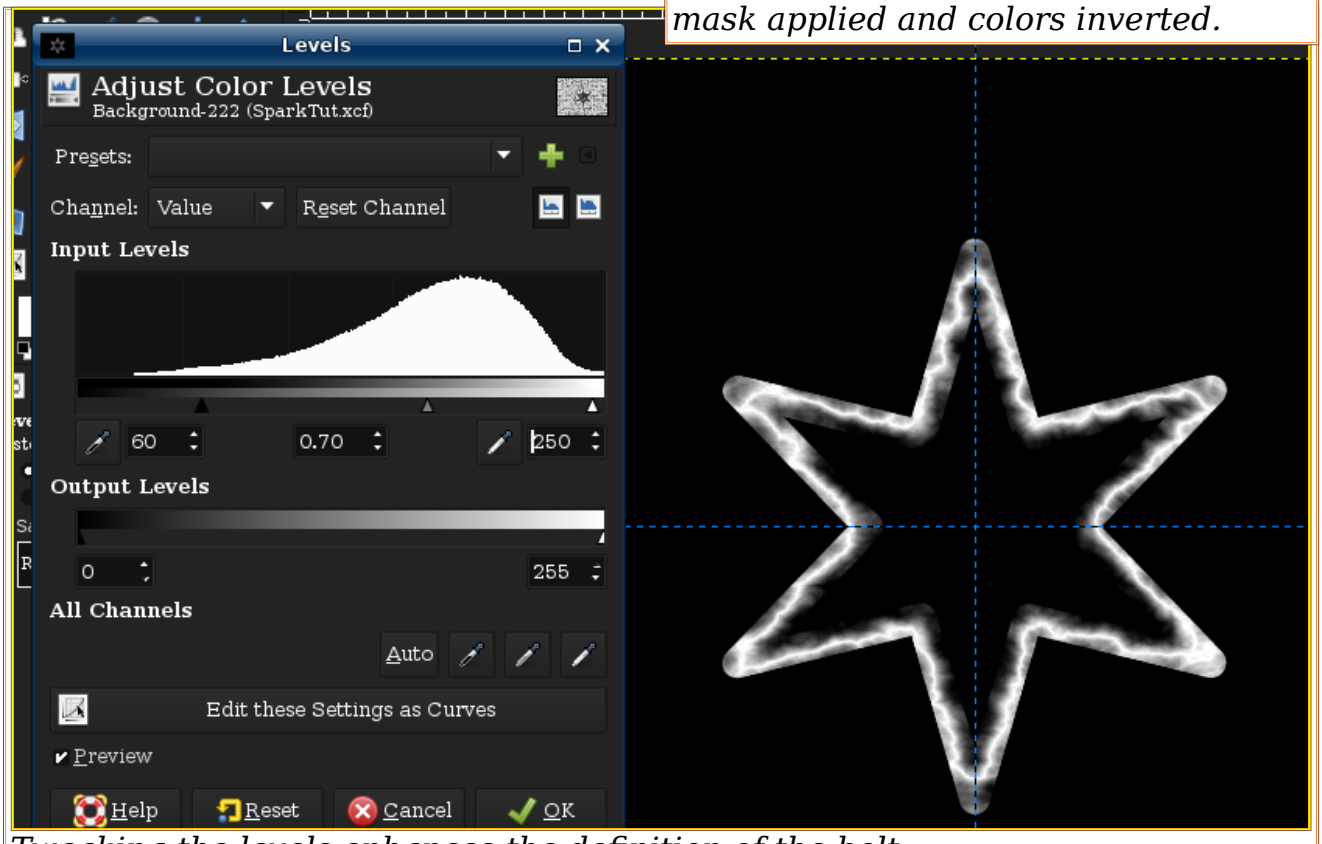
6. Turning a Squiggle Into Lightning

Start by running Colors>Invert on your shape layer(s) as in the picture on the right.



How the image now looks with the mask applied and colors inverted.

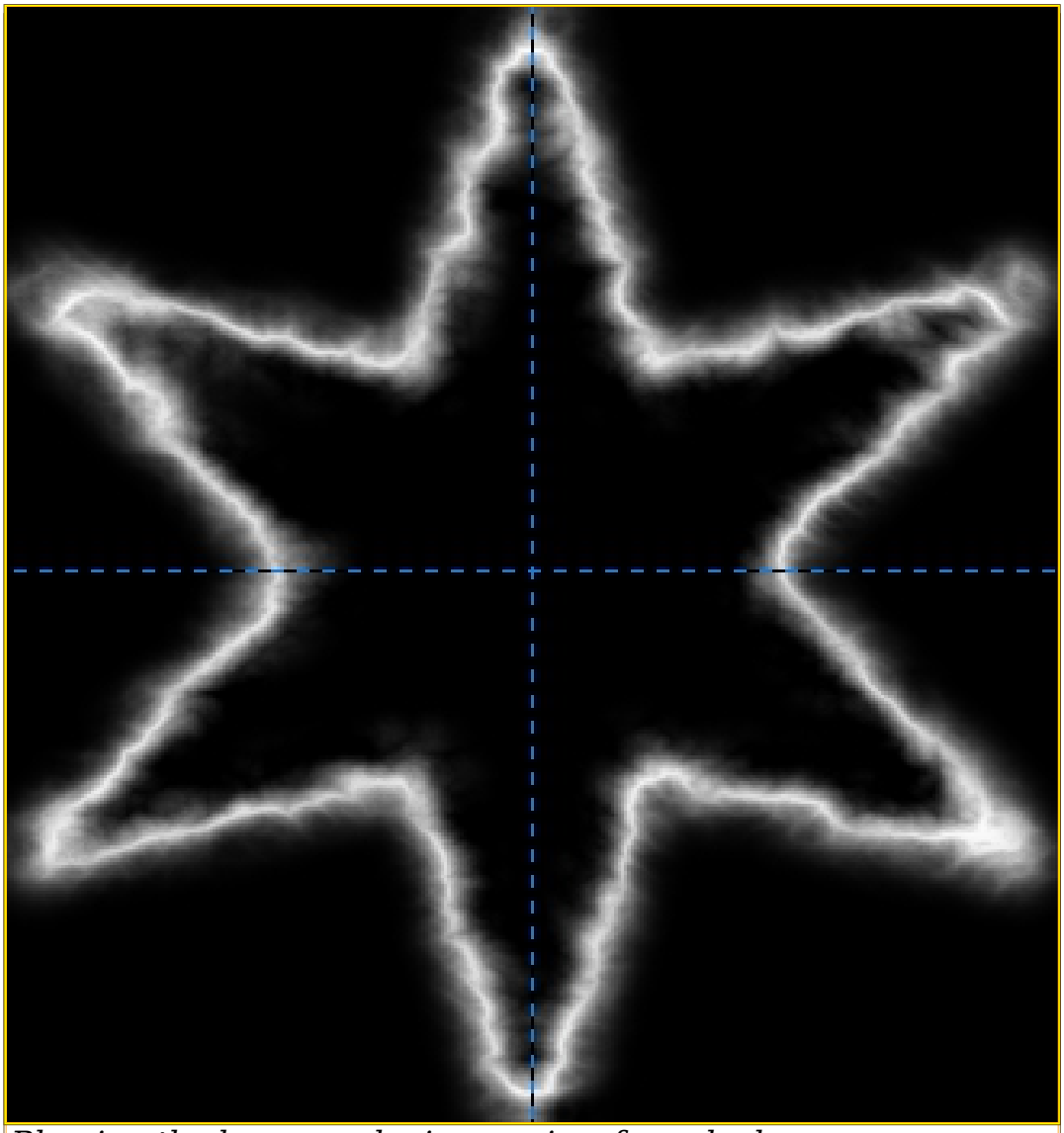
Then use Colors>Levels to sharpen the central spine. You could probably also use Colors>Curves. The settings I used are shown below, but yours will vary.



Tweaking the levels enhances the definition of the bolt.

7. Roughing it up

It is definitely starting to take shape. But right now it looks more like an overclocked neon tube than lightning. So the next step is to soften the edges by blurring the layer masks. This takes less of a blur than you used to soften the original shape. But you'll have to experiment to find what works best for you.



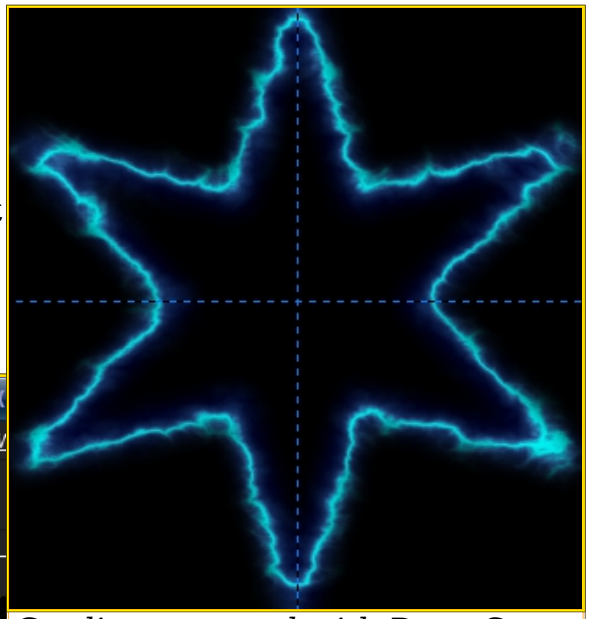
Blurring the layer mask gives a nice, fuzzy look.

Now we finally have something that resembles an electrical discharge. Or, in my case, a furry starfish. You can also play around with some other ideas like running Displace Map or Spread filters on the masks.

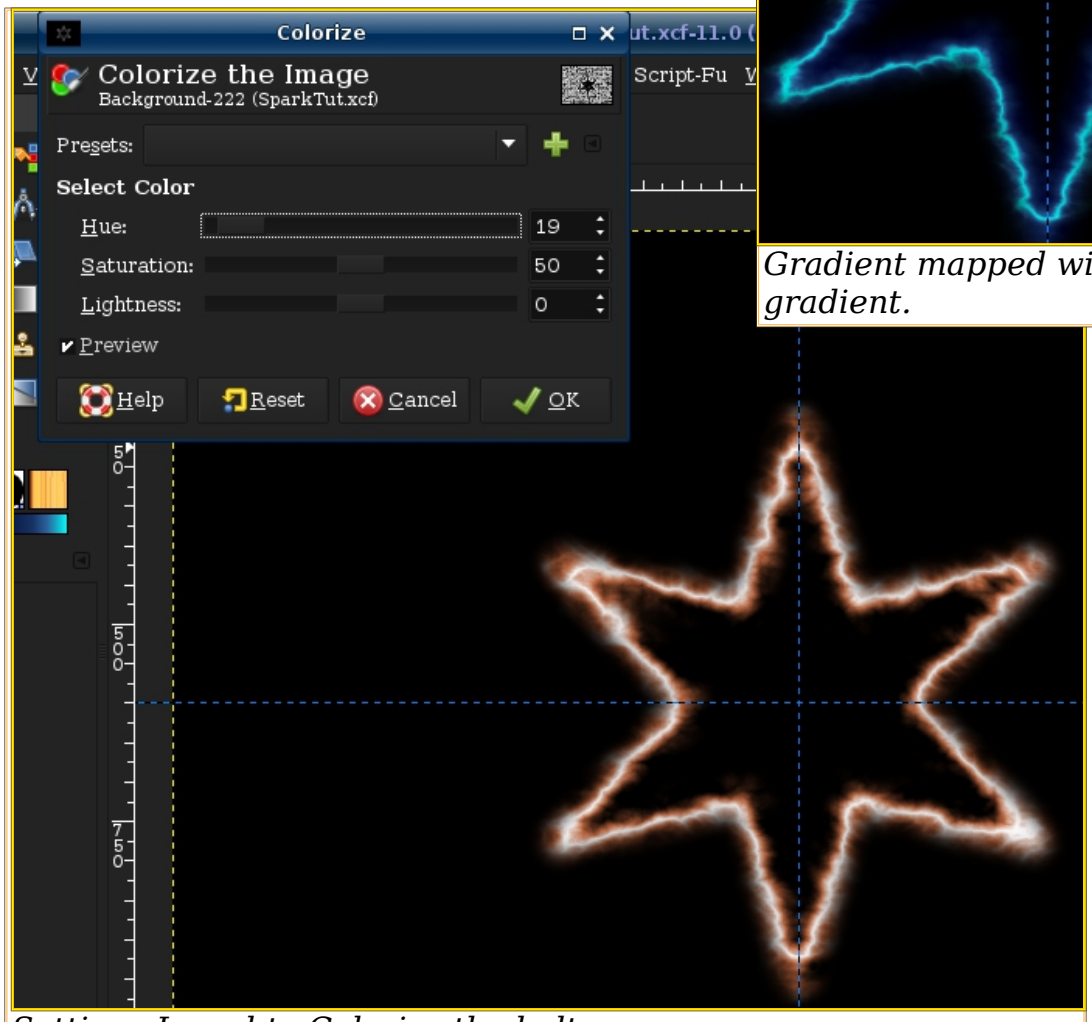
8. Color

In the original piece that spawned this tutorial I used Colors>Map>Gradient Map with the Deep Sea gradient to colorize the lightning. With the piece here I decided to try Colors>Colorize. I think both methods work well enough. Either requires experimentation to find what you like. Using Gradient Map is especially challenging as the blend of the gradient makes a huge difference in the end result. Too soft a blend creates too little contrast between the central spine and the outer fuzz. Too hard a blend creates more of a comic-book look.

The picture to the right shows my furry starfish as mapped with the Deep Sea gradient. Below is the colorized version I settled on for this tutorial. Both are satisfactory. I chose the Colorize for this piece because I liked the orange-ish look a bit better.



Gradient mapped with Deep Sea gradient.



Settings I used to Colorize the bolt.

9. Refining the Chaos

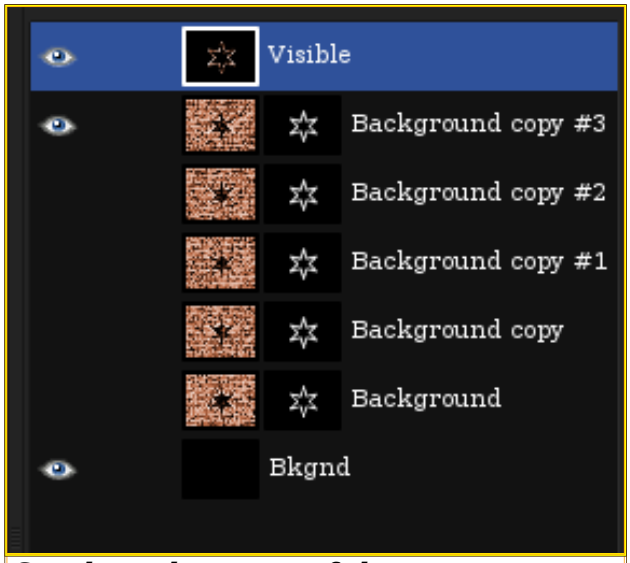
9a. Applying the original masks

I noticed that the lightning has a bit of a tubular “aura” to it. The blurred mask still has a fairly distinct cutoff point. This is especially noticeable when you play the animation. So I decided to refine the look with another layer mask. Since you can't stack layer masks, I had to apply the existing ones to make room for new ones. This would leave me with several layers of lightning on transparent backgrounds. Here's how I fixed that.

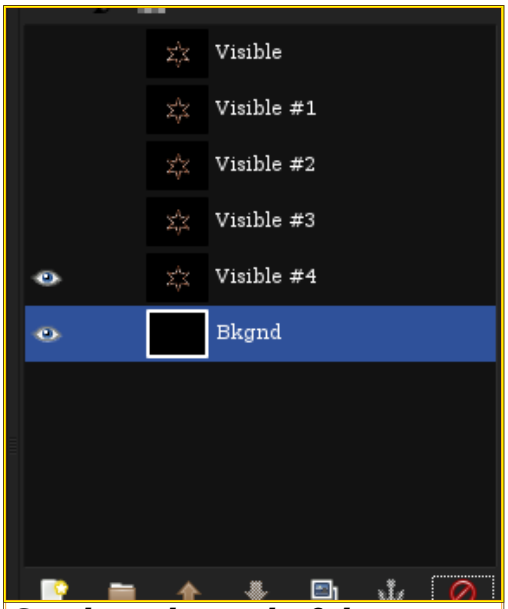
- Make sure the black background layer is visible.
- Apply each layer mask.
- Turn on visibility of ONE of the shape layers. Only the black background and one shape layer should have the eye icon next to them.
- Right-click layers dialog to open context menu.
- Select “New From Visible” to create a new layer that duplicates exactly what is visible on the screen.
- Repeat the process for each shape layer.

To avoid confusion, I deleted each shape layer after creating its accompanying “new from visible” layer. You can keep them if you prefer. But if you try testing the animation the Playback filter will play every layer in the stack, visible or not. So you won't get an accurate feel for the final result. I do not know if exporting to GIF as animation also exports all the layers. So deleting the original layers just seemed sensible to me. You could also duplicate the entire image and use the duplicate to finish the project. That way the original layers would be available in the original image if you wanted to tinker further.

To help clarify, the picture on the left shows what my layers dialog looked like after creating the first “new from visible” layer. On the right is the stack when I finished.



Stack at the start of the process.

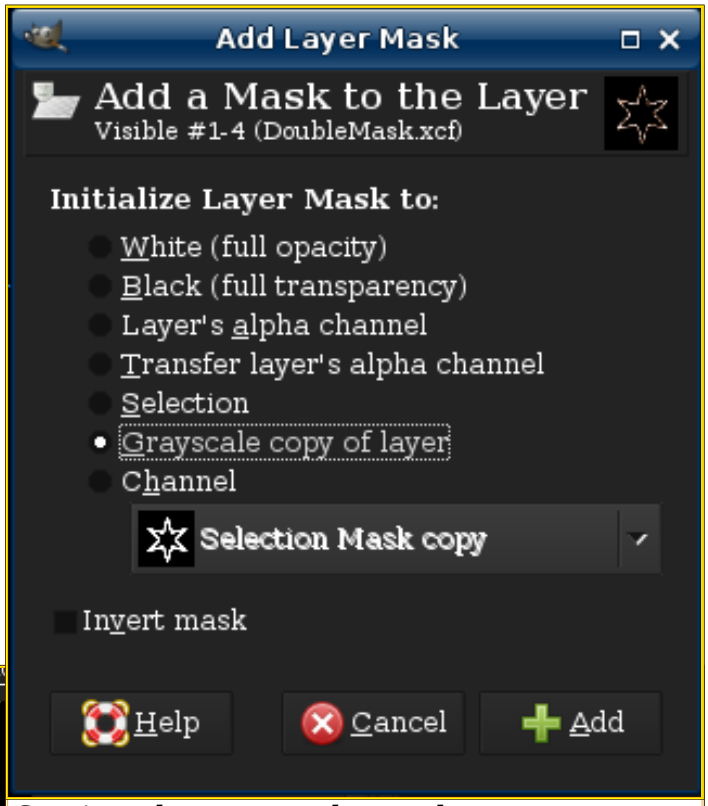


Stack at the end of the process.

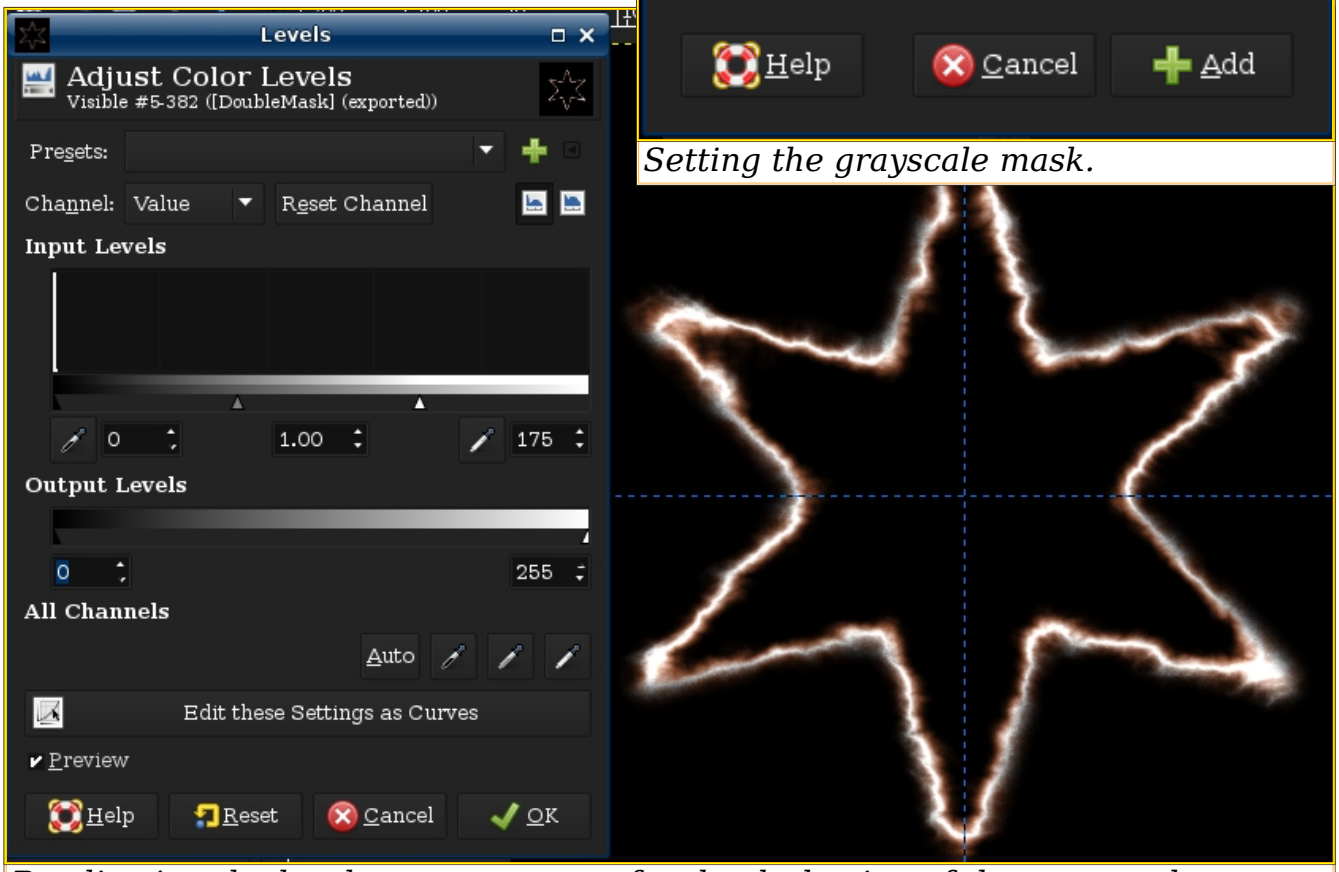
9b. Creating the new masks

Now that we have our original masks applied, it's time to create the new ones. Strangely enough, this is probably the easiest step in the whole process. Open the “Add Layer Mask” popup menu and select “Grayscale copy of layer” as in the picture to the right. This does exactly what it says, it creates a layer mask from a desaturated copy of the layer you are masking. So the bright central spine gets a very white, transparent mask while the gray fringe gets various levels of transparency. Since the fringe is all random noise the mask is random as well.

But this does dim everything a bit. So I used Colors>Levels again to make everything pop. The result is shown below. The difference is very noticeable in the animation.



Setting the grayscale mask.



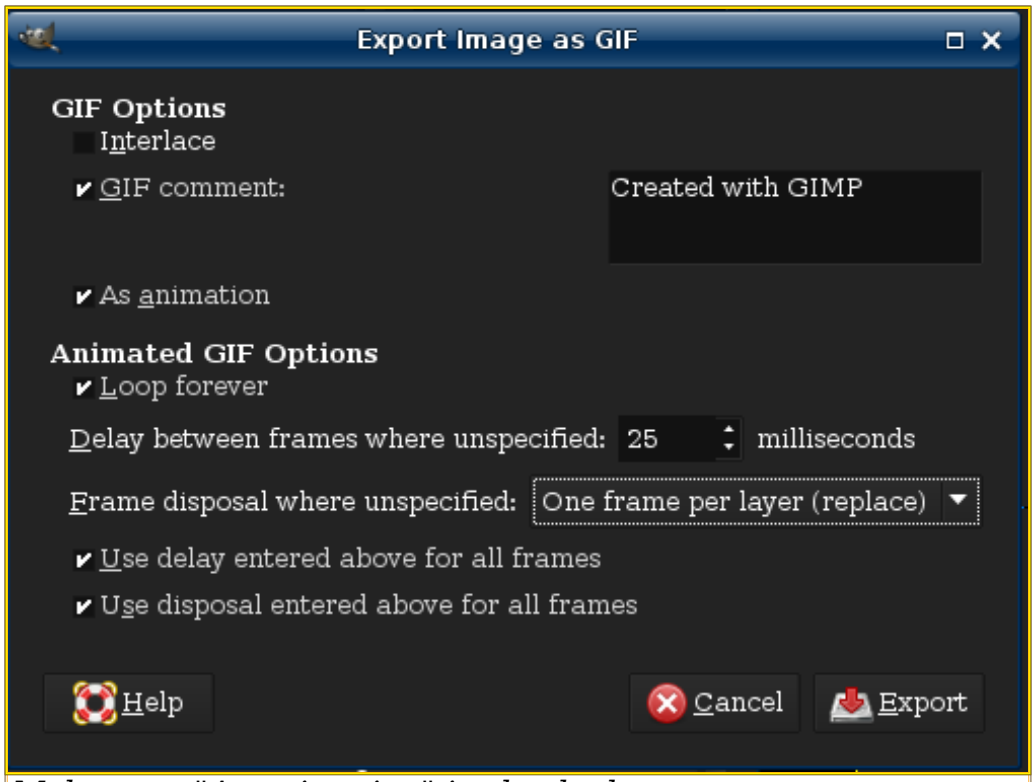
Readjusting the levels to compensate for the darkening of the new mask.

10. “Flattening” the Image

There's only one more thing to do before we wrap this up. We need to repeat what we did in Step 9a above above, applying the layer masks and creating new layers from visible, so that we end up with several layers of electrical discharge on black backgrounds. This is exactly the same process as before, so I won't repeat the information here.

11. Exporting

Hopefully, you now have several layers of random electrical discharge over a black background. That's assuming you decided to create a GIF. So now all that's left is to save it as a GIF and share it with the world. I do not know the intricacies of exporting to GIF. So I'll simply close with a picture of the settings I used and let wiser folks than me decide if I made a mistake.



Make sure "As animation" is checked.

12. Parting Thoughts

This is a fairly involved technique. And there's lots of room for experimenting with variations. You could leave the mask unblurred and go for a sort of plasma-tube look. You could use different colors for different layers to vary the look or even different blurs to vary how much the bolt wiggles while the animation plays.

As always, I have tried to provide sufficient information for you to successfully accomplish the desired result while at the same time leaving enough wiggle room to avoid creating a “paint by numbers” situation. My hope is that others will see ways of refining the process or applying interesting variations to it. Make Zeus proud!