# Photographer's Notes on Creating and using a 16 bit Depth Map Filter Plug-in for Affinity

## Introduction

Modern image processing often has features that allow you to place or relight, focus, and weather like mist into your image. A depth map is a grayscale image where each pixel records how far away an object is from the camera. This map is then used as a selection mask to select a specific range of depth in an image. I have created a filter plugin that creates a 16 bit depth map.

### Main Uses in Photography Processing

- **Simulating Shallow Depth of Field (Portrait Mode):** Software uses the depth map to keep your main subject sharp while applying a gradient blur (like a Gaussian blur) to the background. This mimics an expensive, wide-aperture lens look.
- **Selective Editing and Adjustments:** You can target specific distances. For example, you can brighten, darken, or shift the colour balance of only the distant background without affecting your subject in the front. Common use is to relight an example relight the plains in front of the mountains. Or place light in a centre of a glade surrounded by trees.
- **Simulating Environmental Effects:** Depth maps let editing tools realistically layer atmospheric effects—such as fog, mist, or smoke—so that they wrap around subjects based on their actual distance in the frame.

#### *Why is a 16 bit depth map more useful than the normal 8 bit map?*

Intensity is scaled to 1/depth where closest to the front is maximum at 255 for an 8 bit map but low for integers 1,2,3..near the back. An 8 bit map is fine for masking close to the front but too coarse and clunky for masking further to the back. 16 bit images will produce a smooth mask anywhere within the image. Sort of like jpeg images are okay as long as you don't need to look too close. For example the sample image is a jpeg image, look closely and you can actually see banding in the colour histogram.

#### *Quick Start*

1. It is assumed the filter has been installed
2. Load the image that you want to use with a depth map and duplicate to a new layer
3. If the image is 8 bit or 32 bit, transform it to a 16 bit pixel layer.
4. Run the filter. Wait a few seconds and the image will be replaced by a 16 bit depth map.
5. Optional: Duplicate by using the development module invert using curves. Label inverted map as far.
6. Applying a live luminosity range mask to either the original or inverted map will produce a mask that can be used for any of the uses and more that are stated above.

## Actual example

To illustrate the use I have provided IMG_1763.jpg so if you wish you can follow along. For this example I have placed some mist at the end of the path, and illuminated the leaves close to the front. As I usually prefer a nondestructive work flow everything is non destructive except for the final adjustment in the development. It would have been completely non destructive if I was working in RAW or I had converted the jpeg to a 16 bit dng (adobe RAW) before loading it into Affinity.



*Before*

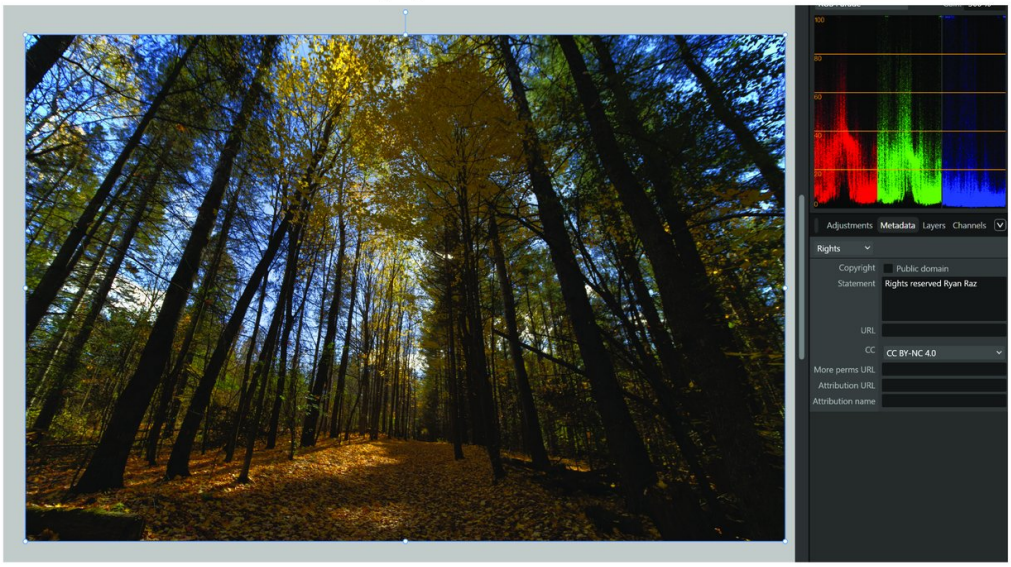


*After*

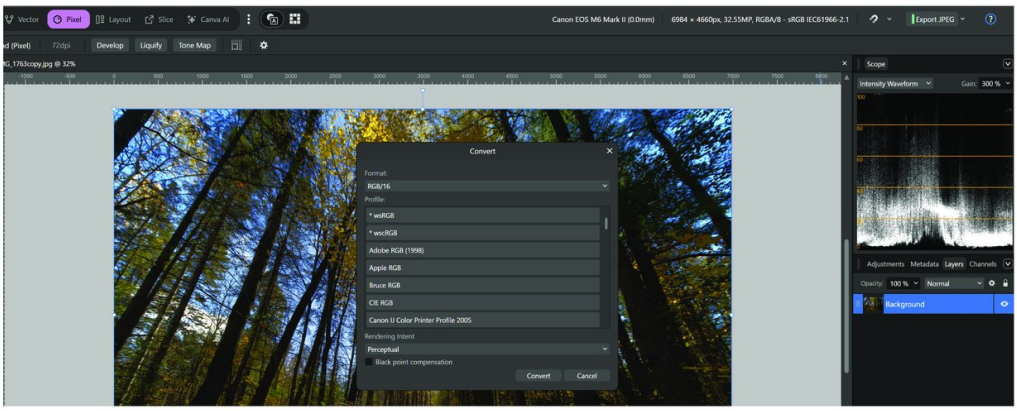
# Appendix

See the appendix pages for details of setting up the filters.

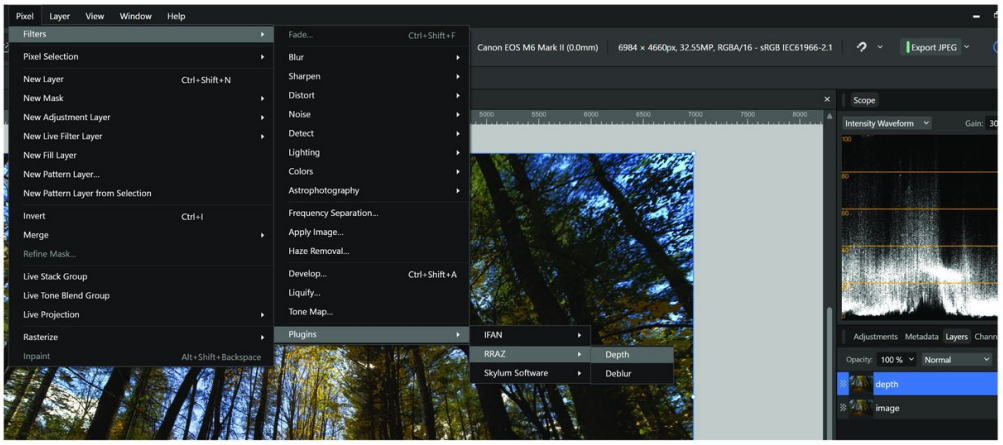
# Appendix




Input image Is an 8 bit jpg
Notice the banding in the historgrams



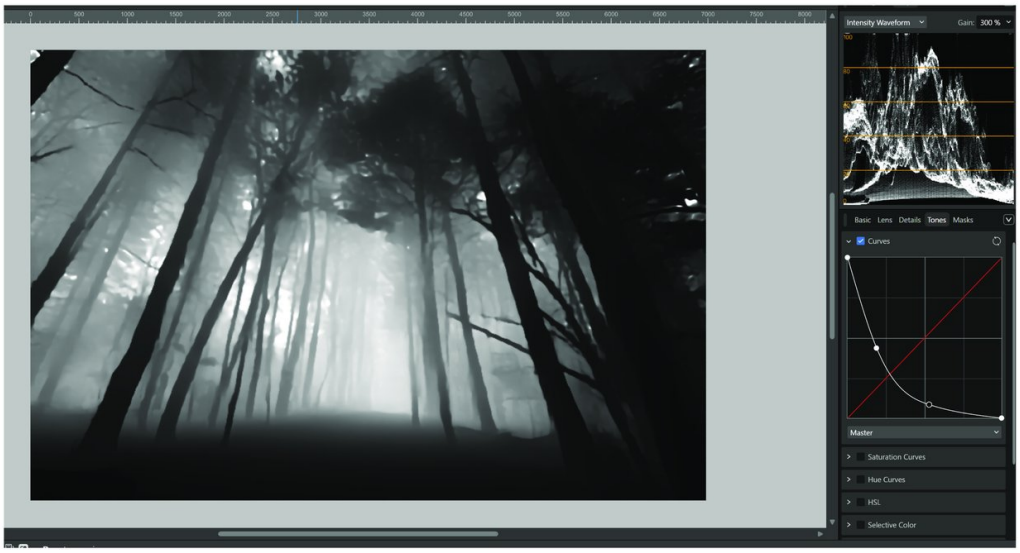

Convert to 16 bit as only 16 bit Pixel layers will work



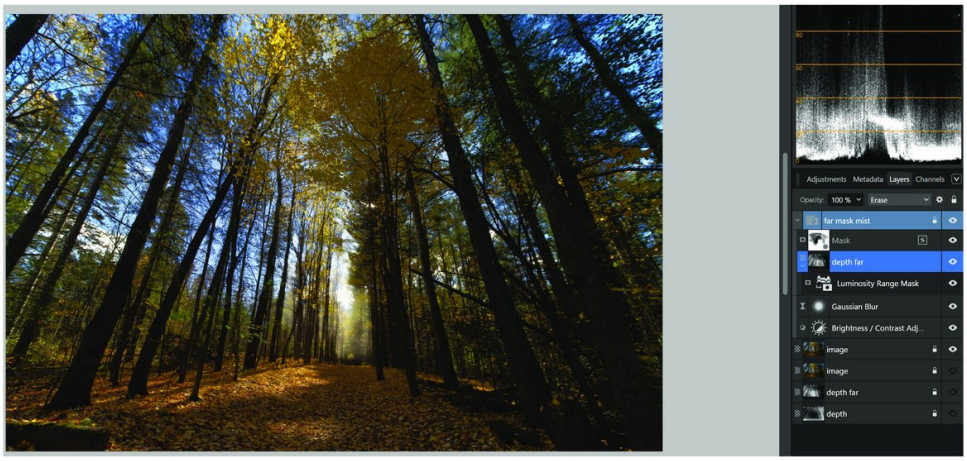

Apply depth filter to a pixel duplicate of the 16 bit image, The filter wil be greyed out if not 16 bit
Wait for about 10 seconds for the Depth map to return in place of the input layer



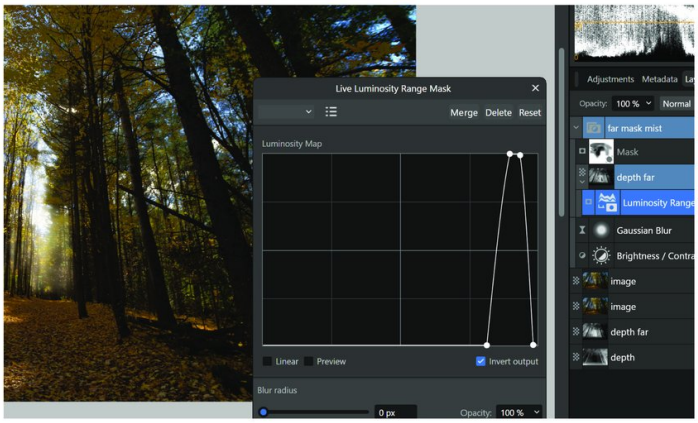
Depth map should look like this



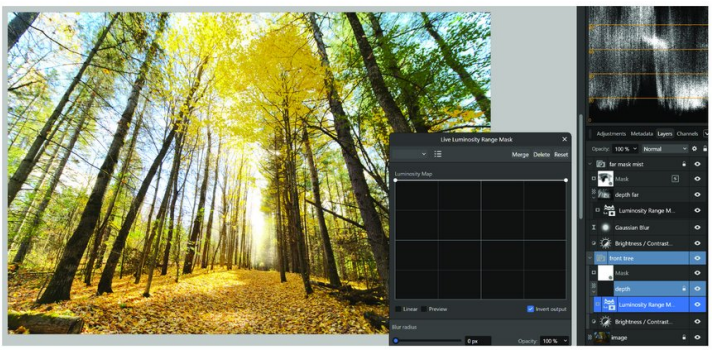

If you need a smoother map for the objects in the distance you can use develop module to invert the depth map. Notice I steepened the curve for even more sensitivity.
The clipping in scope are sky areas.




For the mist in the back ground set up a group
1) Mask so you can remove areas with a brush
2) duplicate of depth mask in this case the far map
Very important that blend mode be erase
3) Luminosity range mask operating on 2)
4) Add any adjustments that are needed
5) At the beginning turn brightness to 100%
6) Overall blend should be pass through




7) Adjust Luminosity Map
You should be able to see the selection mask as a bright area that moves
8) Adjust brightness. contrast, and blur to taste
9) Final step mask with brush any areas in the areas outside the area of interest



Repeat for the trees in the forground, this time using the original map
Note 1 with this map I found only the brightnes contrast adjustment was needed
Note 2 Luminosity map is before adjustment so the whole image is selected
hence the brightness due to brightness / contrast settings set to high at the beginning