Extract iPhone Depth Maps

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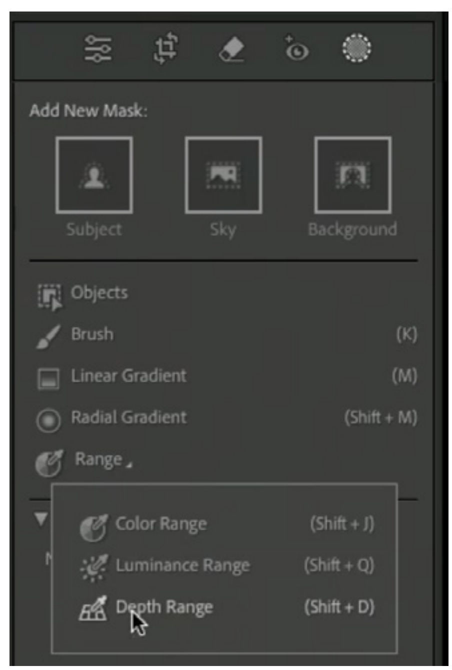
I have been working with a lot of iPhone captures recently and have been processing them in both Lightroom and Photoshop. In this lesson, I will show you how to extract the depth map that an iPhone creates when you capture an image in Portrait Mode. This is the mode that will try to blur the background on a photo. It does this by capturing both a normal photograph as well as a grayscale image that tries to describe how car away the phone thought the various elements were. This is something that we can use in Lightroom when creating masks. If an image has one of these depth maps, one of the masking options is to isolate areas based on a range of depth.

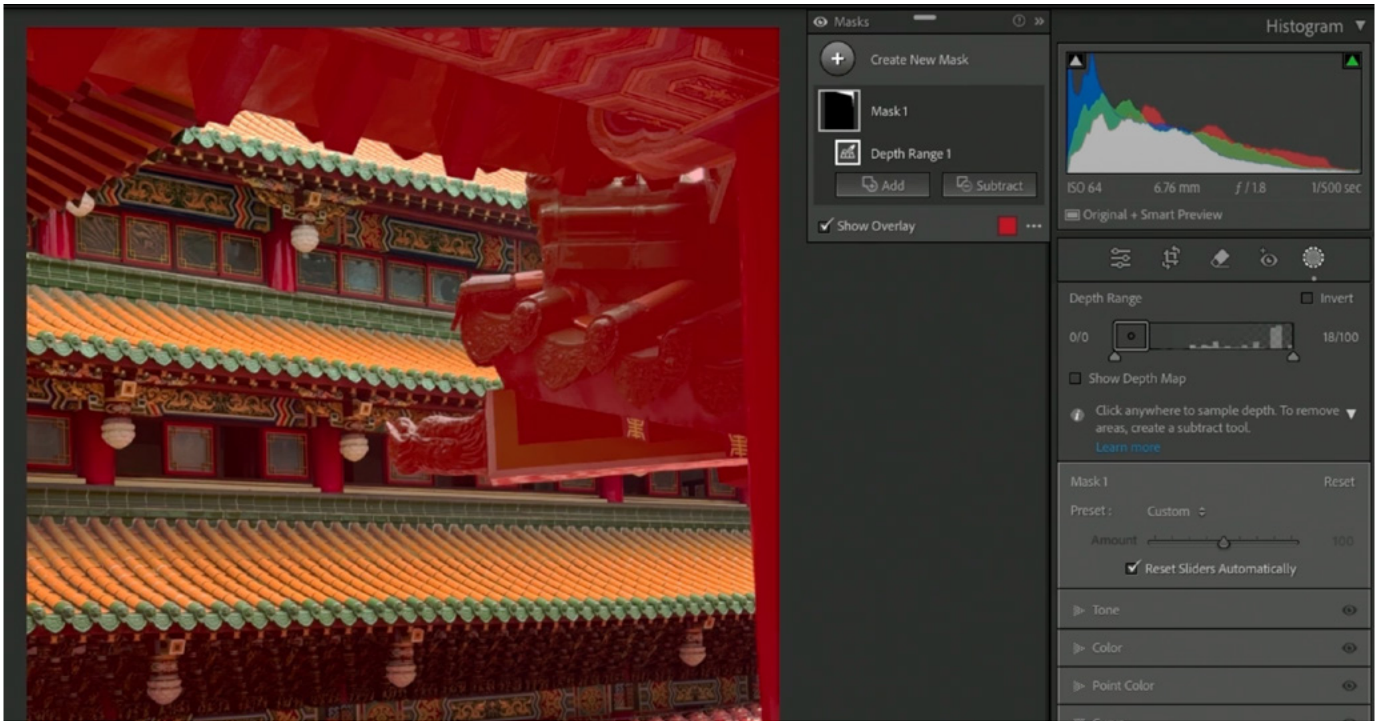
I like to have the ability to edit that depth map because it is often times not accurate. You can commonly see this if you have a clear drinking glass or wine glass in the scene, where part of the glass' rim is blurry and another part is sharp.

There is no easy way to edit a depth map image in Lightroom, so I like to do it in Photoshop. The problem is that if you open an image from your iPhone into Photoshop, the depth map is not automatically included. Let's look at how we can extract the depth map so that we can use it in Photoshop.

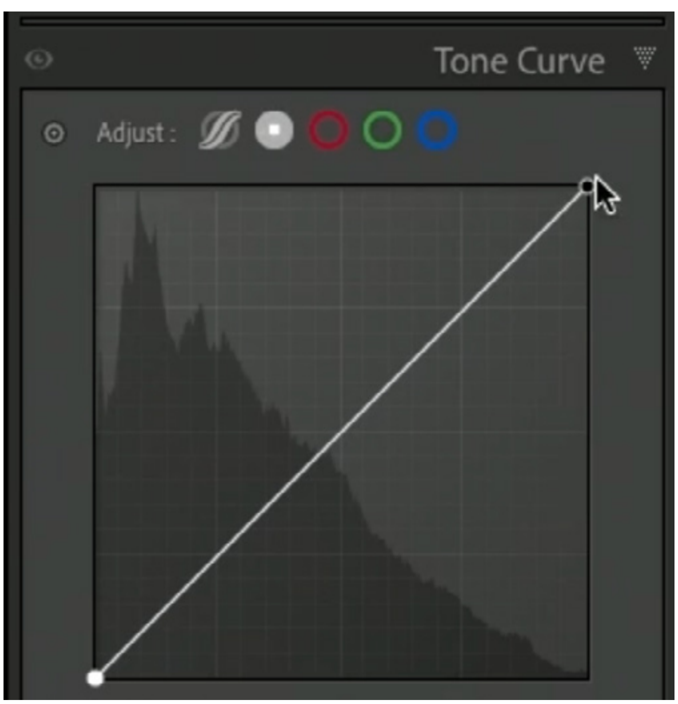
Visualizing the Depth Map in Photoshop (Timestamp 1:55)

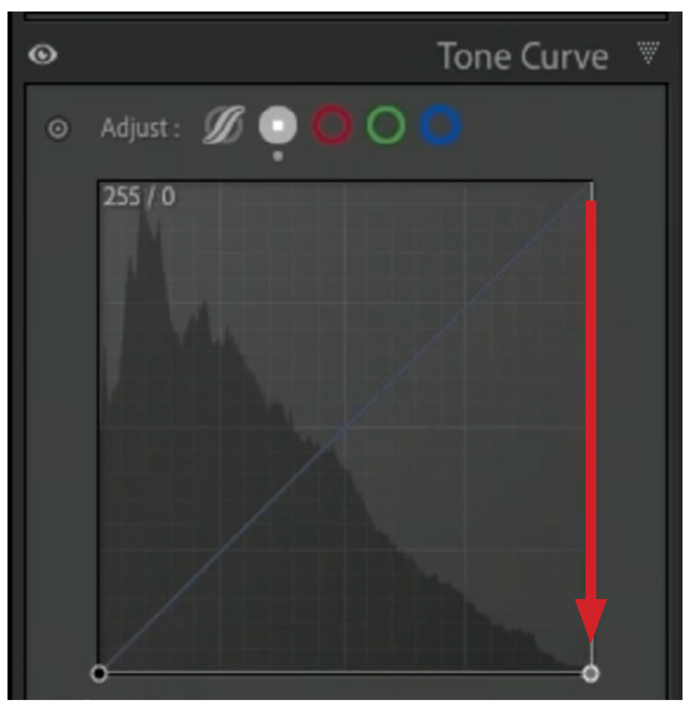
In Lightroom, we'll open and image that was shot on the iPhone using Portrait Mode. If we click the Masks icon and choose the Range mask, you will see that Depth Range is an option. This only appears when using an image that was shot in Portrait Mode. This will allow you to adjust the image based on how far away the various elements in the scene are. The Depth Range sliders can be used to determine what range you're going to affect.

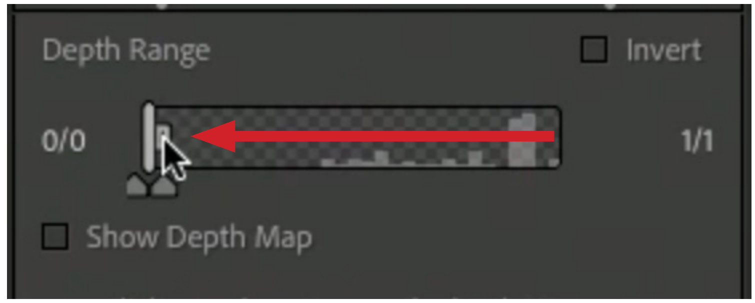




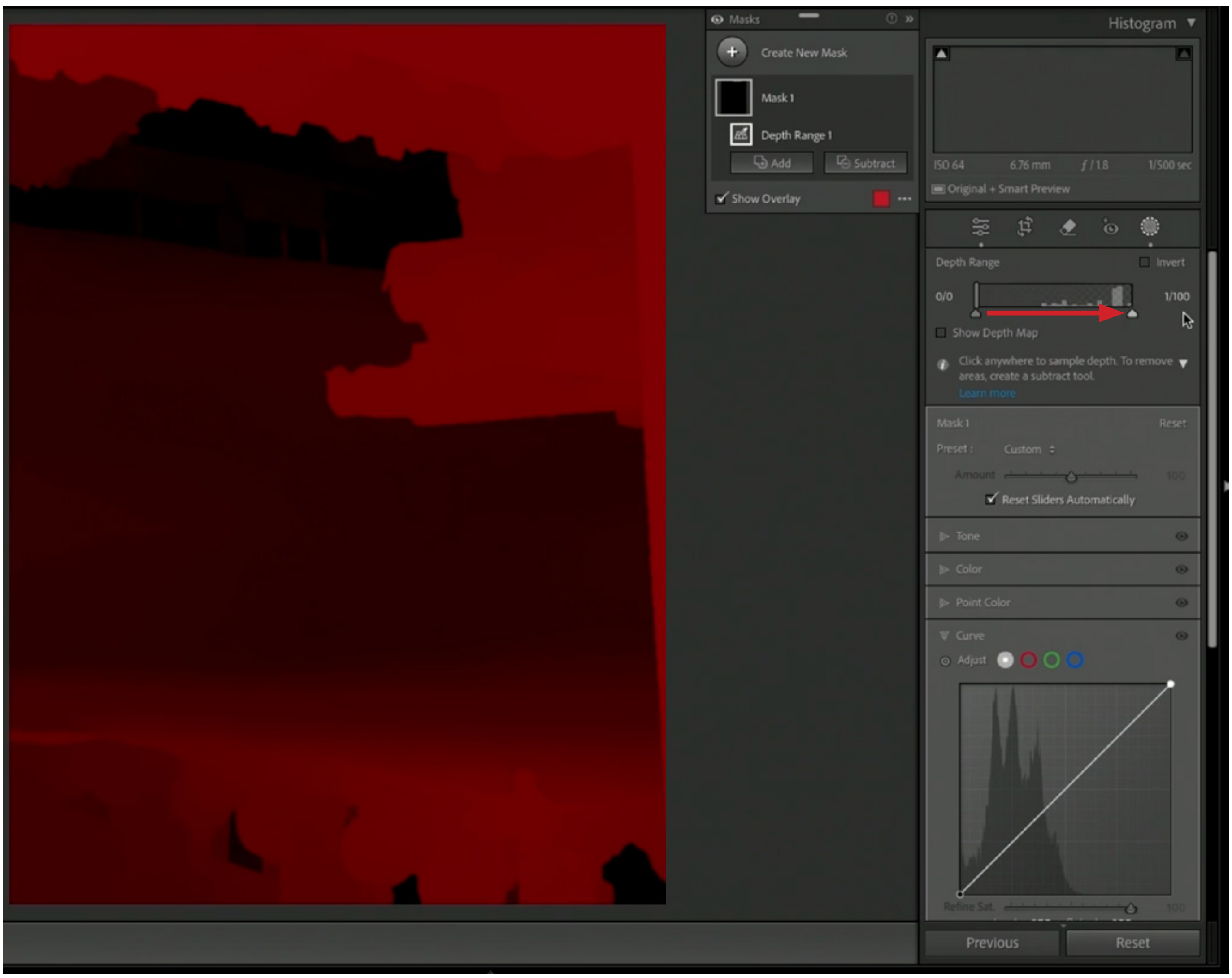
The first thing we need to do is get the image to appear completely black and we'll do that using the settings inside the Tone Curve Panel. We'll activate the Point Curve by clicking the circular gray icon at the top of the panel. The diagonal line that appears on the curve determines how much light makes up the image. If we take the dot in at the top right end of that line and drag it all the way to the bottom, it will make the image completely black.



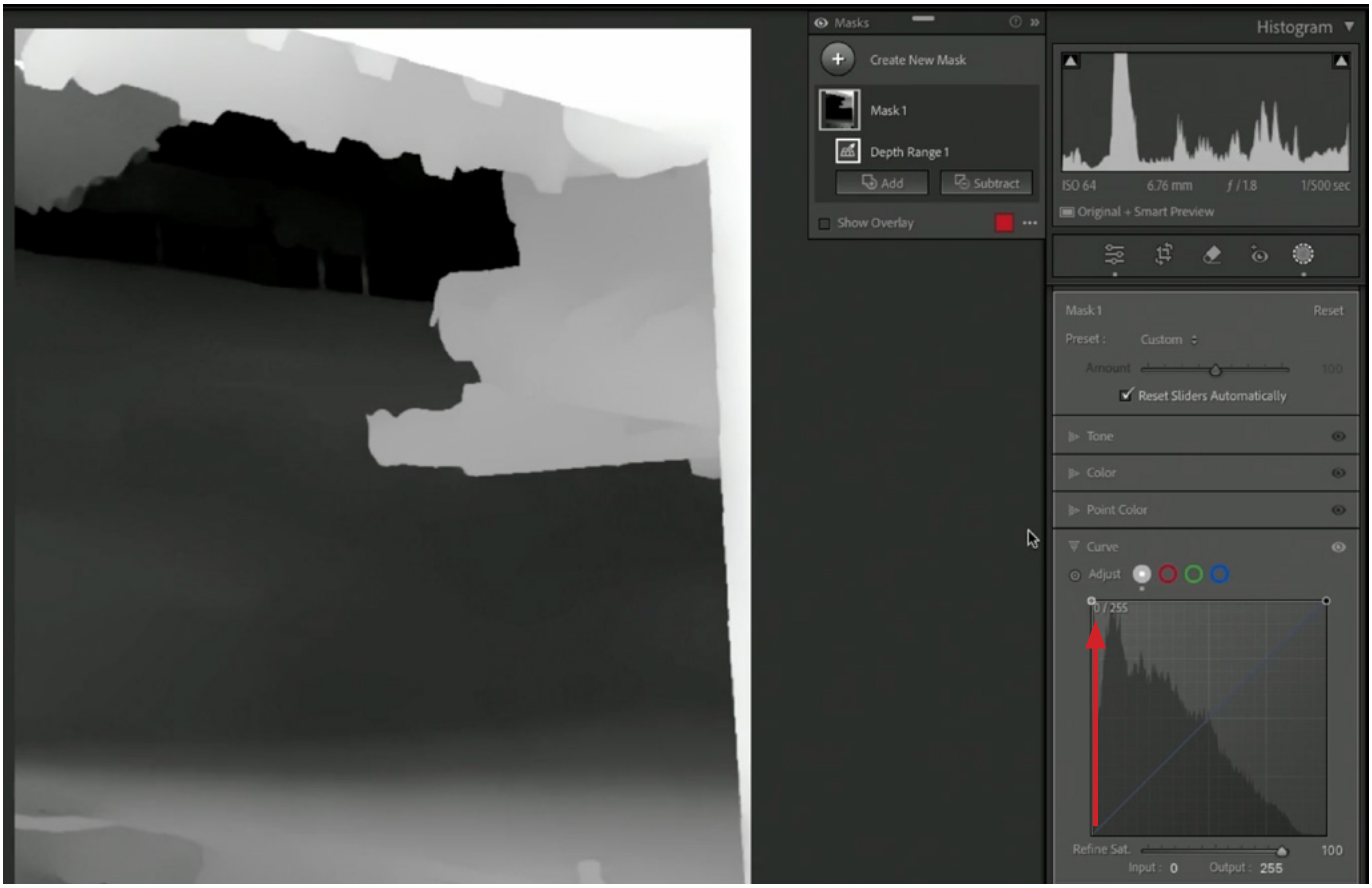




Next, we'll click on the Masks icon and choose to create a Depth Range mask. In the mask settings, we'll drag the right range slider all the way to the left. You will see that there is a little tab within the range bar that you can drag, but we're not going to do that. Instead, we're going to click and drag on the slider handle that appears beneath the bar. We'll drag it all the way back to the right side of the range bar.



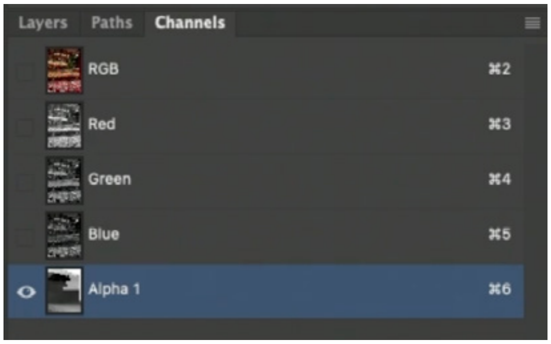
Then, we'll move down to the Curve that is within the mask settings. This time, we'll drag the bottom left curve dot all the way to the top. This will turn parts of the image solid white based on the depth of the picture. What you now see in the image is the depth map. You can move it into Photoshop by clicking on the Photo menu and choosing Edit In > Edit in Adobe Photoshop.



Move Original Image to Photoshop (6:00)

The depth map is now open in Photoshop but in order to use it, we also need to get the original image into Photoshop as well. To do this, we'll go back to Lightroom and unto the changes that were made to convert the image into a a depth map. You can do that by finding the History Panel step that was made right before you made the depth map adjustments. With the image reverted to its original state, open that into Photoshop as well.

Get both images in one document In the depth map document, select all (Command+A) and then copy (Command+C). Back in the original image document, open the Channels Panel and create a brand new channel [+]. Then paste the depth map into this new channel (Command+V).

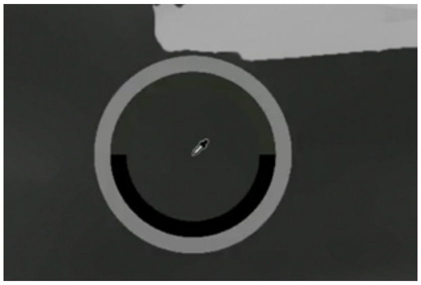


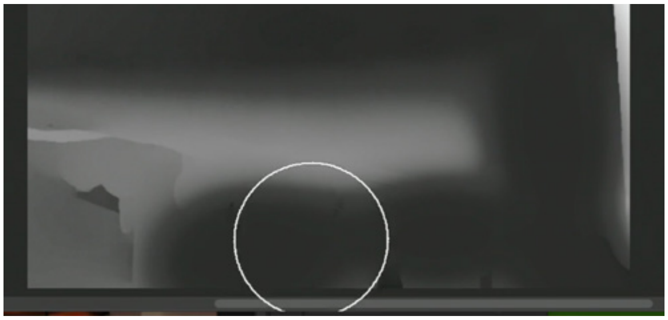
Adjusting the Depth Map (7:35)

In a depth map, the bright tones are the areas it thinks are closest to the camera. The dark tones are the areas it thinks are farther from the camera. When we blur the image, we do so based on distance from the camera. We can decide whether the areas close to the camera are in focus, or if the areas farther from the camera are in focus.

With the depth map in Photoshop, we can adjust it in order to manually specify what it should think is closer to the camera vs. farther. If you want an area to appear close to the camera, paint on that area with white. If an area should appear far from the camera, paint with a dark shade of gray.

You'll likely want to match the depth of certain areas to the depth of others. Do do this, you can sample the tone from one area to paint in another. With the Brush Tool active, hold down the Option key (Alt on Win) to temporarily access the eyedropper. Use it to click on a tone and it will automatically set that tone as the foreground color. Then you can use the Brush to paint that tone into another area.

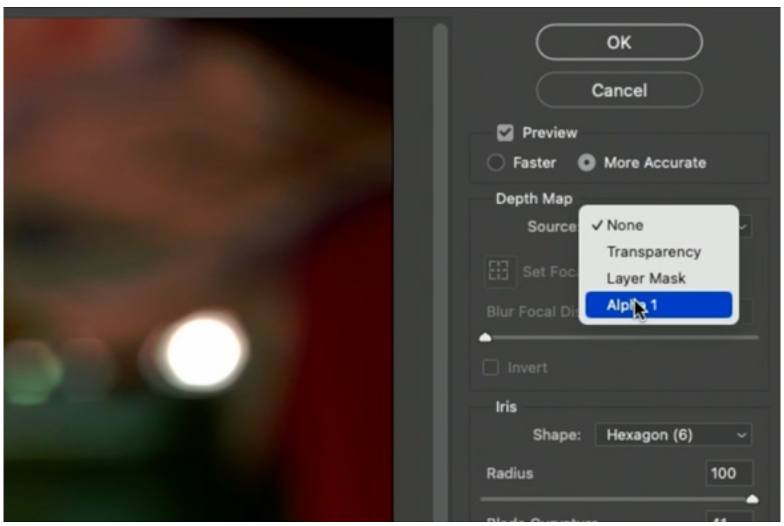


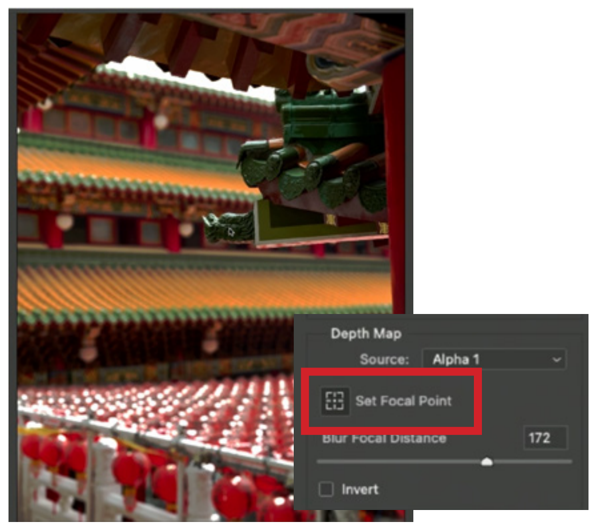


Apply the Depth Map in Photoshop (8:55)

Once we have the depth map customized to our liking, we can go ahead and apply it. With the full color image visible, we'll click on the Filter menu and choose Blur > Lens Blur. The Lens Blur feature allows you to feed it a depth map that it will use to blur an image.

In the Lens Blur dialog, click on the Source menu under the Depth Map settings and choose the channel that you created in which the depth map is applied. Then, click on the "Set Focal Point" icon and click on the image to tell it what depth should be in focus. It might take a few moments to complete, but it will adjust the focus accordingly.

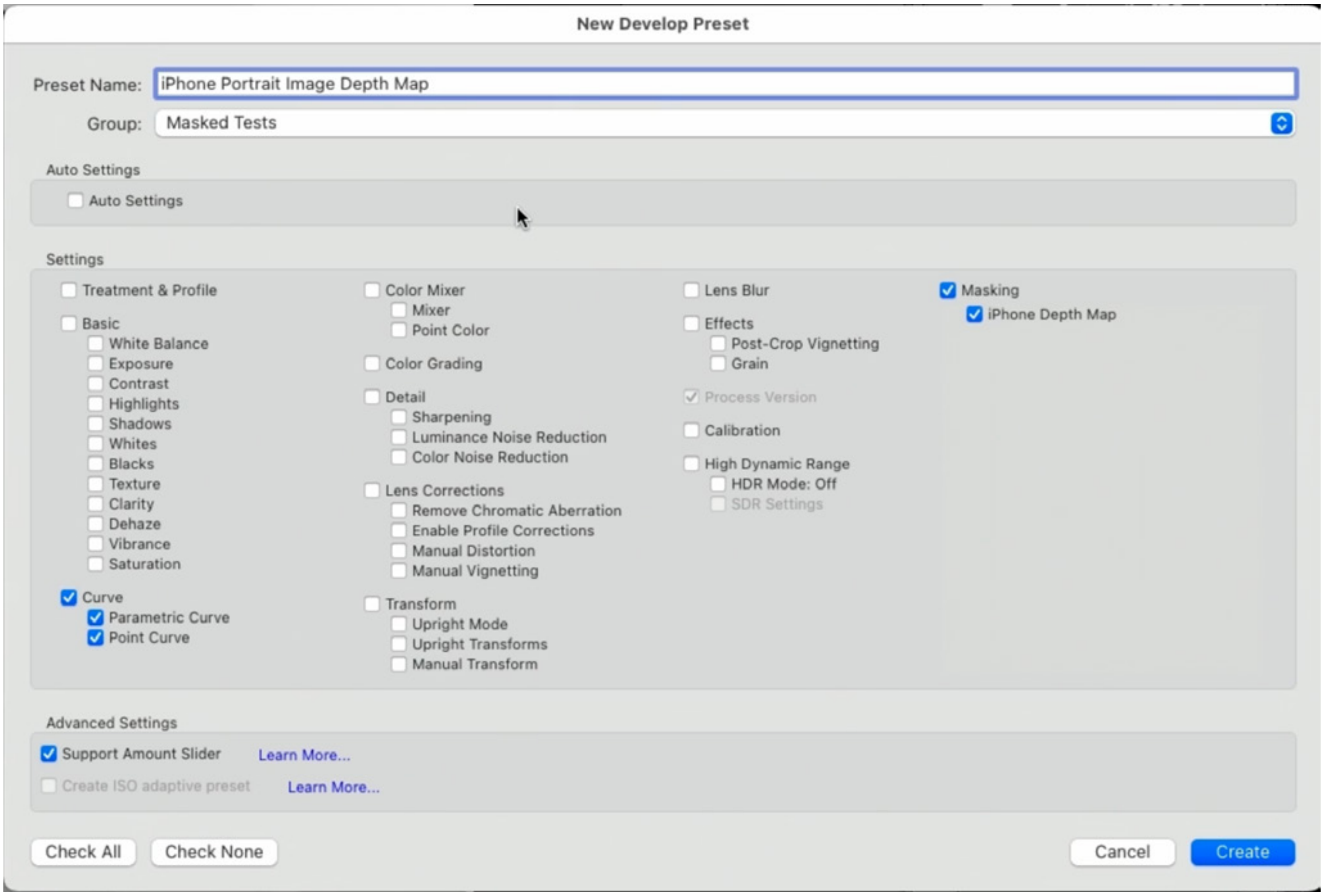




Create Preset for Lightroom (10:20)

Several steps were taken to create the depth map image in Lightroom. Remember, we created a mask based on the depth map and made some adjustments using the Curve in order to get the resulting black and white image. In order to save time with future images, you can save those settings as a preset. Click on the little plus icon to the right of the Presets Panel name (on the left side of the screen) and choose to Create Preset.

You'll be prompted to give the preset a name and choose what settings should be included. I like to click the "Check None" button and then turn on the Curve settings and the Masking settings. Then use the Group menu to determine what preset category it should be save to and click Create.



The preset will now appear within the Presets Panel and you can use it to quickly create a depth map image based on the active image.