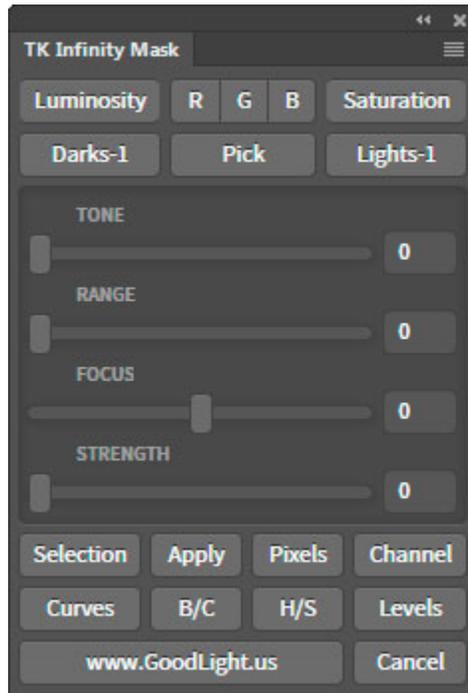


TK Infinity Mask™

A custom panel for Photoshop
©2016 Tony Kuyper



NOTE: The download ZIP folder also contains a folder called "Sean Bagshaw Videos" that has detailed video tutorials on installing and using the TK Infinity Mask panel.

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LEGAL NOTICE

The TK Infinity Mask panel is copyrighted material (©Tony Kuyper). You may use the panel for your personal work and enjoyment but transfer or sale is prohibited. If someone is interested in using the panel, please have them visit my website www.Goodlight.us to obtain it. Thank you for respecting the time and effort to produce this product and for showing the appropriate consideration for the intellectual property of others. As always, please feel free to [contact me](#) if you have questions, comments, or suggestions.

The phrases "Infinity Mask" and "Zone-Picker" were coined by Tony Kuyper and are trademarks of his products— Infinity Mask™ and Zone-Picker™

ACKNOWLEDGEMENTS

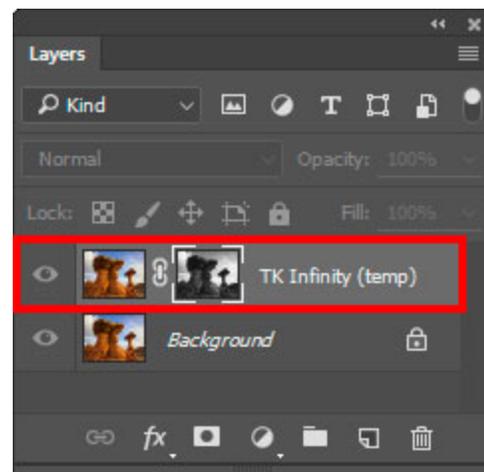
The TK Infinity Mask panel is a collaborative effort. [Sean Bagshaw](#), [André Distel](#), and [Davide Barranca](#) were part of the team that made it possible. I am grateful for the creativity, expertise, honest feedback, and patience of everyone involved.

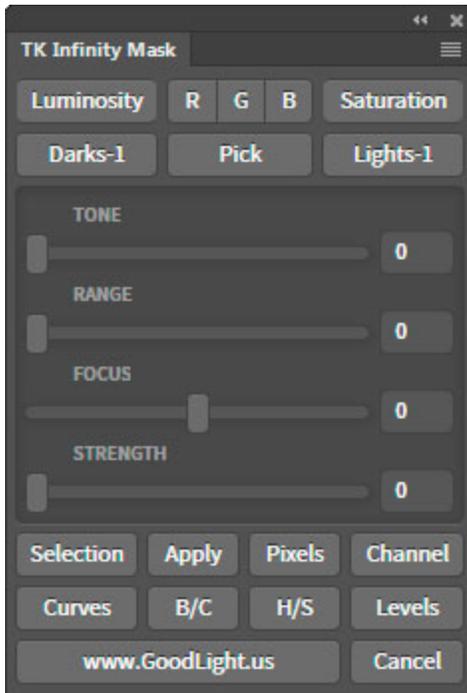
OVERVIEW

I discussed the concept of Infinity Masks and the Zone-Picker in a [blog post](#) in October 2015. Shortly afterwards I was contacted about using a Photoshop plug-in to implement this concept more fully. While it needed some modification, it was obvious this plug-in could take Infinity Masks and Zone-Picking to a whole new level with added flexibility as to which tones are included and more sophisticated ways to adjust the final mask.

The plug-in provides a unique method of making luminosity masks. Strictly speaking, the masks generated by the plug-in aren't exactly the same as the traditional luminosity masks I've been writing about for nearly a decade. The plug-in uses equations, instead of Photoshop calculations, to determine which tones are included in a mask. By changing the variables in the equation, the mask can be infinitely defined and adjusted.

The method for working with this plug-in is the TK Infinity Mask panel. The panel makes a new merge visible layer called "TK Infinity Mask (temp)" and a layer mask (this is the slowest step in the process). Data is extracted from the merge visible image and provided to the plug-in. The plug-in runs the data through its various equations to determine which tones to select and then updates the layer mask with the results. All plug-in calculations are performed in 32-bit floating-point, and the mask is converted to the bit depth of the document (8-bit, 16-bit, or 32-bit). The layer mask is what the user sees on-screen when working with the panel.





The user is able to alter the variables sent to the plug-in using various buttons and sliders on the panel. The process of updating the layer mask with new variables is quite fast, so the user quickly sees the results. Depending on the image size and computer speed, it's close to a real-time process. The panel allows the user to manipulate the mask to select the tones they want and to see the updated mask as changes are made. Once satisfied with the mask, the user can use it in various ways via the output buttons at the bottom of the panel.

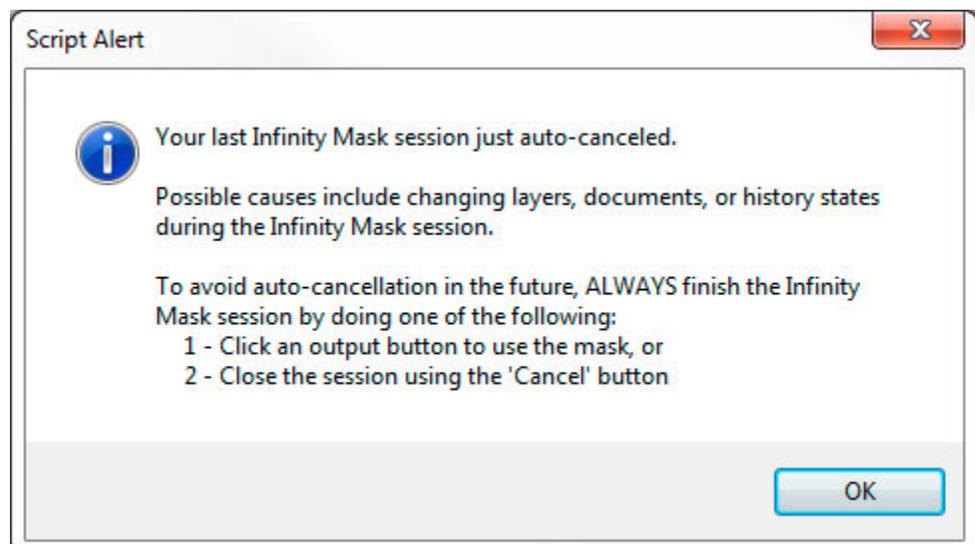
While not identical to traditional luminosity masks, Infinity Masks created by the panel share the same characteristics.

- 1) They select specific tonal ranges in the images (Lights, Darks, Midtones, Zones).
- 2) They provide perfect feathering. Adjustments using the masks blend perfectly into the image since the masks are created from information of individual pixels.
- 3) The bit-depth of the mask matches that of the image (16-bit masks for 16-bit images).

The speed at which the masks are generated and the flexibility in creating them will prove beneficial in many masking situations.

VERY IMPORTANT INFORMATION

- 1) The TK Infinity Mask panel only works in Photoshop CC (CC, CC 2014, CC 2015, and hopefully beyond). It is not compatible and will not install or work in Photoshop CS6.
- 2) The TK Infinity Mask panel only works in RGB color mode. The results in Lab color mode and other modes are unpredictable and have not been extensively tested. The panel is designed and coded to only work in RGB color mode.
- 3) Be sure to match RGB and Gray working spaces using the Edit > Color Settings menu item in Photoshop. This is discussed in the *Setting Up the Color Working Space* PDF in the download folder.
- 4) The plug-in running behind the panel uses its own recipe for calculating color data. As a result, the output from the panel doesn't exactly match what is seen using Photoshop calculations. For example, when using Photoshop calculations to create the Lights-1 mask of the Red, Green, and Blue channel, the Lights-1 mask is identical to the component channel. The masks produced by the TK Infinity Mask panel look similar, but are not pixel-for-pixel identical. The Infinity Masks tend to have slightly more contrast than the masks calculated by Photoshop. This is generally neither good nor bad. Since the user can use the panel to infinitely adjust the mask to suit their needs, these differences aren't all that important. The important thing is to choose a starting channel that best defines tonal differences that can be further enhanced, and then refine the mask using the panel's sliders to create a more perfect selection of specific tones.
- 5) ALWAYS complete the Infinity Mask session by using one of the output buttons to deploy the mask that is created. The "Cancel" button can also be used to end the session. The workflow for the panel is essentially top-to-bottom, and it's important to properly exit the Infinity Mask session. The plug-in can only be used in one session at a time and on only one layer in a single document. Changing layers, documents, or history states while a session is in progress, and then trying to use the panel elsewhere pops the alert below. The Infinity Mask session that was running automatically closes when this happens and any mask data that it contains will be lost. In other words, doing other Photoshop operations while there is an active Infinity Mask session could result in an error state. The plug-in behind the panel is incredibly powerful, fast, and useful, but once initiated, it needs to be properly terminated to avoid errors.



INSTALLATION

Both the plug-in and the panel need to be manually installed. This is not hard to do and the Installation PDF in the download folder provides detailed instructions. There are different directions for Mac and Windows, so please make sure to choose the correct instructions for the corresponding platform.

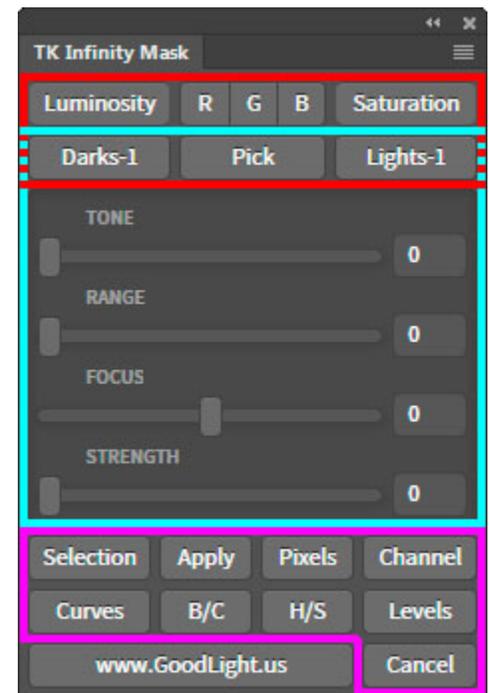
USING THE TK INFINITY MASK PANEL

There are three steps to using the TK Infinity mask panel.

1) Start the plug-in. The top two rows of buttons (red rectangle) generate the composite image and layer mask that the plug-in needs. The initial mask is based on the button that is clicked. The sliders and output buttons are inactive until the plug-in has been started.

2) Adjust the mask. The second row of buttons and the four sliders (cyan rectangle) can be used to adjust the mask. Each adjustment will change the mask, which updates automatically on-screen as adjustments are made.

3) Output the mask. The bottom buttons (magenta box) provide output options once the user is satisfied with the mask. Only one output option can be chosen. Once a mask has been deployed according to the user's choice, the layer and layer mask used to generate the Infinity Mask are deleted. A new Infinity Mask session needs to be started if another Infinity Mask is needed. The "Cancel" button is also an output choice. It simply deletes the Infinity Mask layer and mask without deploying the mask for another use.



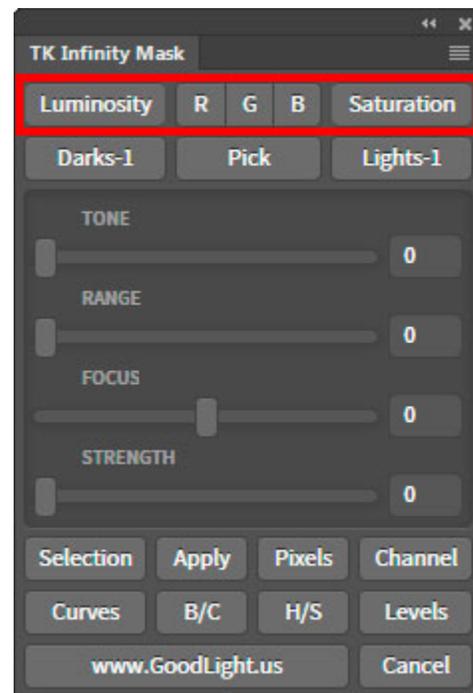
BUTTON DETAILS

Channel Buttons

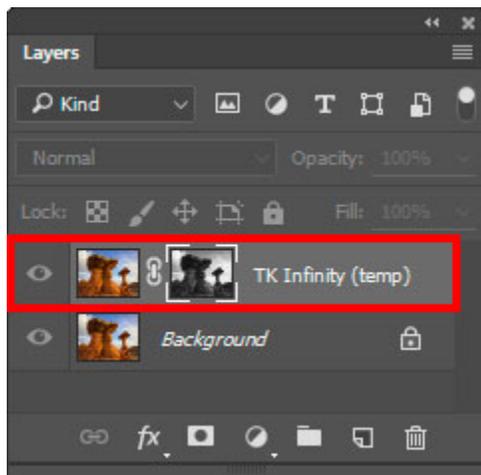
The buttons in the top row are "channel" choices—Luminosity, R=Red, G=Green, B=Blue and Saturation. The plug-in can extract a variety of data from the composite image. The chosen button from the top row determines which channel of data will be adjusted by the buttons below.

These "Channel" buttons are radio buttons, which means that only one choice is allowed at a time. (The button will darken if it's the active channel.) The channel can be changed at any time during adjustment, but it's usually best to click through these radio buttons first and decide which channel to use before proceeding to make further adjustments to the mask.

If the plug-in is being started with a Channel button, the initial mask presented to the user is equivalent to the Lights-1 mask for that channel. This Lights-1 view can often provide a good basis for deciding which channel to choose.



If the user clicks a different Channel button after making slider adjustments, the slider positions are not changed and are still active. The mask presented to the user in this situation uses data from the new clicked channel, but information from the slider positions for the previous channel choice also determine the mask presented to the user. Until you are familiar with the panel, it's usually best to make the channel choice first to avoid seeing a mask influenced by slider choices intended for a different channel.



The first time a Channel button is clicked, a new merge visible layer is created along with a layer mask. This is the slowest step for making an Infinity Mask taking a few seconds for a large, multi-layered image. The layer is named "TK Infinity Mask (temp)" and is used by the plug-in to generate data for the mask. The layer mask is what is presented to the user for viewing and evaluation. Once the "TK Infinity Mask (temp)" layer is present, subsequent changes to the chosen channel (clicking a different Channel button, for example) draws data from the same merge visible image; it's not necessary to remake the layer. The layer mask, however, is changed, and the updated mask is what the user sees.

The Channel choices are as follows:

Luminosity button—The plug-in uses the "luminosity" channel data. This is similar to the composite RGB channel.

R button—The plug-in uses the Red channel data.

G button—The plug-in uses the Green channel data.

B button—The plug-in uses the Blue channel data.

Saturation button—The plug-in uses saturation data. This is a unique and potentially very useful application of Infinity Masks. A Lights-1 mask in the Saturation channel is the "Saturation" mask for the image, and a Darks-1 mask is the "Vibrance" mask. The Saturation button provides an entry point for making luminosity-like masks based on image saturation instead of brightness. Saturation masks can be used to balance image saturation via Hue/Saturation adjustment layers or saturation painting. These are concepts I've discussed in previous tutorials. The TK Infinity Mask panel provides a new way of making the needed masks.

The images on the next page show the results (the Lights-1 mask) of clicking the different Channel buttons.



Original Image



Channel = Luminosity



Channel = R (Red)



Channel = G (Green)



Channel = B (Blue)



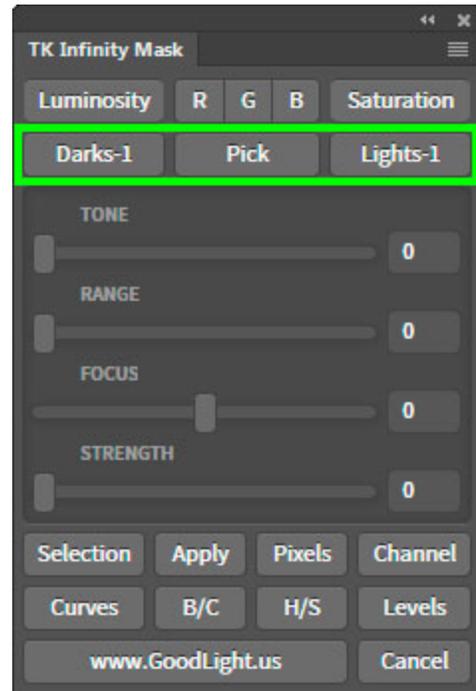
Channel = Saturation

Preset Buttons

The second row of buttons in the panel—Lights-1, Pick, and Darks-1—can be used to both initiate the plug-in AND to set the four sliders to predetermined positions.

If a channel HAS NOT already been chosen using one of the Channel buttons in the top row, clicking a Preset button activates the Luminosity channel. In doing this, the necessary "TK Infinity Mask (temp)" layer and layer mask are created for the plug-in. Once this layer is present, the Preset button sets the sliders as dictated by that button.

If a Channel radio button HAS already been chosen, the Preset button simply sets the sliders to the predetermined positions for that button. The layer mask is updated and displayed for the user's evaluation.



The Preset choices are as follows:

Darks-1 button—Sets the sliders to show a Darks-1 mask of the selected channel:
Tone = 0
Range = 100
Focus = 0
Strength = 100

Lights-1 button—Sets the sliders to show a Lights-1 mask of the selected channel:
Tone = 255
Range = 100
Focus = 0
Strength = 100

Pick button—Opens the Photoshop Color Picker to allow the user to make a selection from any area of the image. The TONE slider is then set to match the value of the user's selection. This is a very sophisticated match. It takes into account the user's chosen channel and calculates or normalizes the user's selection to fit on the 0 to 255 TONE slider scale.

For example, if the user has chosen the "R" channel, the Pick button extracts the "Red" value from the Color Picker and sets the TONE slider to that value. If "Luminosity" is the chosen data channel, the Pick button calculates a luminosity value to match the Color Picker selection, and then sets the TONE slider to this value. If the user has chosen "Saturation" as the channel, the PICK button gets the "Saturation" value from the Color Picker, multiplies it by 2.55 (to normalize the 0 to 100 Color Picker value to the 0 to 255 TONE slider scale), and sets the TONE slider

to that value. The end result is always that the Pick button looks at the chosen channel and sets the TONE slider to the value corresponding to the Color Picker choice IN THAT CHANNEL.

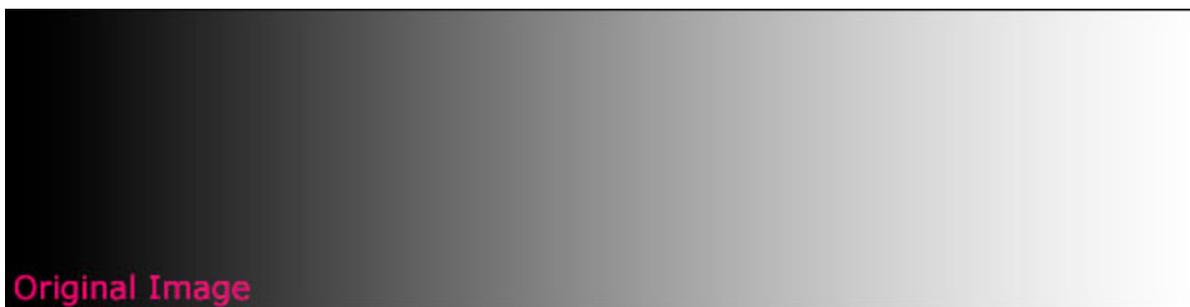
This TONE selection is very important. The plug-in calculates the mask so that pixels with this tone are set as the lightest value (usually white) in the mask. All other tones are darker shades of gray. The darkening increases the further a pixel's tone is from the selected tone. In this way, the mask is perfectly feathered across the image with pixels close in tonal value to the selected tone being lighter shades of gray and pixels with more distant tonal values being darker shades of gray. So regardless of the channel chosen, a perfectly feathered mask is always created, but the feathering is tonal, not spatial. Unlike Photoshop's normal feathering that occurs based on physical proximity to the selected pixels, tonal feathering looks across the entire image and feathers based on tonal values that are closest to the tones selected by the TONE slider for that particular Channel. This tonal feathering is what has always made luminosity masks so unique and useful, and the Infinity Mask plug-in employs the same concept in its equations.

Like the Lights-1 and Darks-1 buttons, the Pick button can initiate the plug-in. If it does, it uses the following settings:

Channel= Luminosity
Tone = Choice extracted from the color picker
Range = 100
Focus = 0
Strength = 100

If the Channel HAS already been set and sliders have been adjusted, then the pick button only updates the TONE slider. The other sliders are left in the positions set by the user.

The images on the next page show the masks created by the Preset buttons using a simple gradient image.



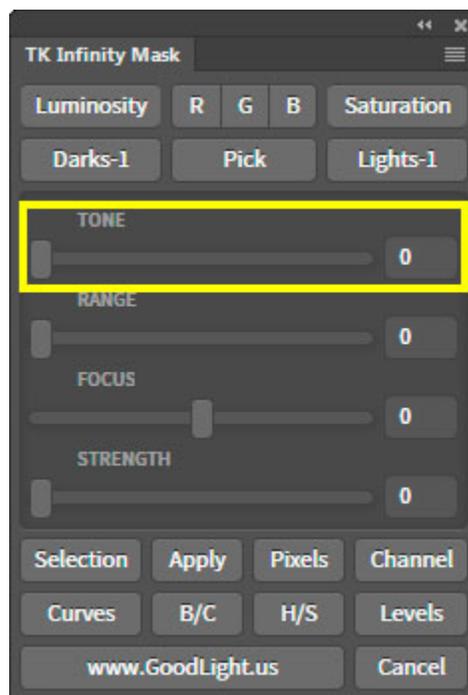
Sliders and Input Boxes

The four sliders and the corresponding input boxes add significant flexibility to customize the mask. To use a slider, grab the handle and move it left or right. When it's released, the plug-in takes the new value, recalculates the mask, and presents the updated mask to the user for evaluation.

The input boxes work in a similar manner. The user enters a number and hits the enter key. This sends the number to the plug-in and updates the mask.

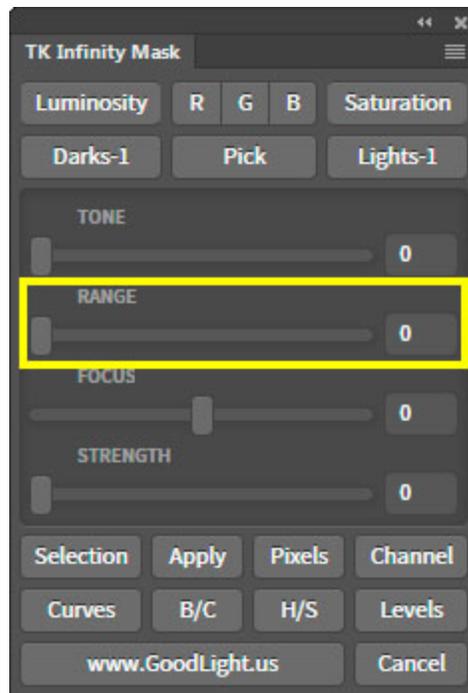
The values of the sliders and input boxes are transmitted to the plug-in ONLY if the plug-in session has been started ("TK Infinity Mask (temp)" layer is present). The sliders are inactive until the plug-in has been initiated. The sliders are not capable of starting the plug-in on their own.

TONE slider—Sets a tone from the corresponding channel. Scale is from 0 to 255, to match the grayscale tonal range of Photoshop. The Pick button is perhaps the easiest way to set the TONE slider, but it's also entirely possible to tweak the value using the slider or input box. The images on the next page show masks of the tonal gradient where only the TONE slider is changed.



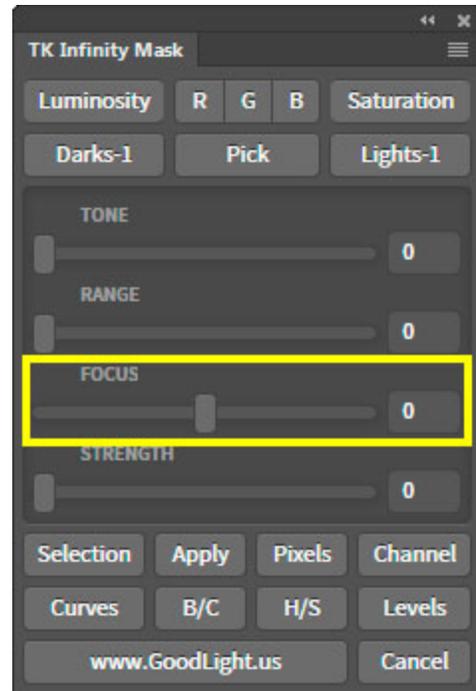


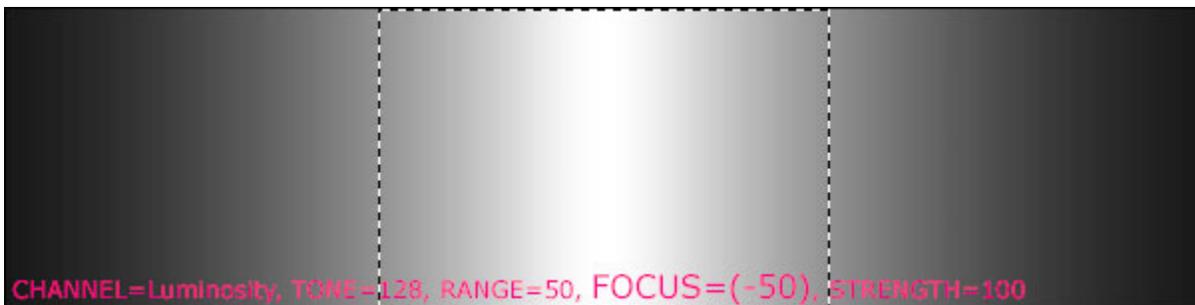
RANGE slider—Sets the range of tones included in the mask before the mask turns black. The scale is from 0 to 100. Think of this as a radius value for tones with the selected tone as the center. Larger RANGE values have a wider tonal radius and result in more tones being revealed by the mask and being included in the selection. Smaller RANGE values have a smaller tonal radius and therefore a smaller range of tones revealed by the mask and included in the selection. This is a simplified concept of what's going on with the plug-in. In practice, it's not actually necessary to know the correct number for the Range slider. It's just a matter of dragging the slider left or right and making the decision visually. If the mask is revealing tones in areas of the image that should not be adjusted, drag the slider left until these areas are black (or very dark gray). If more tones need to be revealed, drag the slider to the right. Moving the slider updates the mask quickly, so it's quite easy to choose the correct RANGE number simply by looking at the mask and deciding what looks right. The images on the next page show masks of the tonal gradient where just the RANGE slider is changed. The other slider values are kept constant. The corresponding selection edges from the mask are also shown.





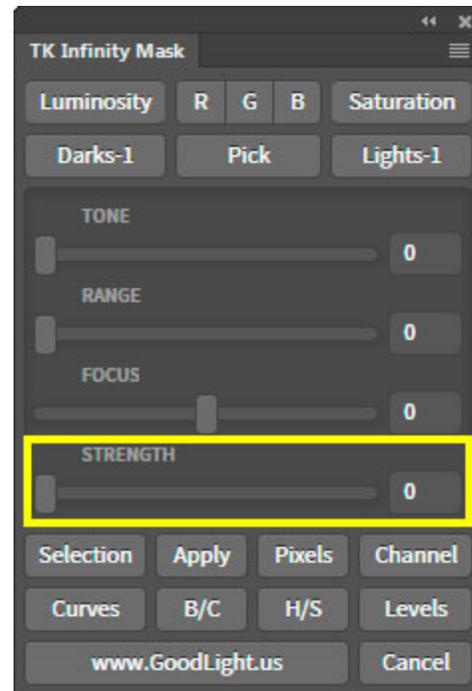
FOCUS slider—Sets the degree of feathering across the selection border, which is also referred to as the marching ants. Luminosity masks, because of their self-feathering quality, tend to spread adjustments wider than is sometimes desirable. As a result, the adjustment can bleed into tones or parts of the image where adjustment is not intended. The Infinity Mask panel introduces the concept of FOCUS to adjust the transition between selected and unselected tones. Pulling the FOCUS slider to the right decreases the transition distance across the marching ants but doesn't change the position of the marching ants. In the mask, this will be seen as light grays getting lighter (closer to white) and dark grays getting darker (closer to black), and middle gray being unchanged. The end result being that when the mask is used, adjustments are less likely to bleed into the surrounding pixels. Pulling the FOCUS slider left widens the transition from black to white in the mask—dark grays get lighter, light grays get darker. Generally, this is undesirable, so leaving the Focus slider at zero or pulling it to the right is most useful. The images on the next page show masks of the gradient image and the effect of pulling the FOCUS slider to the right along with the corresponding unchanged selection border.





STRENGTH slider—Determines the brightness of the selected tone in the mask. A value of 100 sets the brightness of the selected tone as pure white in the mask. A value less than 100 darkens the selected tone in the mask and makes a proportional adjustment to the other tones included in the mask. A value greater than 100 allows tones near the selected tone to also start showing as pure white in the mask. The STRENGTH slider is generally used to decrease contrast in the mask by darkening the lightest tones in the mask (pulling the slider to the left) in situations where overly aggressive use of the other sliders has led to a mask with obviously rough transitions. Decreasing the STRENGTH can make these transitions appear smoother, which may help smooth adjustments through the mask. Lower STRENGTH settings also mean that more aggressive adjustments might be needed in order to be revealed by a denser mask.

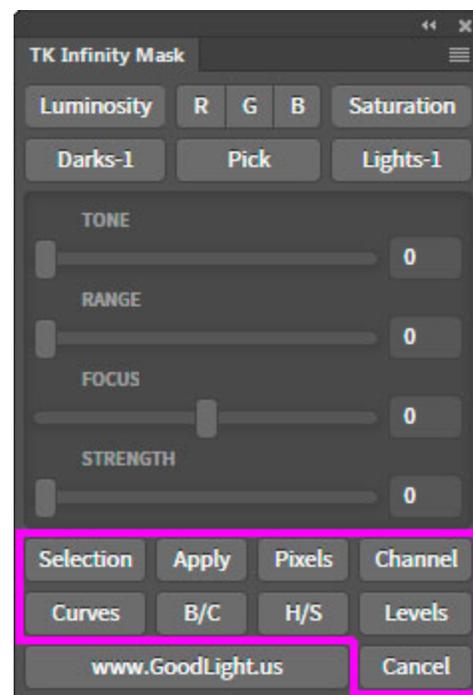
The images below show the effect of changing the STRENGTH slider.



Output Buttons

Once the user is satisfied with the mask, the two rows of buttons below the sliders provide output options. These buttons take the mask that the user is viewing and utilizes it in the manner described by the button. The output buttons also end the Infinity Mask session and delete the "TK Infinity Mask (temp)" layer. As such, only one output button can be used for each Infinity Mask session. Once an output button is clicked, there is no longer a "TK Infinity Mask (temp)" layer from which to do another output operation. The output buttons become inactive until another Infinity Mask session is initiated. If the user wants to save the current Infinity Mask, the Channel button makes a copy of the current Infinity Mask on the Channels panel. All output options (except Selection) maintain the 16-bit workflow. There are no intervening 8-bit selections when outputting the Infinity Mask

1. **Selection** button—Loads the Infinity Mask as an active selection, which is 8-bit by Photoshop default.
2. **Apply** button—Applies the infinity Mask as a layer mask to the layer that was active before the Infinity Mask session was started.
3. **Pixels** button—Creates a pixel layer of the Infinity Mask.
4. **Channel** button—Creates a new channel mask of the Infinity Mask on the Channels panel. The new channel will be named "TK Infinity Mask" and is a way to save an Infinity Mask that was created for future use.
5. **Curves** button—Creates a Curves adjustment layer with the Infinity Mask as the layer Mask.
6. **B/C** button—Creates a Brightness/Contrast adjustment layer with the Infinity Mask as the layer Mask.
7. **H/S** button—Creates a Hue/Saturation adjustment layer with the Infinity Mask as the layer Mask.
8. **Levels** button—Creates a Levels adjustment layer with the Infinity Mask as the layer Mask.
9. **Cancel** button—Ends the Infinity Mask session with no output of the mask that was created. The "TK Infinity Mask (temp)" layer is deleted in the process.



Other Buttons

1. **www.GoodLight.us** button—Uses the default browser to open Tony Kuyper's website.

WORKFLOW

A simple workflow for using the Infinity Mask panel would be as follows:

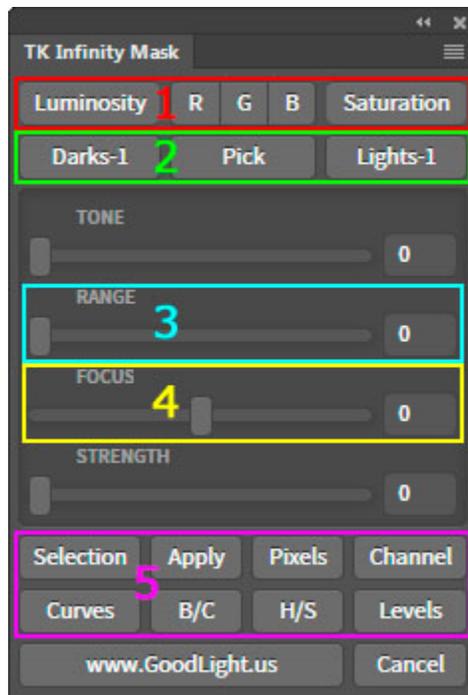
1. Initiate the plug-in. Use one of the Channel buttons to create an initial Lights-1 mask of that channel. Once one the "TK Infinity Mask (temp)" layer is present, it's easy and fast to click another Channel button to see which channel shows the greatest tonal difference to help isolate a particular part of the image.

2. Use a Preset button (Darks-1, Pick, or Lights-1) to make a TONE choice before starting to use the sliders. (NOTE: Lights-1 will be the default choice from the Channel button.)

3. Adjust a range for the selected tones using the RANGE slider. Generally pulling the slider to the left is necessary to narrow the range of selected tones.

4. Use the FOCUS slider to narrow the tonal transition (pull it right). This isn't always necessary, but the option is available. Remember, zero is the default neutral position for this slider.

5. Use an output button to deploy the mask. Use the Infinity Mask as desired to continue developing image.



Once the "TK Infinity Mask (temp)" layer is present, everything happens quickly so it's easy to experiment with different sliders and buttons to make alternate masks. Just be sure to properly end the Infinity Mask session by using an output button or the Cancel button.

I'm sure the Infinity Mask panel will prove useful in your creative developing efforts. I'm always interested in your feedback, so please feel free to [contact me](#) if you have questions, comments, or suggestions.