

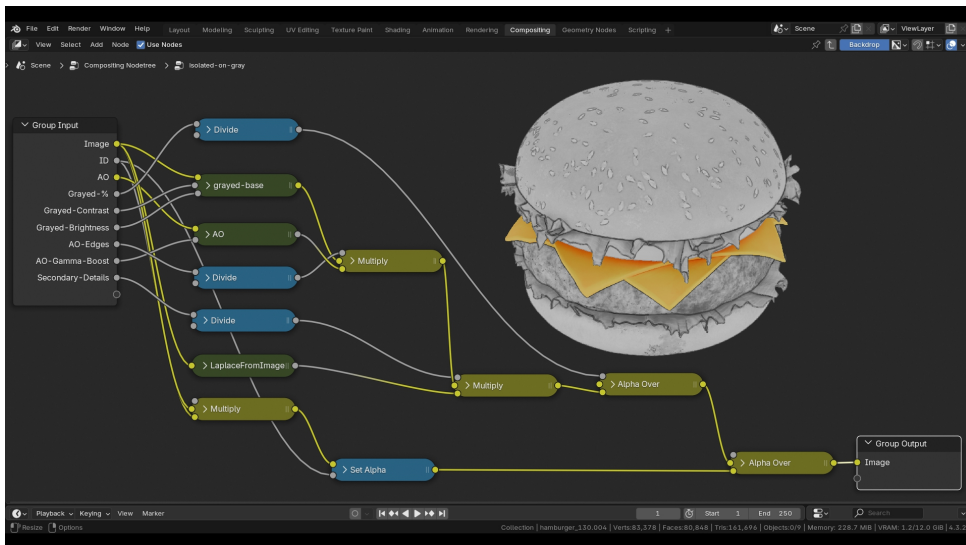
Partly Colored, Partly Grayscale Rendering | A Free Compositing Group for Blender Tutorial 2 of 2

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Hello everyone! This is the second of two tutorials dedicated to analyzing and using a Compositing node group for Blender 4.3 that allows you to render only a specific object or material in its original colors, while masking everything else in grayscale and optionally highlighting edges or cavities.

In the first tutorial, I showed you how to use the node group, which you can download for free from the link in the description. In this second tutorial, we will take a look inside the group to see how the various effects are implemented.

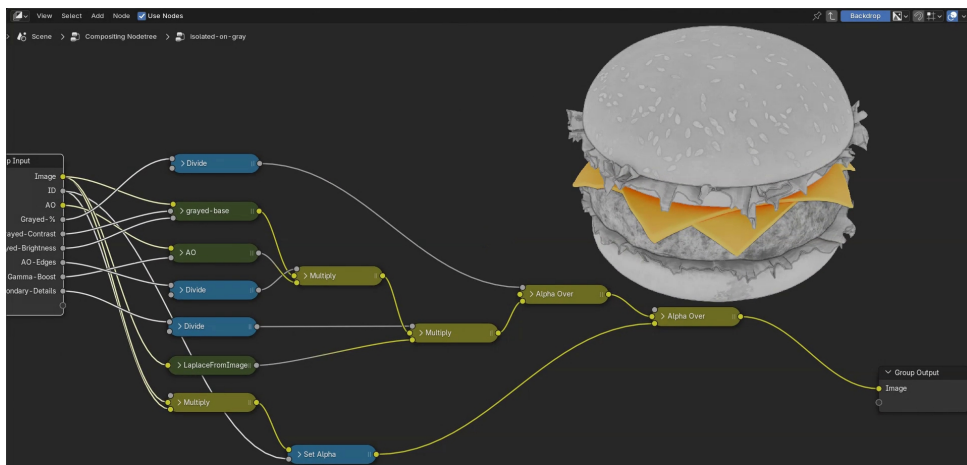
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By opening the group with the **TAB** key, we can see that the effects are implemented in the left column of nodes. Some of these nodes are actually groups. The nodes on the right side of the column are only used to add the effects to the image sequentially.



As seen in the previous tutorial, the node group essentially performs three operations. First, it isolates an object or **Material**, keeping it in color while converting all other elements to grayscale.

As a second effect, the group takes the **Ambient Occlusion** information from the render to emphasize cavities and edges.

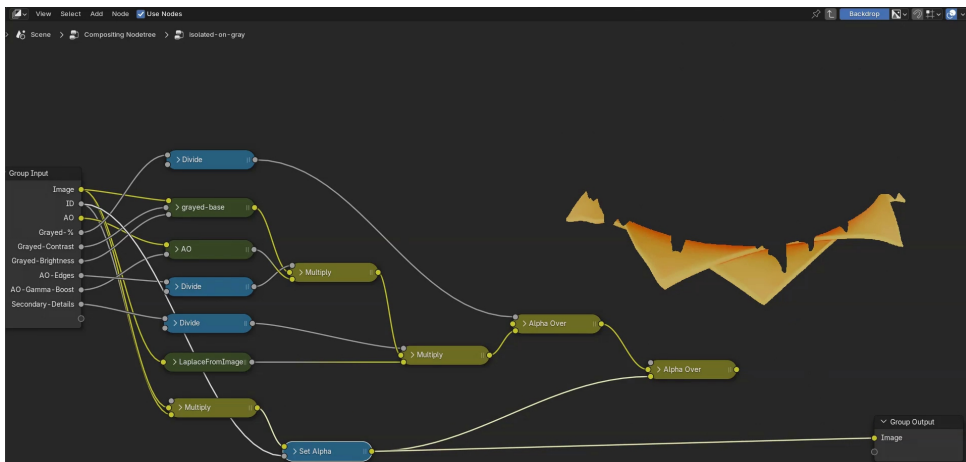
As a third effect, the group uses a filter to further enhance other details, especially those present in **Textures** rather than in the geometry.

To separate the elements with an ID matching the input from the rest of the image and keep them in color, the original image is multiplied by the mask coming from the **ID** input. Then, the same **ID** mask is used as the **Alpha** transparency, so at this stage, we have only a portion of the rendering in color on a transparent background.

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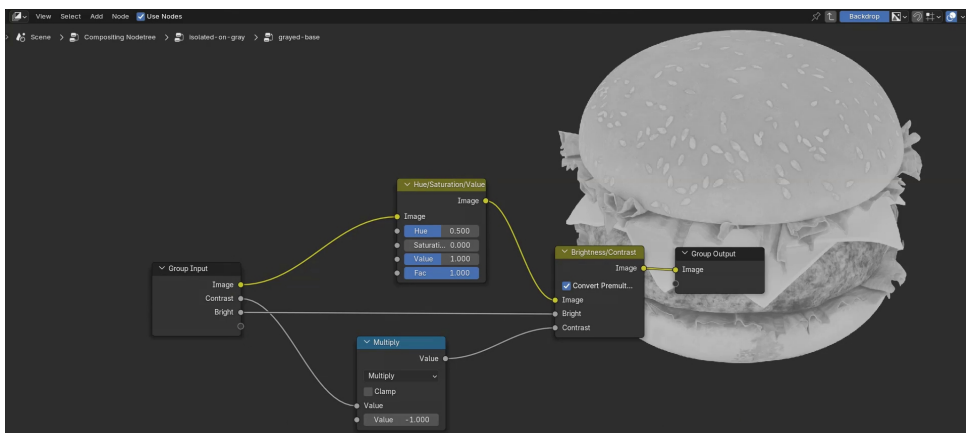
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To obtain the entire original rendering in grayscale, the information from **Image** is sent, along with the **Grayed Contrast** and **Grayed Brightness** data, to the **Grayed Base** subgroup.

Inside this subgroup, the image is desaturated using a **Hue Saturation Value** node, with Saturation set to 0, resulting in a grayscale image. Then, a **Brightness Contrast** node is used to adjust the brightness and contrast of this image.



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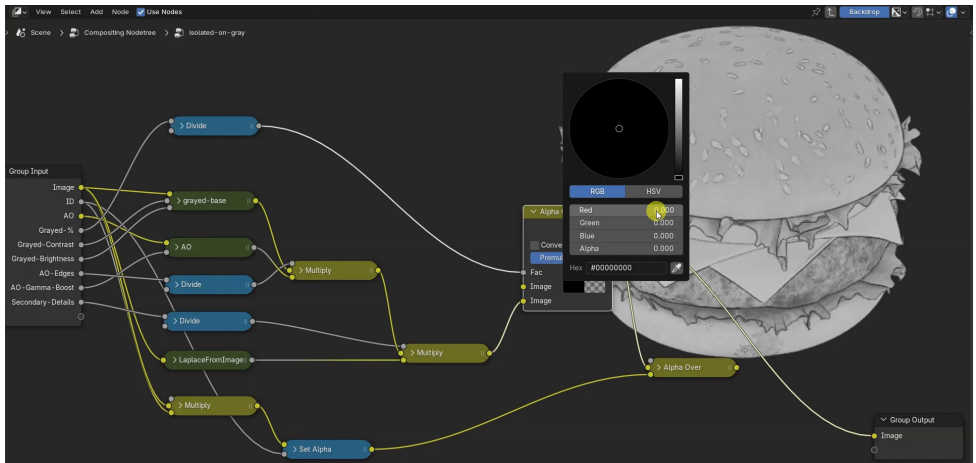
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This image will then have detail layers applied sequentially, derived either from **Ambient Occlusion** or the **Laplace** filter, which we will examine shortly.

The final grayscale image, obtained after applying those additional effects, has a variable intensity controlled by the **Grayed** input as a percentage. This input is a numerical value ranging from 0 to 100, which is divided by 100 so it can be used as the **Factor** in an **Alpha Over** node.

In this **Alpha Over** node, the first **Image** input is actually complete transparency, created with a black color and **Alpha** set to 0. When the **Grayed** value is 0, only this complete transparency is used. When it is 100%, meaning the **Alpha Over Factor** is 1 due to the division, only the grayscale image is used. Intermediate values naturally correspond to blended transitions between the two.



The image output from this **Alpha Over** node then serves as the grayscale base, onto which the color image of the correctly ID matched elements is applied. This is done using a second **Alpha Over** node.

Now that the processing flow is clear, we just need to examine the operations performed by the **Ambient Occlusion** and **Laplace From Image** subgroups, which help highlight edges and cavities.

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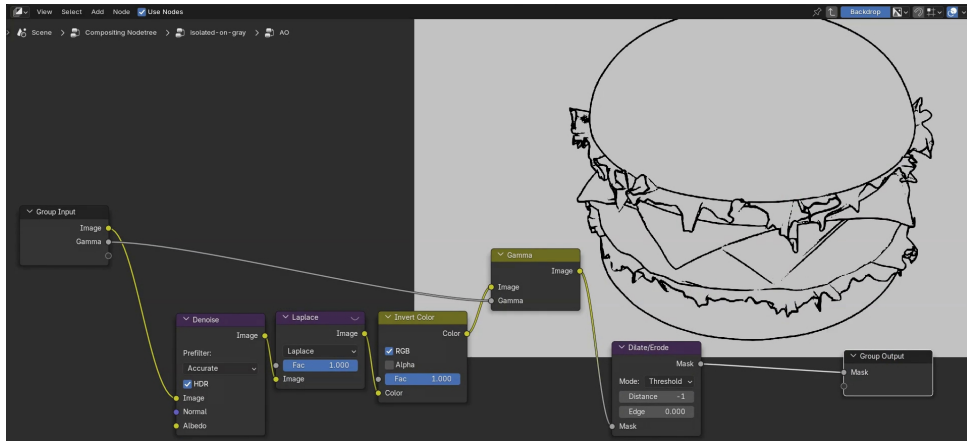
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Before analyzing them in detail, I'll mention that these subgroups generate black and white masks that are sequentially multiplied with the grayscale rendering. Multiplying an image by another grayscale image effectively darkens the original image in areas where the second image is progressively darker.

The **Divide** nodes you see before the **Factor** inputs of the multiplications are simply used to bring the input values back into the 0 to 1 range, since I expressed them as percentages for easier usability. With that said, let's examine the two remaining subgroups in detail.

To analyze the steps and the output of the **Ambient Occlusion** subgroup, I am connecting its output directly to the main group's output.

The **Ambient Occlusion** group takes as input the **Ambient Occlusion** data from **Render Layers** and a numerical value called **Gamma Boost**, which allows the **Ambient Occlusion** mask to be emphasized.



The **Ambient Occlusion** data is immediately sent to a **Denoise** node to reduce noise. The result is then passed to a **Filter** node in **Laplace** mode, which highlights the edges.

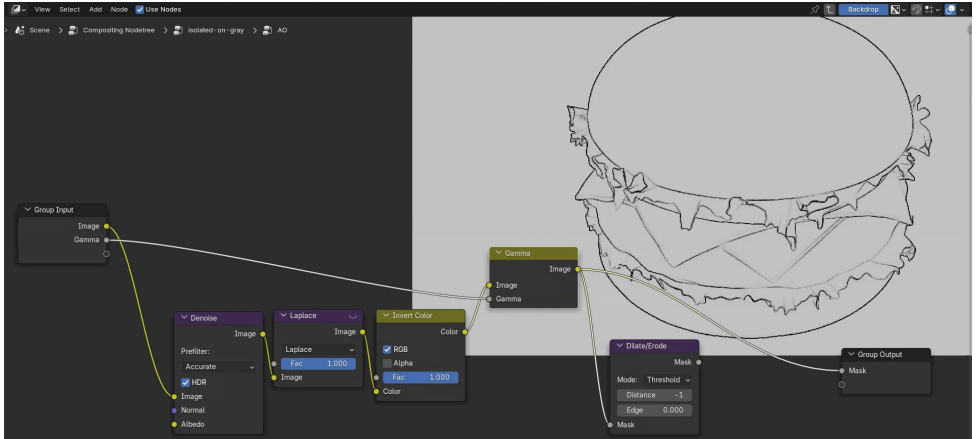
The **Laplace** result shows bright edges and a dark background, but we need the opposite because we will multiply the dark edges with the grayscale image to darken them further. For this reason, the **Laplace** output is sent to an **Invert**

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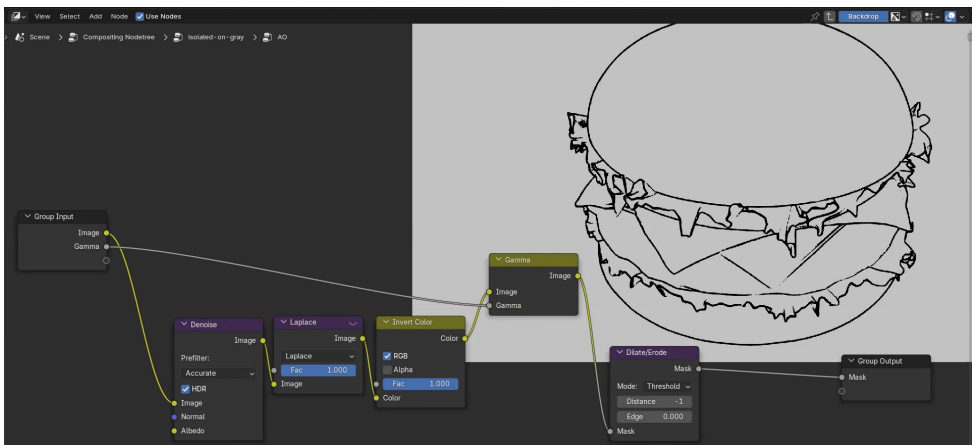
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Color node, followed by a **Gamma** node that further enhances the dark areas based on the user-defined **Gamma Boost** parameter.



A **Dilate Erode** filter follows, slightly expanding the dark areas to maintain continuity in places where the lines might otherwise be broken.



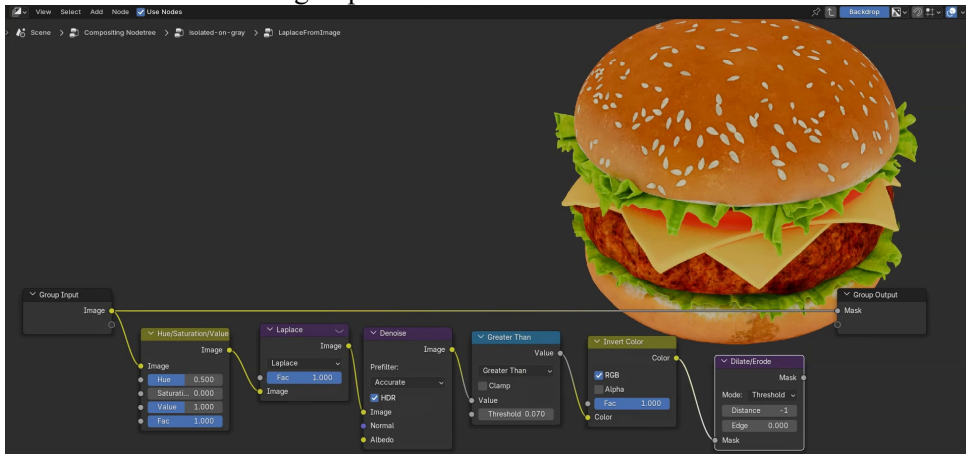
Now, I exit the **Ambient Occlusion** subgroup and connect the output of the **Laplace From Image** subgroup directly to the main group's output to examine its steps and final result.

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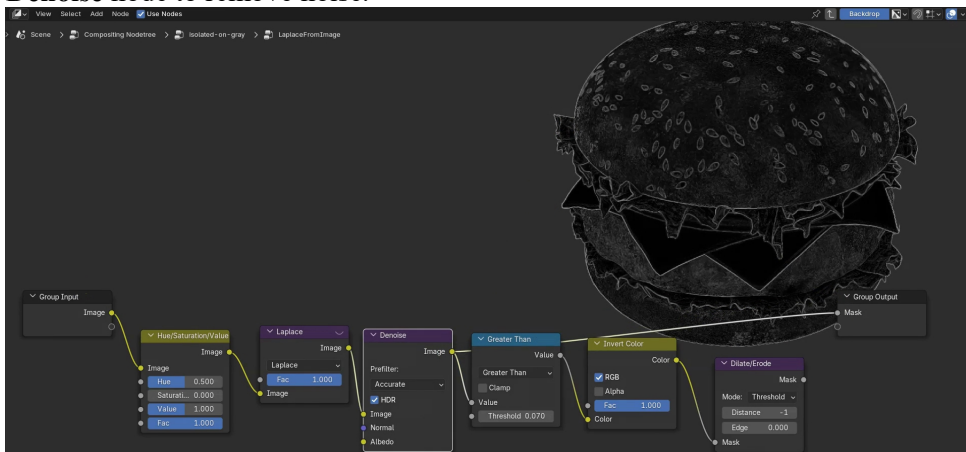
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The inside of the **Laplace From Image** subgroup is very similar to that of **Ambient Occlusion**. Here too, we have **Filter Laplace**, **Denoise**, **Invert Color**, and **Dilate Erode** nodes performing the same operations we described in the **Ambient Occlusion** subgroup.



However, in this case, the first step is a **Hue Saturation Value** node with **Saturation** set to 0, which converts the input image to grayscale. This step was unnecessary for **Ambient Occlusion**, as that information is already in grayscale.

The grayscale image is then processed with the **Laplace** filter, followed by a **Denoise** node to remove noise.

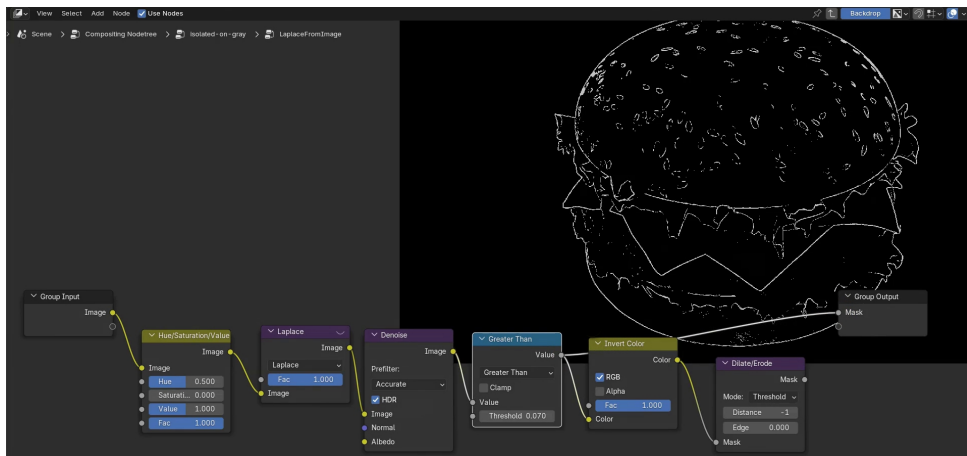


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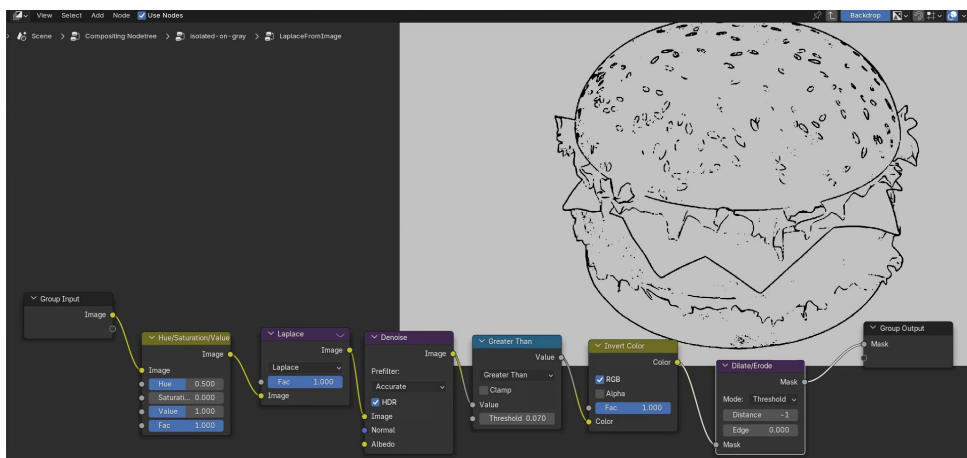
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The second unique element of this subgroup is the **Greater Than** node, which essentially acts as a threshold, turning all gray areas below a very low value to black and making all other areas white.



The mask has white edges on a black background, so an **Invert Color** node is used, followed by a **Dilate Erode** node to reduce interruptions between lines, just like in the **Ambient Occlusion** subgroup.

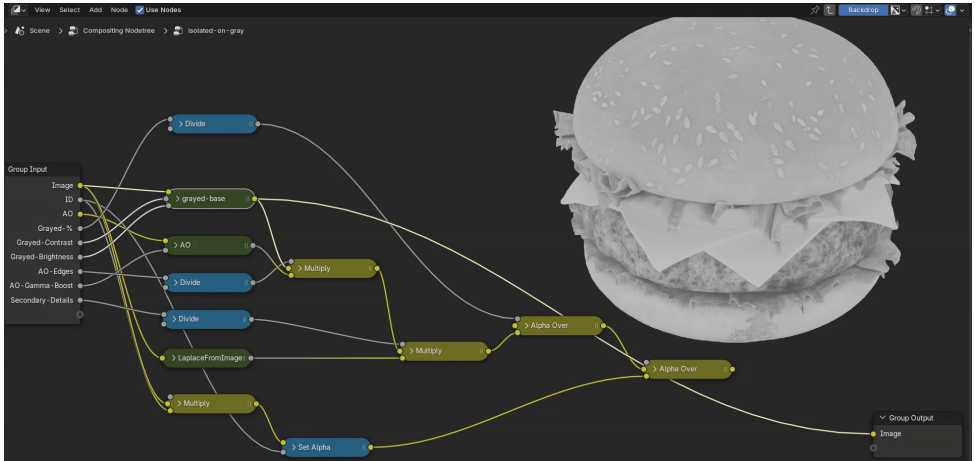


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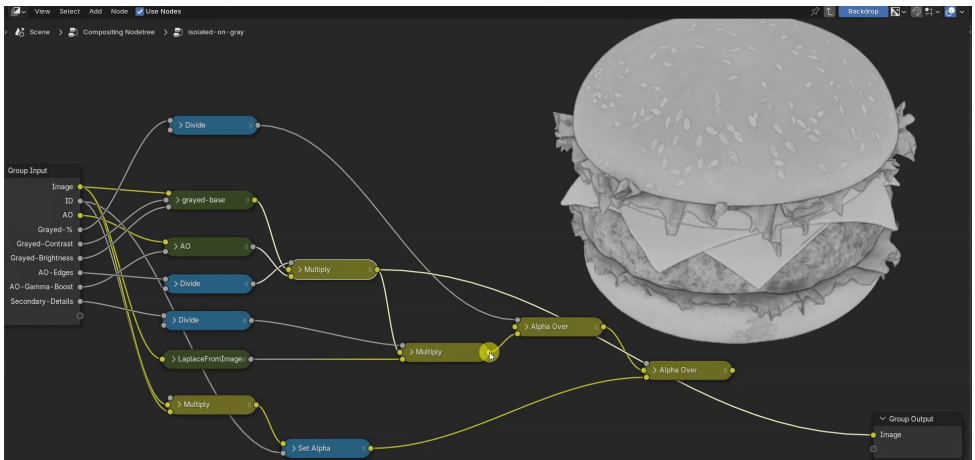
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To summarize, the image is converted to grayscale by the **Grayed Base** subgroup.



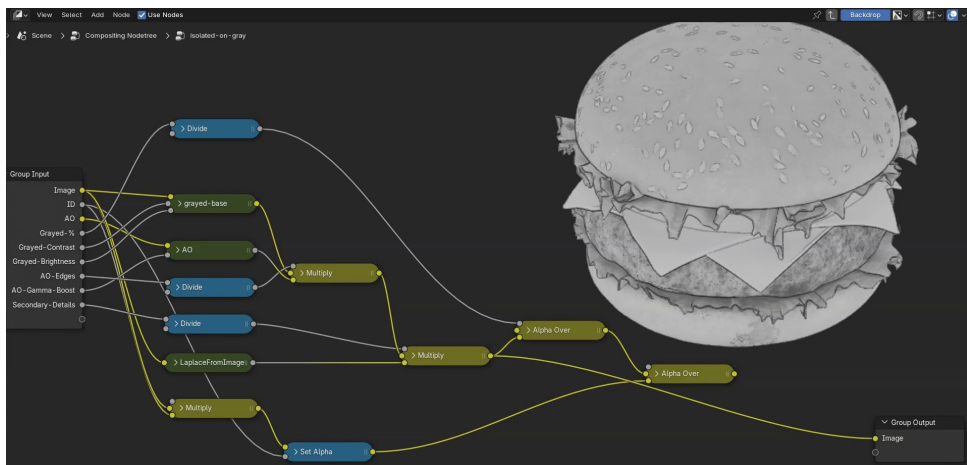
The resulting image is then multiplied sequentially by the masks generated by the **Ambient Occlusion** and **Laplace** subgroups.



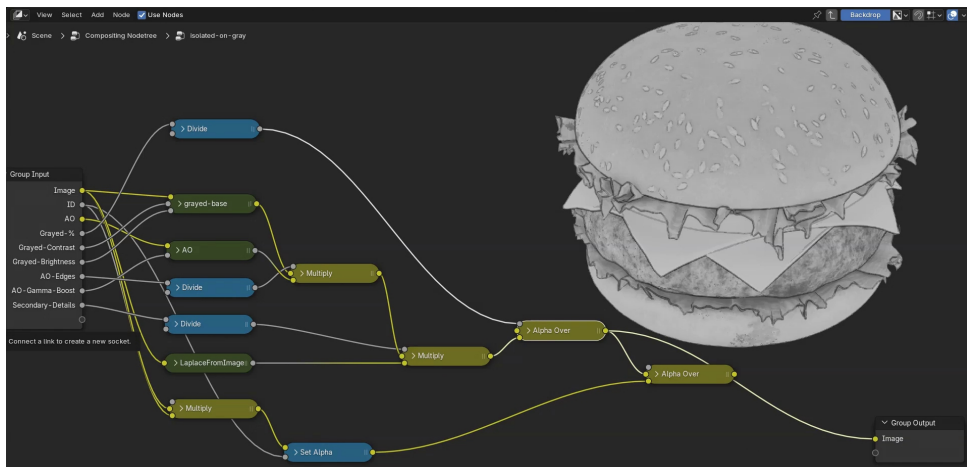
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The final resulting image has a transparency level determined by the **Grayed** input in an **Alpha Over** node.

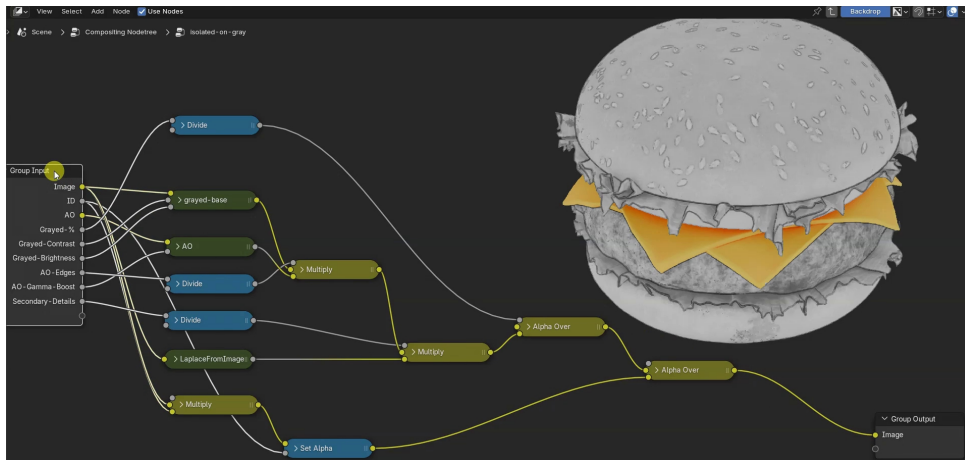


The color image of the elements with the correct numerical **ID**, whether objects or materials, is then overlaid onto this result.

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That's all for this tutorial! I hope you found it useful! See you soon!