

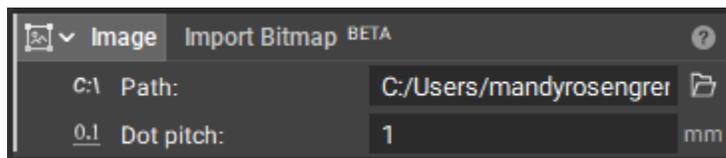
# Follow Along: Adding an Image

In this lesson, we will walk through how to use bitmapping to add texture to a part. If you are unfamiliar with the [Ramp block](#), please visit our Intro to [Field Driven Design Course](#) before reviewing this lesson. We will also use a custom block in this lesson to create an implicit body from a logo. To learn more about custom blocks, please visit our [Intro to Automation Course](#).

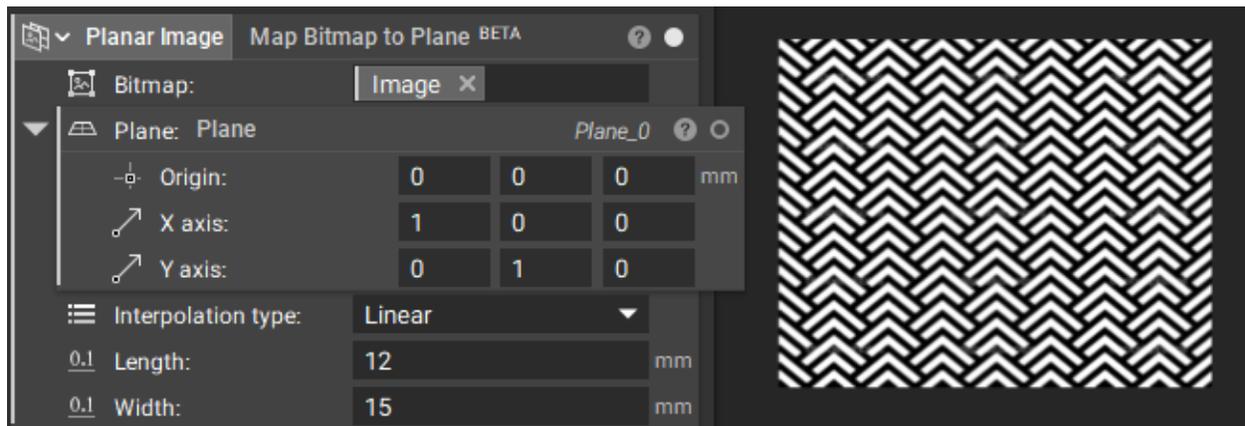
Please download the png and nTop files below to follow along with the tutorial.

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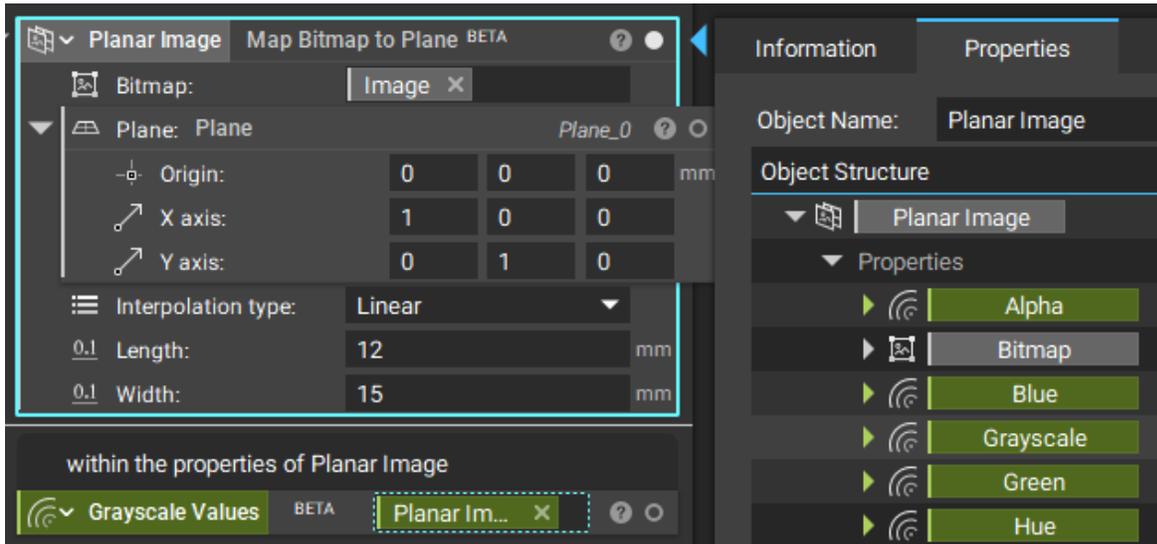
**Step 1:** Add the **Import Bitmap** block and **Map Bitmap to Plane** block to the Adding Bitmap section of your notebook. You can find both of these blocks in the Beta tab. If you do not see the Beta tab, go to Settings → General → Check Show Beta Blocks. For the Path input in the **Import Bitmap** block, select the location of the png file that you downloaded with this lesson and place in a dot pitch of 1mm. Right click and make this a variable labeled “Image”.



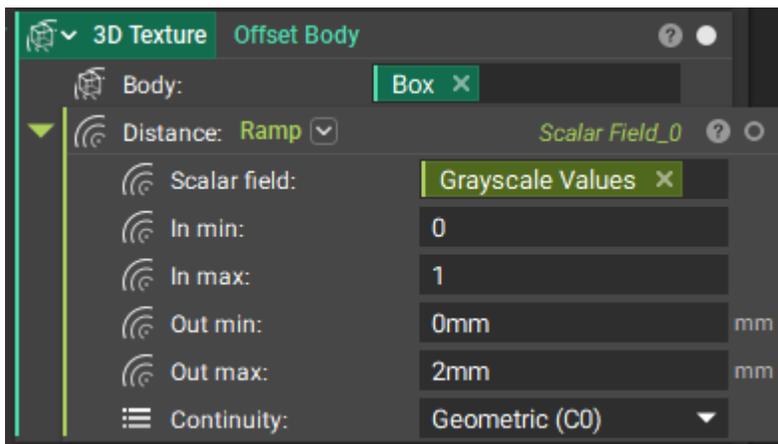
**Step 2:** Place the “Image” into the Bitmap input of the **Map Bitmap to Plane** block. Input the default plane into the Plane input, choose the Interpolation type as Linear, a Length of 12mm and a Width of 15mm. When you make this block visible, you should see your pattern. Right click and make the **Map Bitmap to Plane** block a variable labeled “Planar Image”.

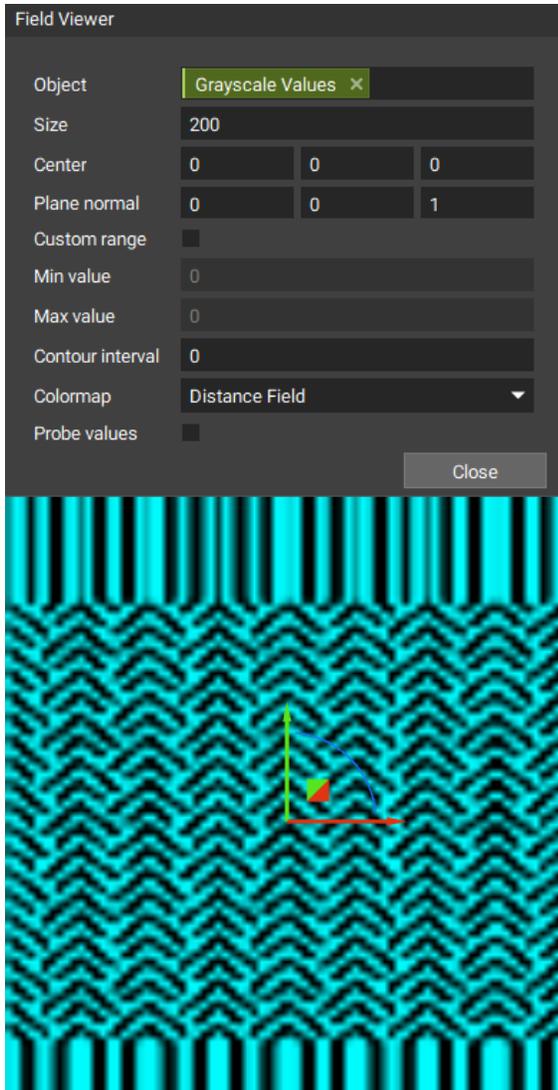


**Step 3:** In the properties tab in for the “Planar Image”, drag and drop out the Grayscale field into a separate line of the notebook. Rename this variable “Grayscale Values”.

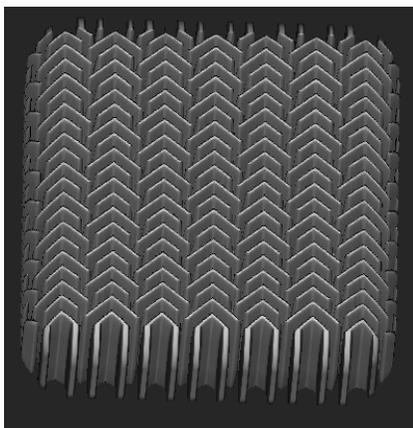


**Step 4:** Add an **Offset Body** block to the notebook, and place the “Box” into the body input. For the Distance, add a **Ramp** block. Use the “Grayscale Values” as the Scalar field to add the bitmap pattern to the part. Because this field is unitless and ranges from 0-1, use an In min of 0, and In max of 1. Add an Out Min of 0mm and Out Max of 2mm (the maximum depth) and choose a Geometric Continuity. If you are looking at the “Grayscale Values” field (by typing F), the black color will be the raised texture.

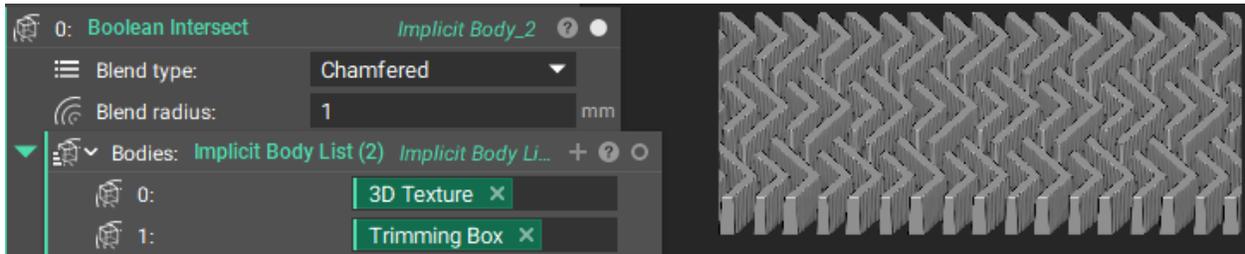




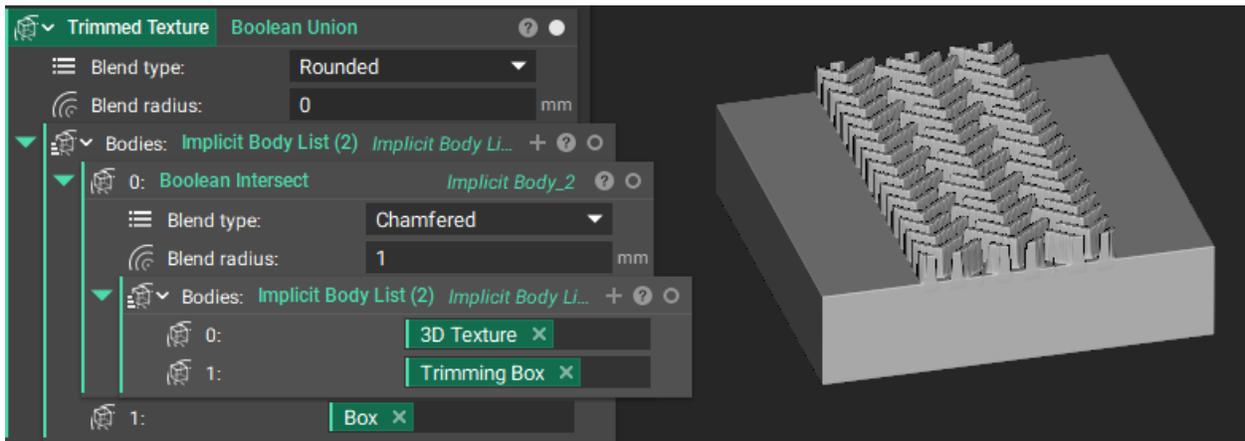
**Step 5:** Make the **Offset Body** block a variable labeled "3D Texture". The entire body has the shape of the texture, so to add this texture to one section, we will need to trim it to only the region we want.



**Step 6:** Use the **Boolean Intersect** block to intersect the “3D Texture” and the “Trimming Box” (in the Geometry section). You may notice some unwanted floating bodies that are created during this process. To remove those areas, you can use a **Smoothen Body** block or use the Chamfered option in the boolean intersect with a blend radius of 1mm (as shown in the image below).



**Step 7:** To create the final design, union the “Box” with the previous boolean intersect. Make this a variable and label it “Trimmed Texture”.

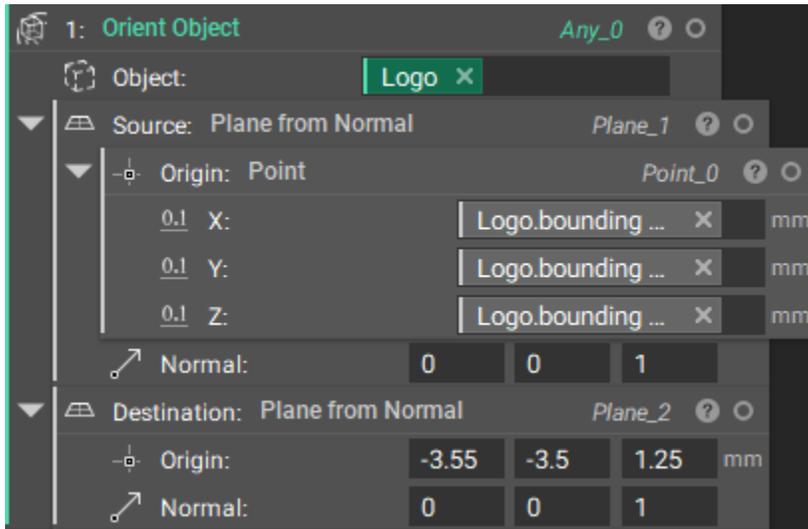


**Step 8:** Next, we will use the **CB Implicit Body from Logo** block to add an nTop logo to this box(found in the Adding Logo Section). Change the Length and Width to 2mm and the Depth to 0.5mm.



**Step 9:** Add an **Orient Object** block to the Adding Logo section to place the logo on the surface of our box. Place in the “Logo” for the object, For the Source Plane input, use a **Plane from Normal** block that has the origin at the centroid in the X and Y of the Logo and the minimum Z

location. You can use the **CB Point from Bounding Box** block (that you can download below this lesson) to get this or use the properties tab for the “Logo”. For the Destination Plane input, choose a location so the logo is in the bottom left and 1.25mm in the z direction.



**Step 10:** Union the oriented logo with the “Trimmed Texture” to create the final design.

