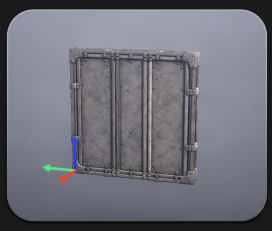
Hivemind’s BuildingSystem ArtKit

Manual for best practices for using the kit and general guidelines.

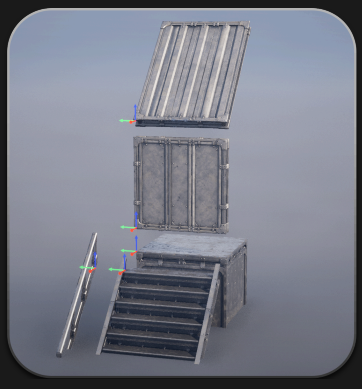
Part 1: Overview on Meshes, Pivots and how to work with them.

Technical specs, Setup and Pivots:

- Kit is built on a 3M grid, with a recommended snap translation of either 1M or 50CM.
- The Pivots are placed on the left, either on the top or on the bottom.



- This way of placement allows for easy building and almost lego like fitness.



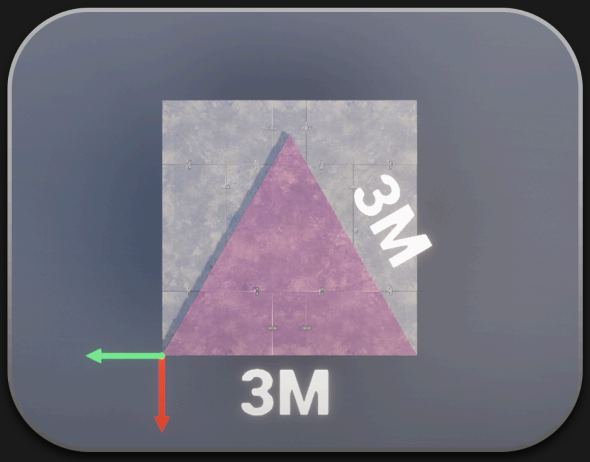
- Meshes were authored with Nanite in mind, therefore being higher poly than normal cases and lacking standard LODs.
- For the Wood and Stone, the High poly count allows for baking custom baked maps thus opening the door for self authoring textures in external DCC tools if needed.

Triangle pieces: How they're build and how to work with them:

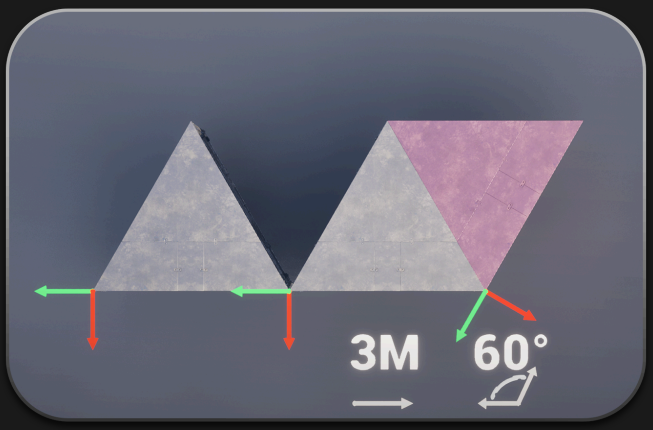
Overview:

- In order to keep all measurements the same and to avoid mesh deformations, the triangle pieces use an equilateral triangle shape with sides equaling 3M. The angle used is 60˚

  This can lead to slightly misaligned pieces if working on a grid and workarounds are a must for proper alignment.

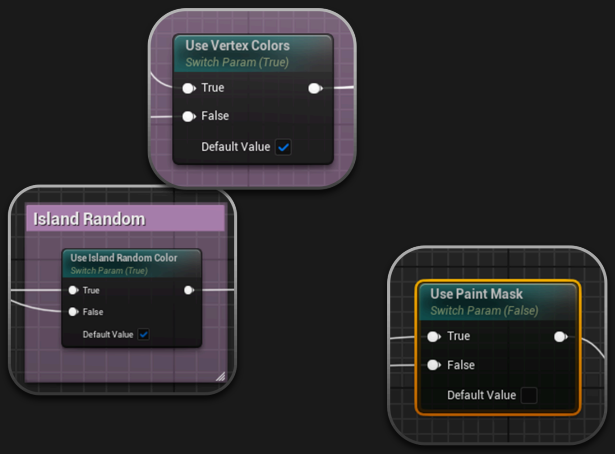


- In order to get proper alignment with rotations it is recommended to use local transforms instead of global and moving in increments along the edges.



Material Setup and UVs

The material allows the usage of both standard and vertex blend workflows, as well as other features by incorporating toggles for all of them.

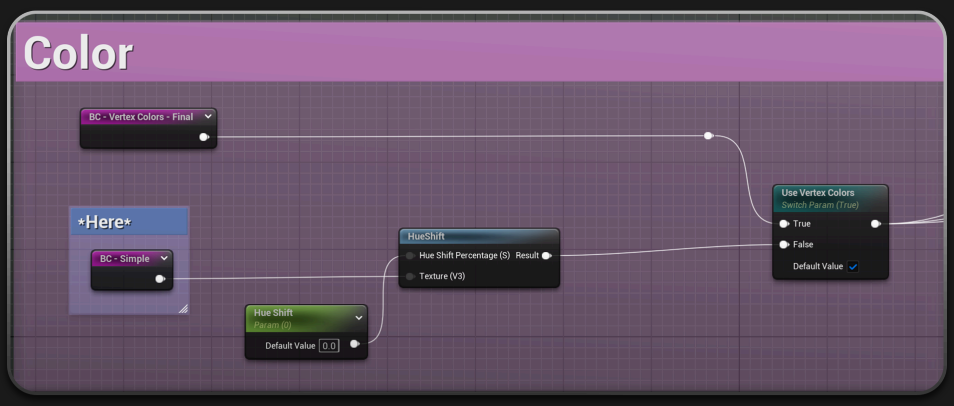


- **Standard workflow:** As an example, all of the metallic parts, including the medieval metal bits, use the standard workflow which ignores all extra features.
- **Vertex Color workflow:** Due to having a higher poly count on some of the meshes, each vertex RGB channel is used for something different.

  The benefit of this is that you can both vary up the detail per mesh that would normally be baked, by vertex painting, either in engine or external DCC package, while also using tiling textures in certain cases and playing around with texel density in places like for example the Wood Kit.

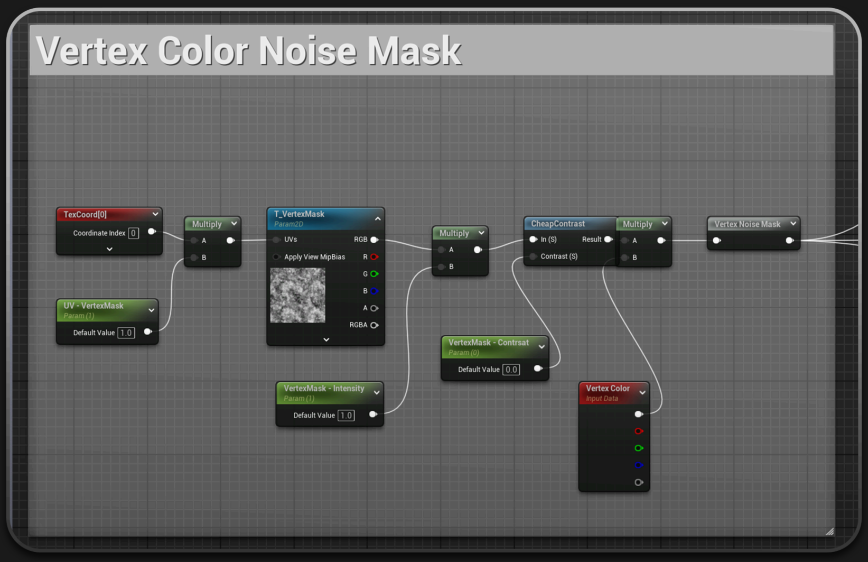
  R - Dirt || G - AO || B - Edge

Each channel has various controls for intensity, opacity and contrast.
All of the vertex blends go in chains and they can be easily toggled on or off at the end of the graph or in the material instance with the “Use Vertex Colors” box.



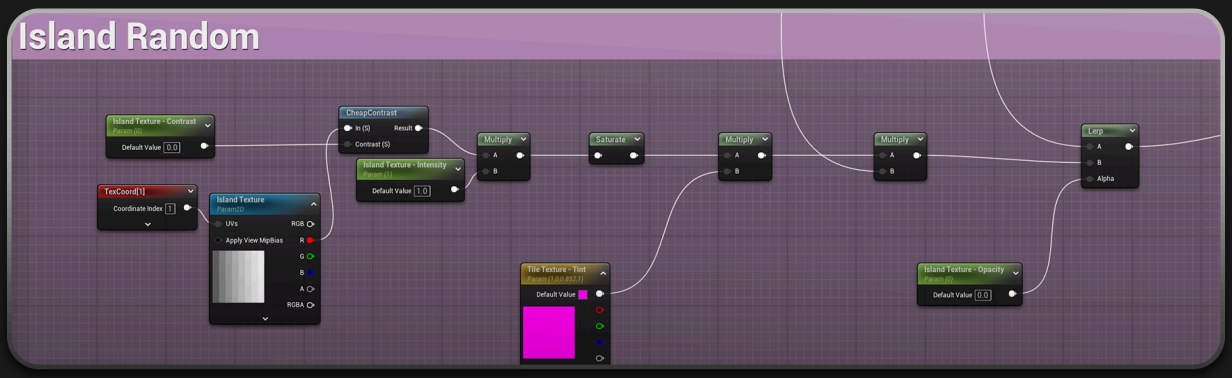
- **Vertex Noise:**

  Besides the normal blends, there is also the option of using an additional Noise texture to spice the edges and add more interest.



- **UV Island Textures:**
  As an optional feature, the Island section uses a 2nd UV channel that mixes in a quantized gradient to either brighten or darken certain islands.
  This can be expanded upon with more procedural ways to vary it up like using the object’s position to randomize the gradient.

  What can also be noticed is that the Island scale in this case is not important, but being inside the gradient strip is. That is to avoid hard edges in obvious places.



- **Virtual Textures:** In order to ensure compatibility with projects VTs are turned Off by default, but to ease transitioning to Virtual Textures, all slots have been marked inside the Master Material with the following box: