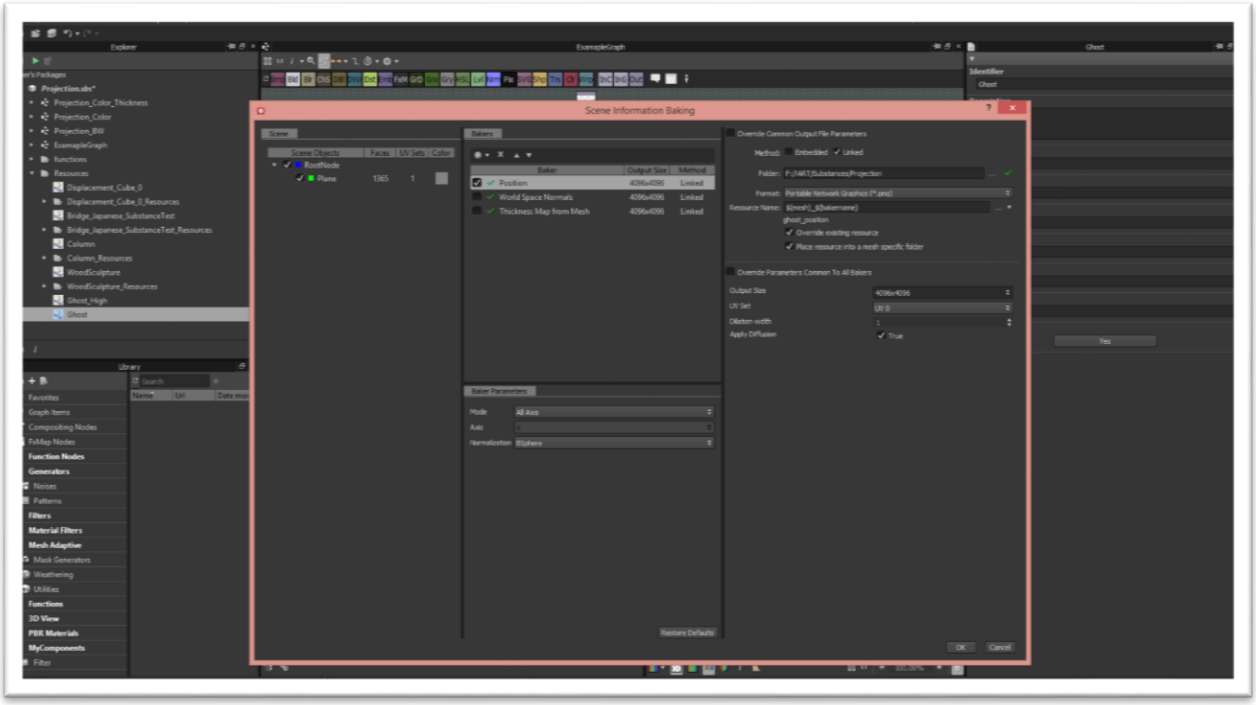
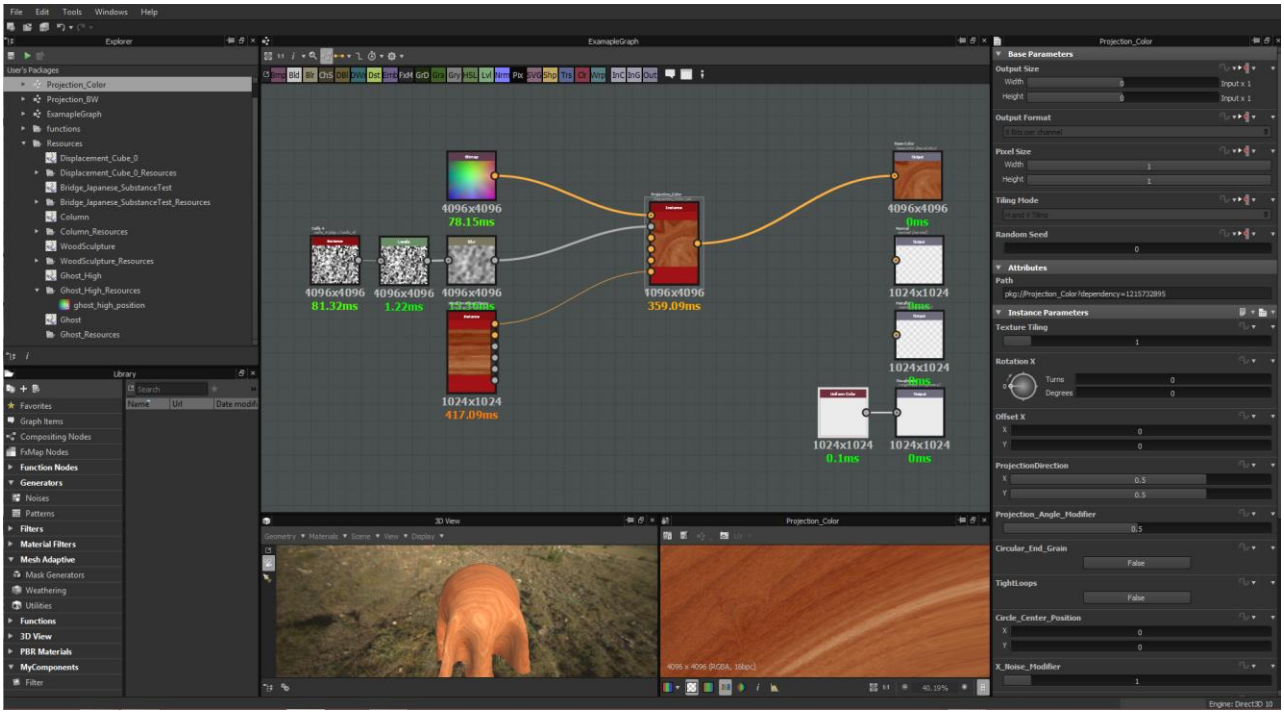
Wood Projection Substance Instructions

The wood projection node works by projecting an input texture from one direction and then wrapping it around the model based on a modified circle formula (√(x^2 + y^2)). The projection can be altered by supplying a noise texture and also individual uv islands can have different circle centers and projection directions base on input maps.



First you need to bake your position map in Substance Designer. You need to bake this map from your high poly mesh if possible for the smoothest results and bake to a minimum resolution of 4096 x 4096. The maps exported to the game engine will end up being smaller than this but a high resolution is required for the projection node to produce as few artifacts as possible. Mode should be set to all axis, Normalization to BSphere, and apply diffusion set to true.



Adjust your projection node settings as required (instructions below) and individually save your base color, normal, etc maps. This node is incredibly performance heavy so rendering out all of the maps at the same time is not recommended.

Node Inputs

Position map - (Required) - baked in SD5.

Noise - A custom noise map.

Offset Parameters - Can be used instead of projection direction (X, Y) and swizzle projection direction (Z) for individual UV islands. For example you can use this to have varying boards in a crate or a barrel.

Circle Offset Parameters - Can be used instead of circle center position(X, Y) and projection angle modifier (Z) for individual uv islands.

Noise Modifiers - Can be used instead of X and Y noise modifiers per uv island.

IN_Texture - (Required) - the texture to be projected over the model. Full material projection (base color, normal, roughness, metallic) is too computationally expensive to be practical at this time.

Node Settings

Projection Direction - X and Y values are used to generate new XYZ coordinates for the position map. Some experimentation will be required to get the right values.

Projection Angle Modifier - Mostly apparent with the circular end grain. Value of 4 or 8 is recommended.

Circular End Grain - True for circular grain. Otherwise the texture is projected from one direction.

TightLoops - Tightens the circular projection resulting in a closer end grain.

Projection noise modifier - Use a setting of 2 for circular deformation

Projection X/Y noise - Use noise texture for deformation

Texture Based Projection Direction - Use texture or sliders for projection direction

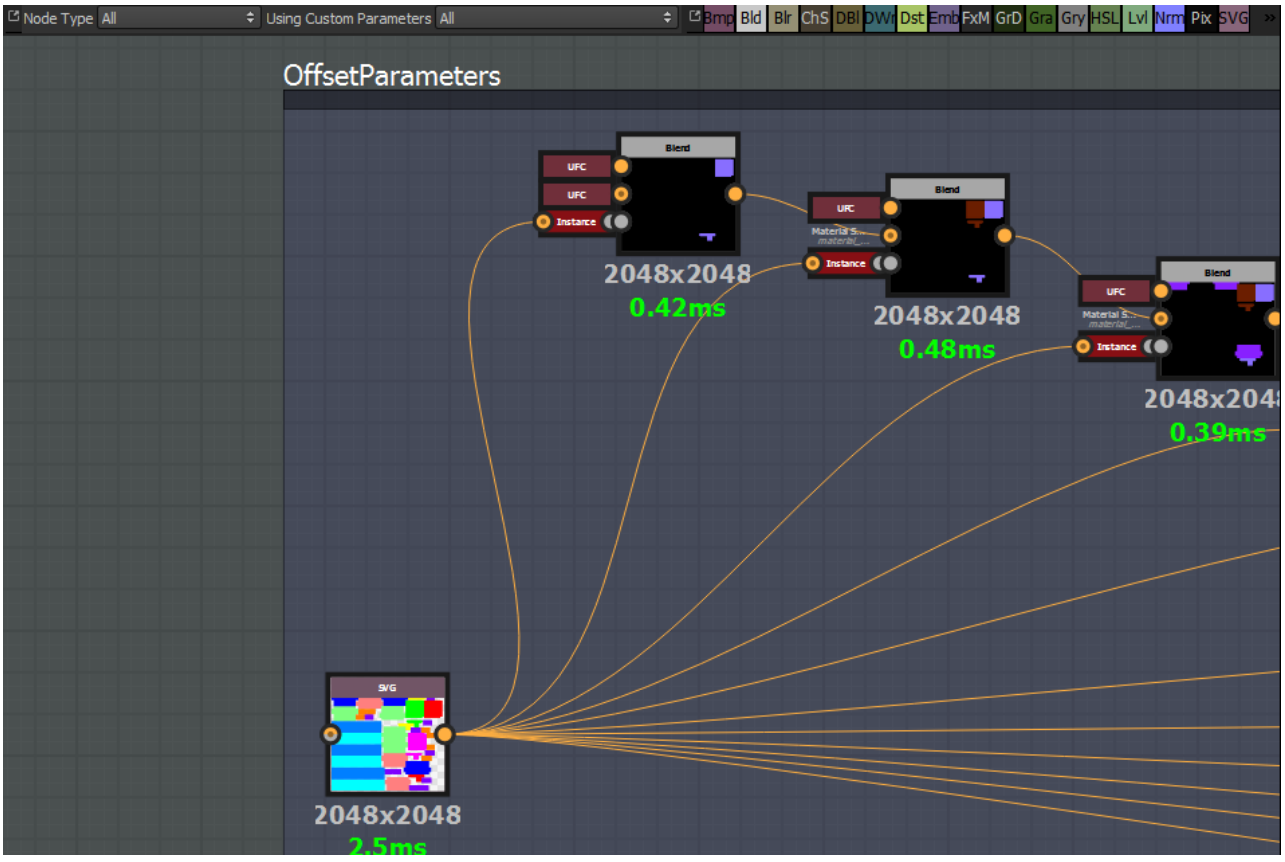
Texture Based Noise - Use texture or sliders for noise distortion amount

Texture Based Circle Center - Use texture or slider for circle center

Swizzle Up Vector - Rotate up projection vector by 90 degrees. May be helpful to project at some angles.

Advanced Setup

A complicated object consisting of several planks can have each plank individually projected by using input textures to determine projection direction and circle centers. To simplify this an svg mask can be baked in SD that separates each UV island by material color. These colored islands can be used to generate masks for the offset parameters and circle offset parameters inputs. An example of this is included in the Bridge example graph.



For question or comments feel free to contact me at invertedburritogames@gmail.com