



UE4之地形及环境特效的 制作与表现

地形 流程化 体积

Volumetric Fog / Cloud

Lansmass Brush

Erosion

Niagara Procedural Particles

Volume Material

Quixel Megascan



Volumetric Fog / Cloud

体积雾/云

Lansmass Brush

地形笔刷

Erosion

侵蚀

Niagara Procedural Particles

流程化粒子系统

Volume Material

体积材质

控制

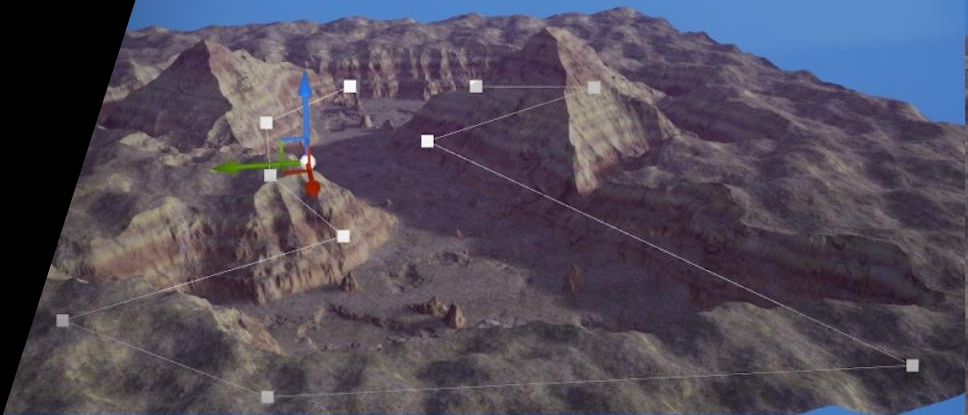
灵活

即时

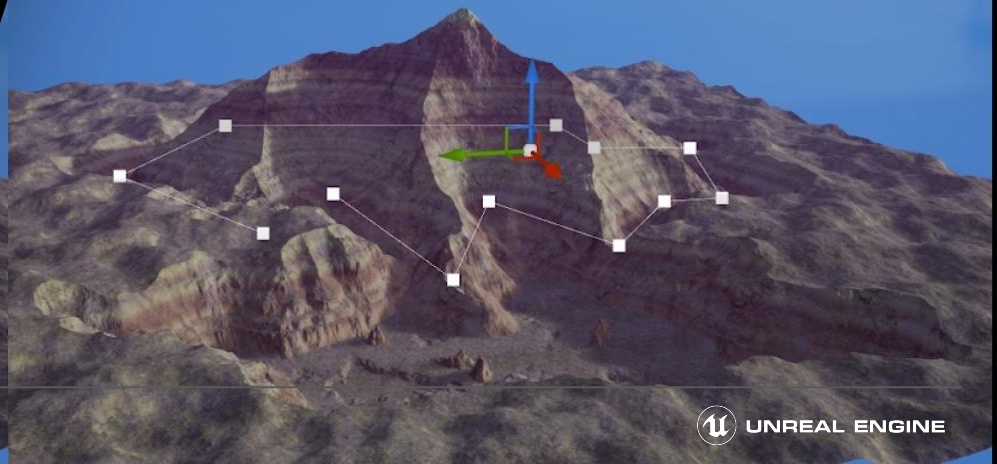
多层

Landmass

Canyon Brush on Top



Mountain Brush on Top



Editing Tools: **Landscape**

缩放性意味着:

让 **手工编辑** 更强大:

大可移山 vs 小可接木

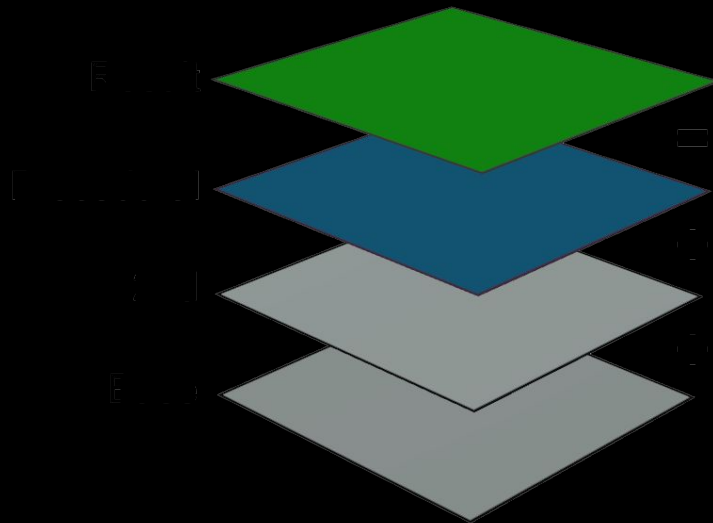
或 **流程化** 生成的内容:

草实木等素材的自动放置

Landscape: New Layer System

4.23 地形分层系统

所有的数据都可以分层存放

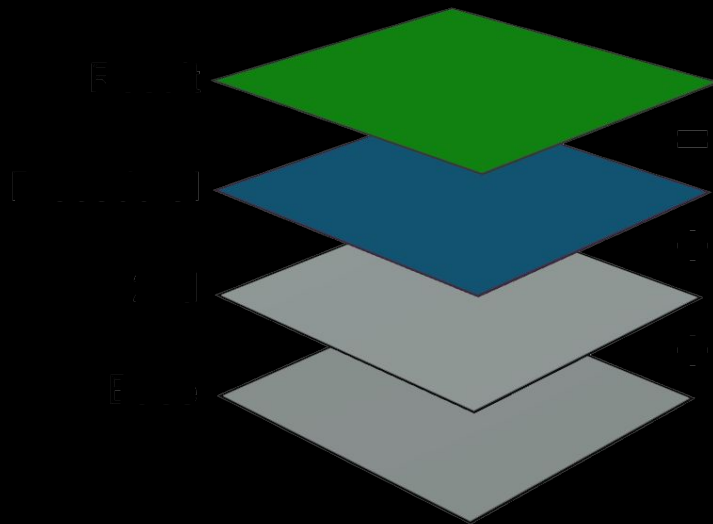


Landscape: New Layer System

用层来给数据分类

实力:

- Blockout Layer
- Spline Layer
- 地基 Layer

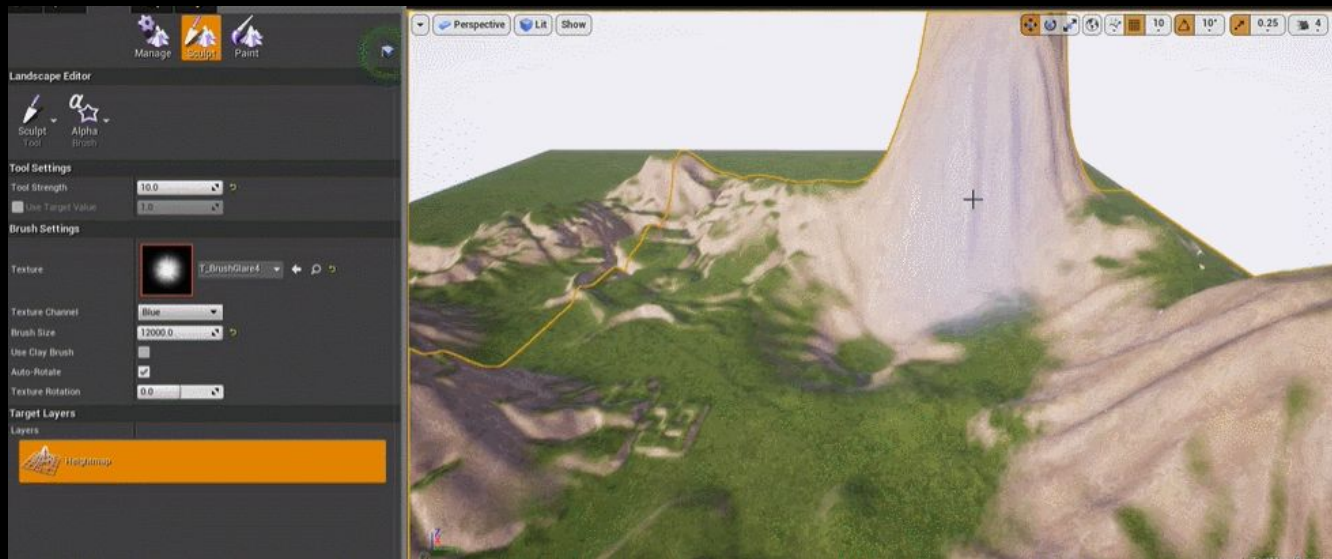


Blockout

Houdini procedural generation

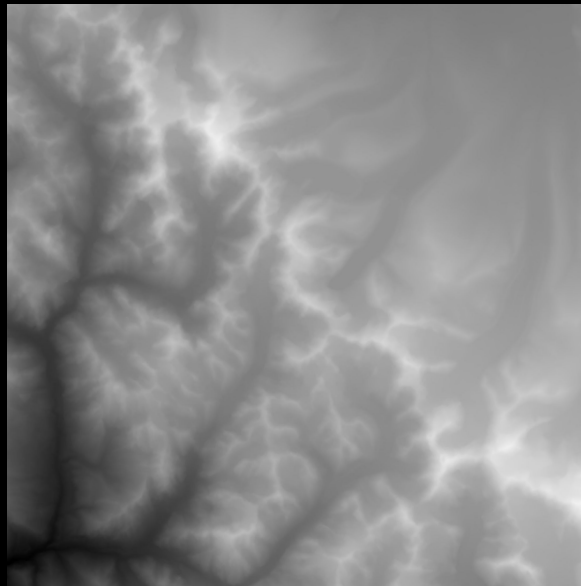
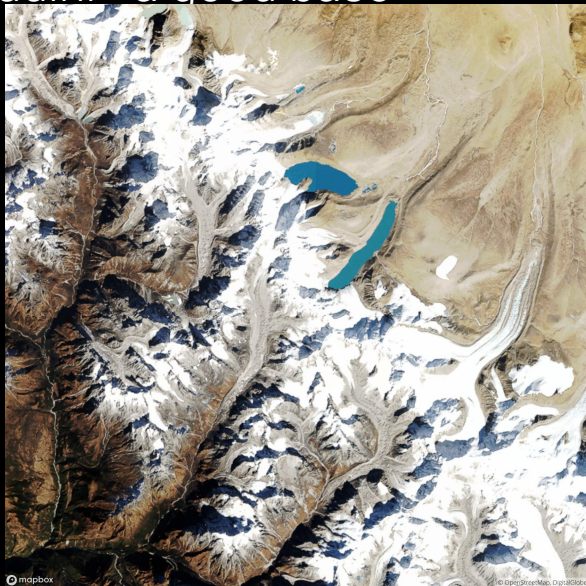
Material only brush

Alpha 笔刷



Houdini SideFX Labs

Houdini - a good base

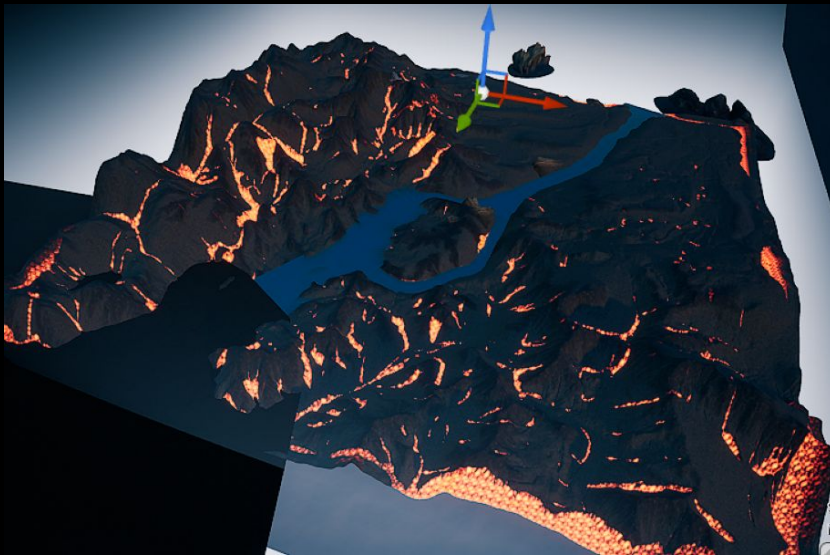
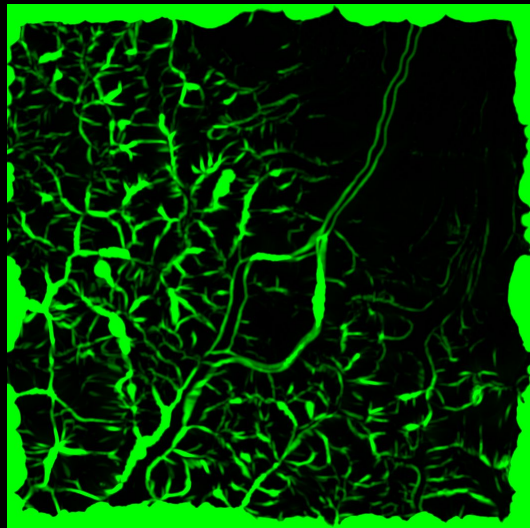


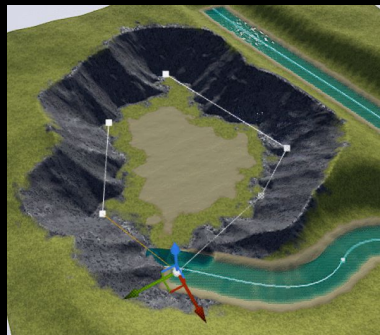
Erosion tool

Niagara + Landmass Brush 实现环境特效

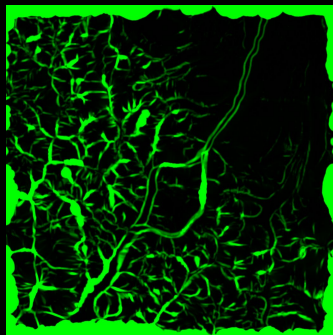


Landmass Brush

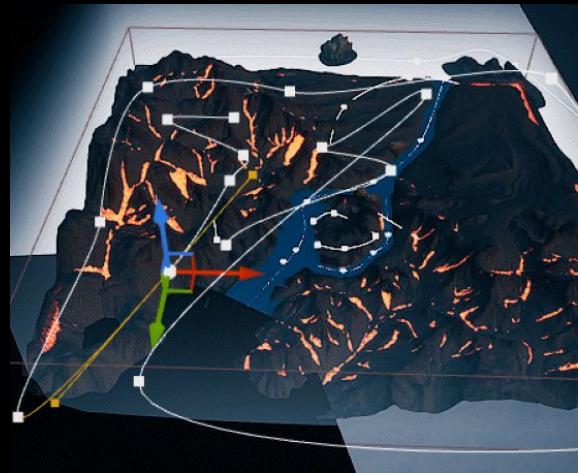


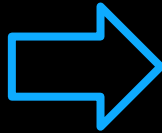


Landscape Brush



Erosion Map





445 Particles

Search the stack

NE_LavaGen

- Emitter Settings
 - Emitter Properties
 - Emitter Spawn +
 - Emitter Update +
 - Emitter Life Cycle
 - Spawn Rate
 - Particle Spawn +
 - Set Variables
 - Sample Texture
 - Initialize Particle
 - Lava Gen Texture Sample
 - Dynamic Material Parameters
 - Particle Update +
 - Update Age
 - Wind Force
 - Solve Forces and Velocity
 - Add Event Handler +
 - Render +
 - Sprite Renderer

EMITTER

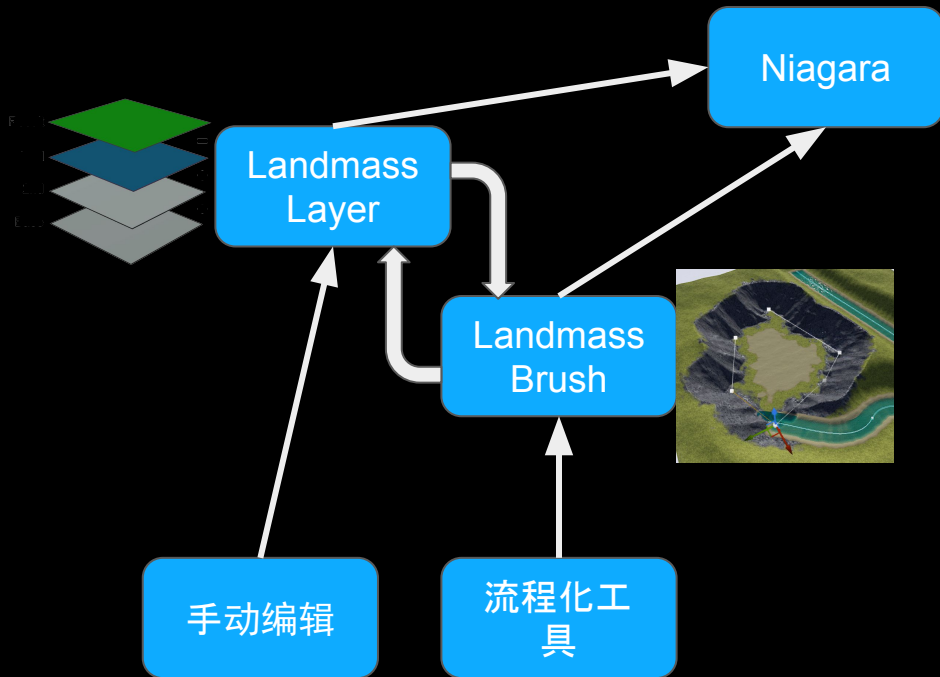
Lava Gen Texture Sample

Inputs

- KillNonLavaPart
- LandscapeHalf 102000.0
- LandscapeHeight Texture Sample
 - Texture Niagara_Heightmap
- LandscapeHeight 19716.015625
- LavaMask Texture Sample
 - Texture RT_LavaMask_Tex1
- MinValueForSpr 0.1
- PositionZOffset 0.0

Outputs





Volumetrics





Mesh Voxelization / Fluid Simulation
by Ryan Brucks

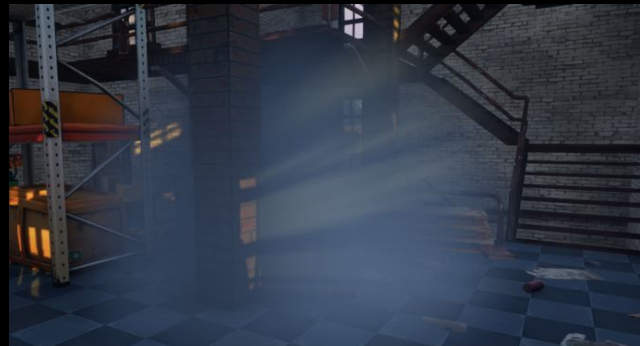
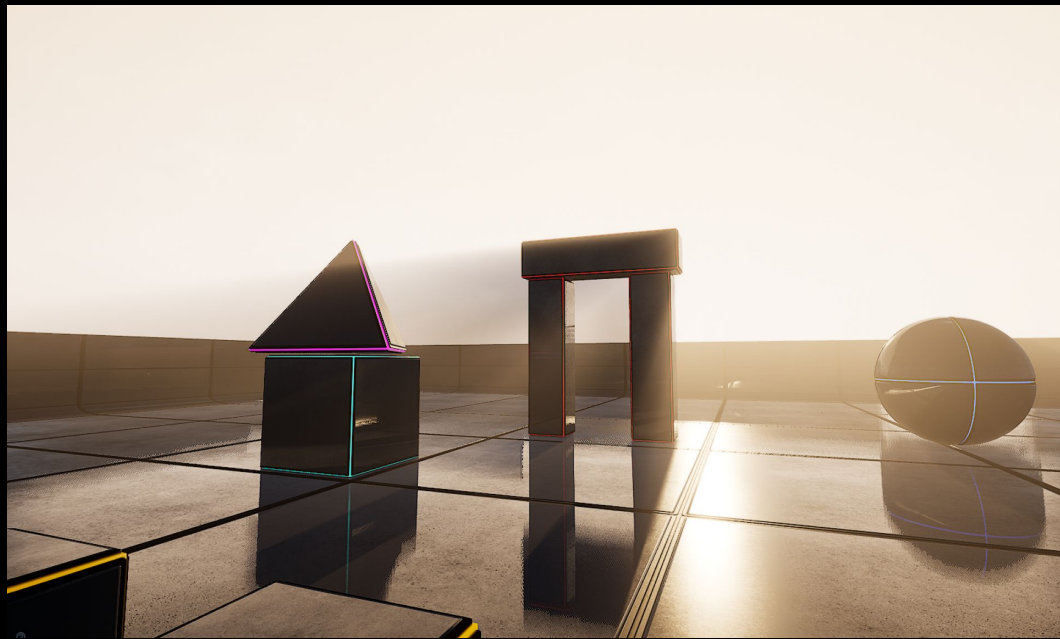
<http://shaderbits.com>

Volumetric Fog



Why volumetric fog

- Volumetric
- Engine feature. Interacts with every light
- And every mesh
- Efficient vs raymarching shadowed
- Volume Material





The Visual Technology of Gears 5 | Unreal Dev Days 2019 | Unreal Engine



Watch later



Share



EVENT COVERAGE

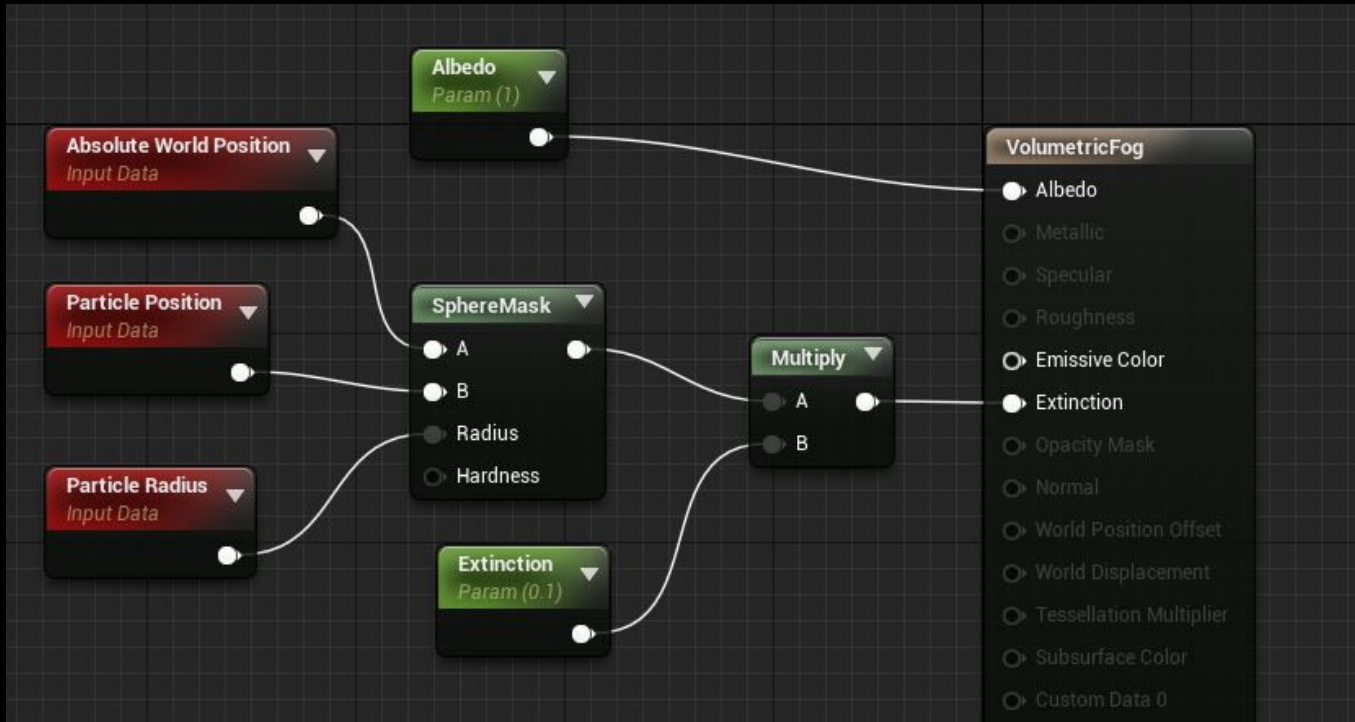
Shaped by **Distance Field**



Shaped by **Heightmask**

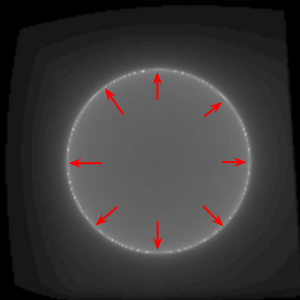
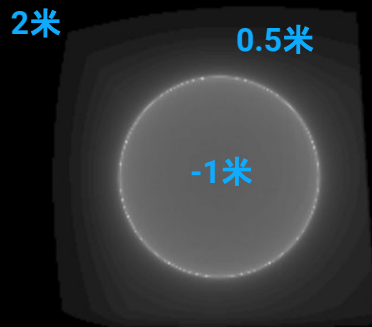
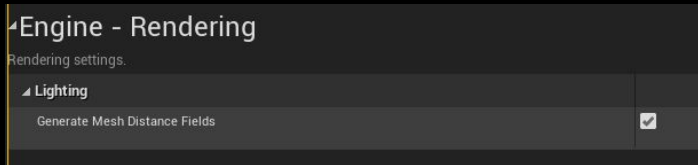






Distance Field 距离场

距离最近的表面多远
作为3D Texture存储

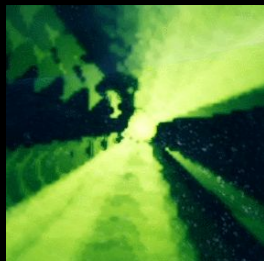


Temporal Supersampling

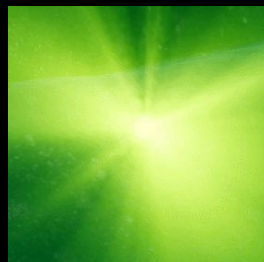
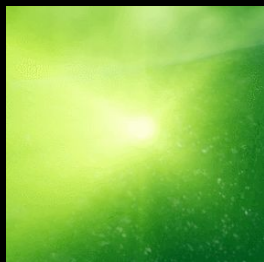
可视距离50000

可视距离5000

Temporal Reprojection 关

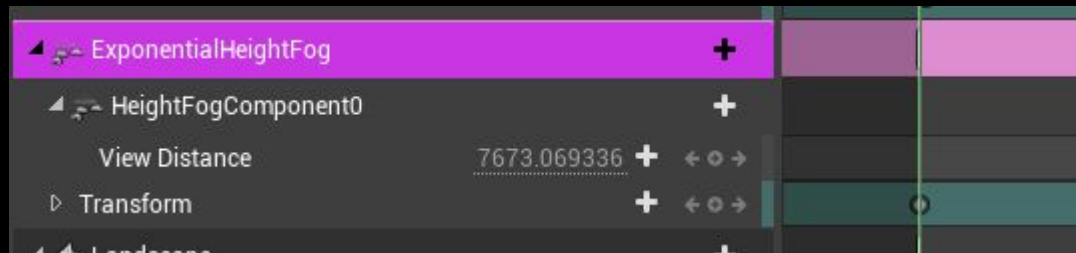


Temporal Reprojection 开



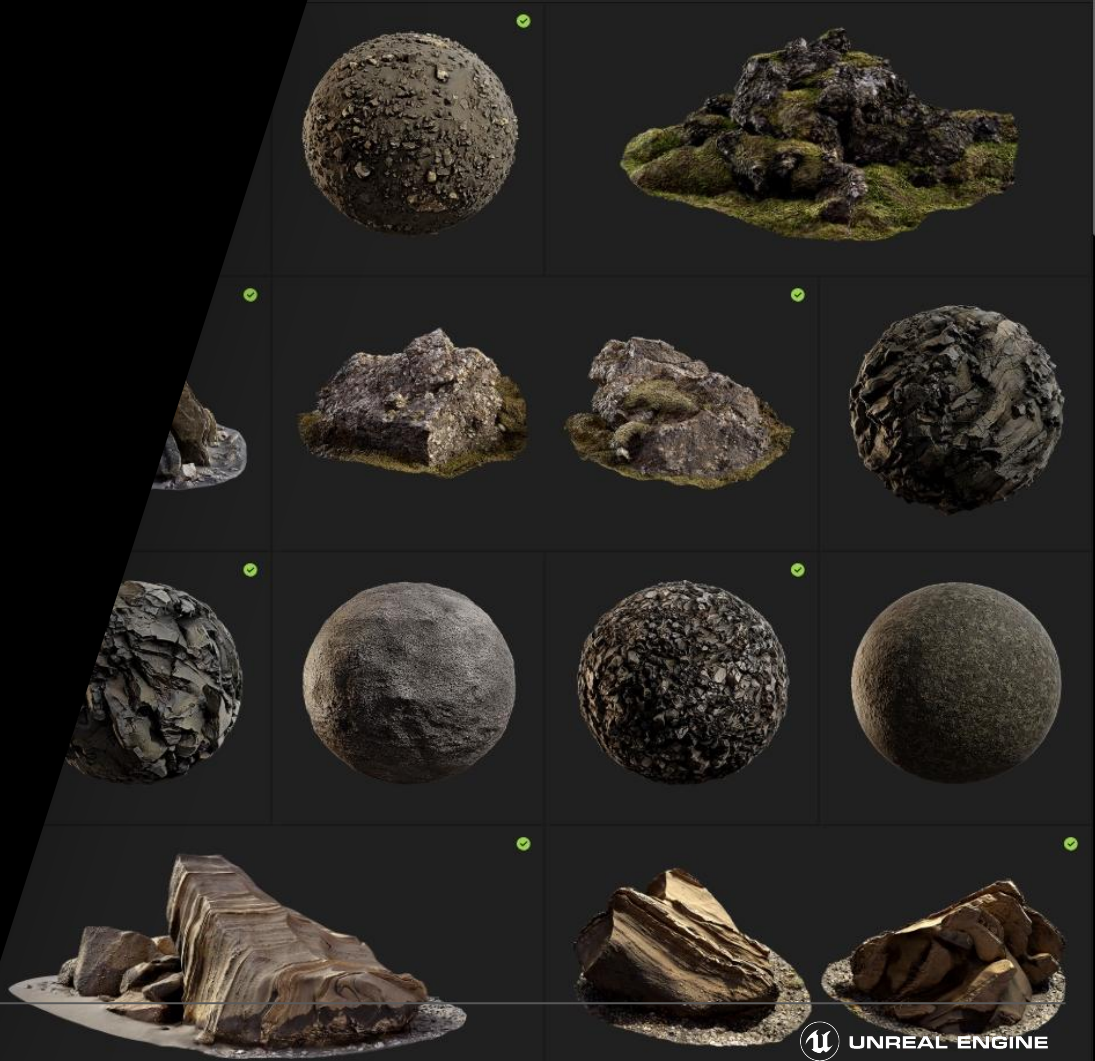
r.VolumetricFog.TemporalReprojection 0

r.VolumetricFog.GridSizeZ 1024





Bonus: Quixel Megascan



LOD

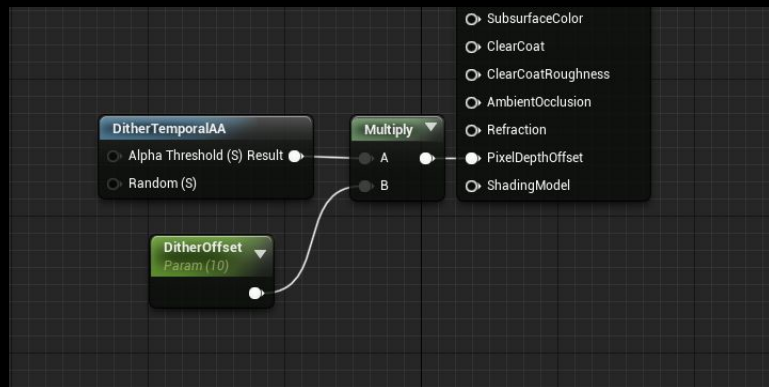
The screenshot shows the Unreal Engine Marketplace interface for the asset "Damaged Castle Stairs". The asset is rated 4 points. The interface is divided into several sections:

- Asset Info:** Shows the asset name "Damaged Castle Stairs" and a "Report Issue" link.
- Download Settings:** A table with three rows: "Texture Resolution" set to "8K", "Material Preset" set to "Custom", and "Mesh Format" set to "FBX".
- LOD Settings:** A list of LOD levels with their respective triangle counts and checkboxes for various options. The "Highpoly Source" option is checked and circled in blue.

Texture Resolution	Material Preset	Mesh Format
8K	Custom	FBX

LOD Level	Triangle Count	Multiple Albedos	Multiple Normals	Source ZTool	Brushes	Highpoly Source
LOD 0	17870 tris	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
LOD 1	14296 tris	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
LOD 2	11436 tris	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
LOD 3	9148 tris	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
LOD 4	3099 tris	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
LOD 5	1099 tris	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

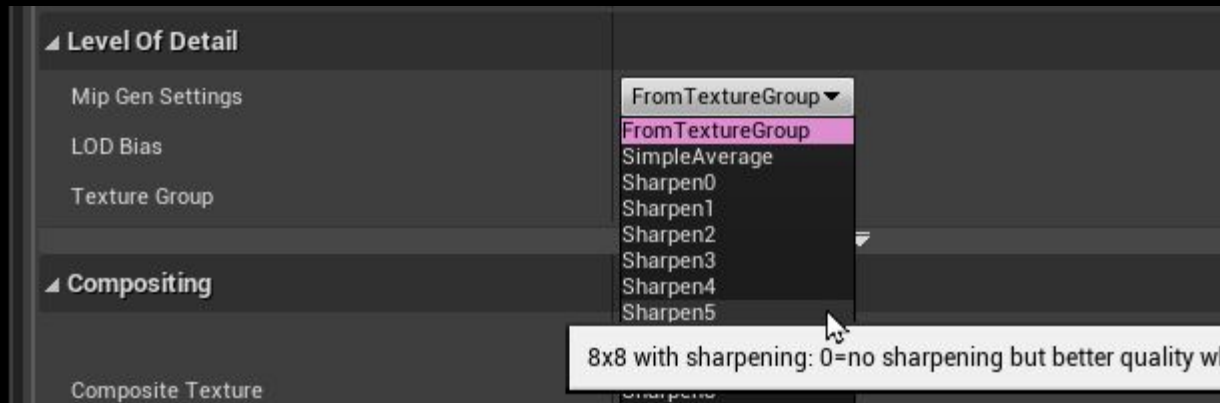
Blending - Depth Offset



Depth - Virtual Texture



r.Tonemapper.Sharpen 3
r.ScreenPercentage 120





Thank you!

<http://Asher.GG>

Twitter: @Vuthric

Asher.Zhu@epicgames.com