

Project 2: Procedural Modeling - Complex Scene

Title: The Tajikistan Mountain

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Houdini Version: 19.0.352

Average render time: 35:48

Resolution: 360*720

Samples: 4

Noise value: 0.01

Min Ray Samples: 3

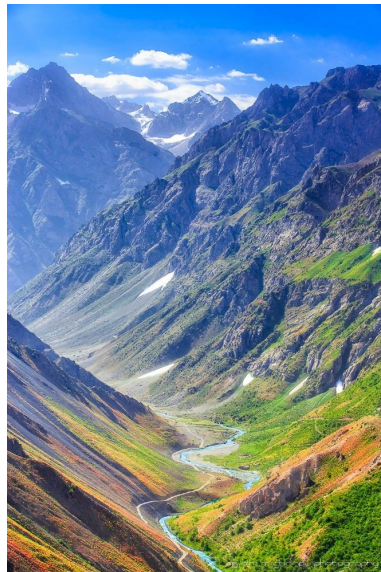
Max Ray Samples: 13

Number of lights in scene: 2

Complexity of geometry (approximate):

Name	Points	Primitives	Vertices	Volumn
Tajikistan_Mountain	13	13	13	13
Rocks	1609	1609	1609	1609
BushesRight	4016	4016	4016	4016
BushesLeft	396	396	396	396

Description of project:

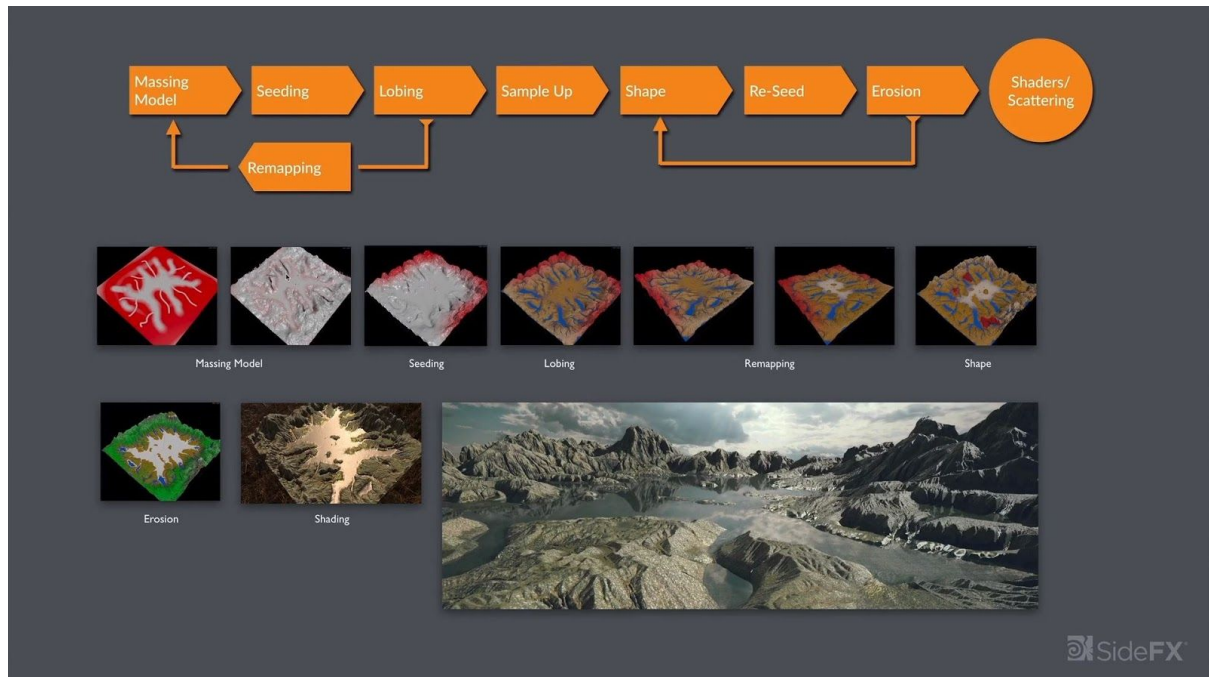


My intention was to recreate a mountain that was inspired by a photo of Tajikistan Mountain in Mongolia. Besides the mountain itself, the elements of bushes and rocks are also included in the scene. Heightfield tools were being used to create the presentation of Tajikistan Mountain, and copy to point was used to randomly distribute the bushes and rocks after using heightfield scattering from the mask of the mountain.

Process:

In Tajikistan Mountain (container)

After watching several tutorials about heightfield in Houdini, here is a suggested workflow I learnt from a masterclass.



Massing Model: I first created the scratch from a map of the Tajikistan Mountain that I downloaded from terrain.party. After added a noise node, I then combine it with another three heightfield noise nodes with different painted area to create the basic form of terrain gradually.

Seeding: Use heightfeild distorted by noise node to add more details to terrain.

Lobing: First erode node was used to break up big trunk of terrain.

Remap: After remapping the values in heighfield, I then repeat the three steps as the workflow shown.

Sample Up: I used mask by feature node to mask only the upper area of terrain and then sample it up by using the distort by noise node. Slump and draw mask was used to create slump on the area that I prefer.

Shape: Terrace node was used to shape the terrain on the area that I painted, I then distorted it to have less regular looking. Then slump node was used again to create slump on the terrace.

Reseed: I then created another terrace with smaller trunk to add more details on the mountain along with another noise node make it more interesting.

Blur slope: I masked out the lower part of the mountains and blur it in accordance with the reference picture.

Erosion: Last erosion to create more debris and water.

More detail: added up more details with distort nodes again.

Add snow: Used mask by feature to mask the area that I want to shade as snow, then by using copy layer node to create a new layer(snow) with the heightfield.

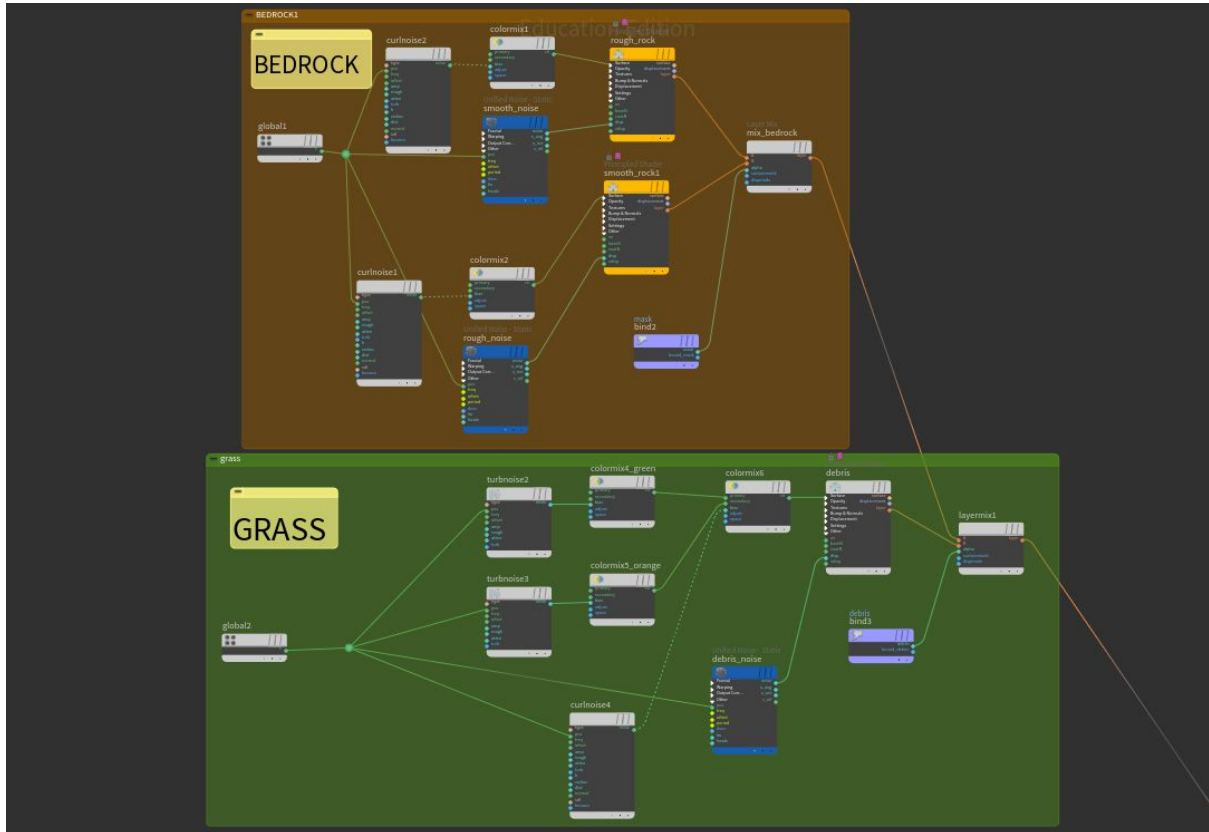
Points for bushes and rocks: I first masked out the area that I want to place the elements by using paint and mask by feature node. Then create points from mask by using heightfield scatter and output the points.

In rocks/bushesRight/bushesLeft:

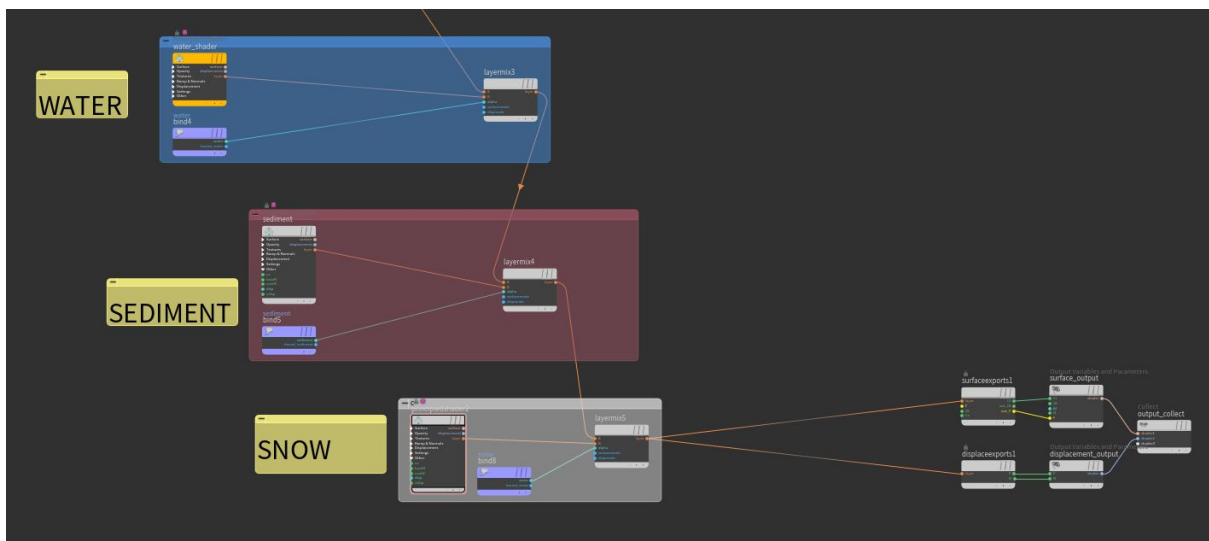
1. Import points, then used pointwrangle to randomize the point scale.

2. Delete all the points that are not within the bounding box(visible range from camera). Culled geometry by applying the tips and tricks example.
3. Cope sphere(mountain node added to shape form, then packed) to the points.
4. Apply material.

Terrain Shader:



Bedrock&grass: curlnoise nodes were used to create variance of the base color, colors can be change in the colormix node. I then mixed the rough and smooth texture with mask by layermix.



Water, sediment&snow: Since these elements would hardly pay attention to, therefore I just adjusted the color, roughness and reflection.

And the end, I created a surface and displacement export node to connect the layers to the output.