ROCKGEN 2024 is a procedural lowpoly rock and stone generator based on a noise system. With settings such as Detail Level, Down Force, Down Force Direction, Vertex Position Influence, NoiseScale, NoiseStrength, Tilt Angle, Surface Type and then More, you can create different rock shapes. It also supports the creation of a single rock as well as clusters around it. Cubic rocks are also supported.

Version 1.0.1

Before use:

Before using ROCKGEN 2024, ensure that you have the necessary dependencies installed. Follow these steps to install the required FBX Exporter from the Unity Package Manager:

1. Open Unity and navigate to the "Window" menu.
2. Select "Package Manager" from the dropdown menu.
3. In the Package Manager window, ensure that the "Unity Registry" is selected from the dropdown menu at the top left corner.
4. Search for "FBX Exporter" in the search bar located at the top right corner.
5. Once found, click on the "FBX Exporter" package to select it.
6. Click on the "Install" button to begin the installation process.
7. Unity will download and install the FBX Exporter package. Once the installation is complete, you will see a confirmation message.

After successfully installing the FBX Exporter package, you can start working with ROCKGEN 2024.

Shaders:

- ROCKGEN 2024/ROCKGEN Shaders/: Contains shaders for different rendering pipelines.

Configuring Materials:

- Built-in Rendering Pipeline
  - Navigate to ROCKGEN 2024/ROCKGEN Materials/.
  - Select the material you want to configure for the Built-in rendering pipeline.
  - In the shader selection menu, choose Custom/RockGenShader.
- Universal Render Pipeline (URP)
  - Navigate to ROCKGEN 2024/ROCKGEN Materials/.
  - Select the material you want to configure for the URP.
  - In the shader selection menu, choose ShaderGraphs/RockGenShader_URP.

Additional Notes: Ensure that you have the appropriate rendering pipeline (Built-in, URP) set up in your Unity project before configuring materials. For URP, make sure you have Shader Graph installed and configured in your project.

Exporting Meshes:

To export meshes of rocks in your scene, follow these steps:

1. Select Meshes: In the Unity Editor, select the rocks whose meshes you want to export. You can select multiple rocks by holding down the Shift or Ctrl key while clicking on them.
2. Export To FBX: With the rocks selected, navigate to the `GameObject` menu at the top of the Unity Editor. From the dropdown menu, select `Export To FBX`.
3. Specify Export Options: A window will appear allowing you to specify export options. Choose a name and location for the exported FBX file. Ensure that the `Include` option is set to `Models and Animation` to export both the meshes and any associated animations, if applicable.
4. Export: Once you have specified the export options, click the `Export` button to initiate the export process. Unity will then export the selected rocks' meshes to the specified location in FBX format.
5. Verify Export: After the export process is complete, navigate to the specified location in your file system to verify that the FBX file containing the exported meshes has been created successfully.

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Mesh Combiner:

The RockMeshCombiner script provides a convenient way to combine multiple meshes into a single mesh within Unity. Necessary if you want to export a rock cluster's mesh.

Installation:

Attach the RockMeshCombiner script to a GameObject in your Unity project. Optionally, customize the script parameters in the inspector.

Mesh Combination:

1. Ensure that the GameObject contains child objects with MeshFilter components representing the meshes to be combined.
2. Adjust the addAttributeToName parameter to specify whether to add attributes to the combined mesh's name.
3. Click the "Combine Meshes" button in the inspector to trigger the mesh combination process.

Upon combining meshes, a new GameObject named either after the parent GameObject or with appended attributes will be created. The combined mesh will be assigned to the new GameObject, maintaining the hierarchy and transformations of the original meshes.

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Rock Subdivision Utility:

Features:

- Iterations Control: Adjust the number of subdivision iterations to control the level of detail.
- Boundary Interpolation: Choose from different boundary interpolation methods for smoother results.
- Undo Support: Utilize Unity's built-in undo system to revert changes if necessary.

Opening the Utility:

Access the Rock Subdivision Utility from the Unity Editor menu by navigating to "ROCKGEN 2024" > "Rock Subdivision."

Select & subdivide Rock Objects:

Upon opening the utility, the selected rock objects in the scene will be displayed. Ensure that the desired rock objects are selected in the Unity Editor before using the utility.

Click the "Subdivide" button to initiate the subdivision process. The utility will apply the subdivision algorithm to each selected rock object based on the specified parameters.

Generation of Single Rocks:

The RockGen script is a key component for generating low-polygon rocks and stones.

- Global Parameters: Control main material, detail level, downforce, and noise seed for generating rocks.
- Surface Parameters: Define surface shape, segment count, segment radius, and segment scale curve.
- Downforce Customization: Customize downforce direction, influence, curve, and threshold.
- Stone Size Settings: Adjust offsets, rotations, and scales along X, Y, and Z axes.
- Advanced Settings: Enable Perlin noise for surface variations and define noise scale and strength.
- Tilt Settings: Set tilt angle, axis, and pivot point for tilting operations.

List of rock generation parameters:

- Main Material (Material):
  - Purpose: Specifies the main material to be applied to the generated rocks.
- Detail Level (int):
  - Purpose: Determines the level of detail for the generated rocks. Higher values result in more detailed rocks.
- Down Force (float):
  - Purpose: Modifies the subsidence forms of the generated rocks.
- Noise Seed (int):
  - Purpose: Specifies the noise seed distribution for generating variations in the rocks' surfaces.
- Surface Type (Enumeration (SurfaceShape: Box or Noise)):
  - Purpose: Defines the shape type or modifier specifying the form of the rock surface.
- Segment Count (int):
  - Purpose: Determines the number of modifications or segments of the rock surface.
- Segment Radius (float):
  - Purpose: Specifies the influence radius for generating scale segments on the rock surface.
- Down Force Customization (bool):
  - Purpose: Toggles the use of additional effects such as downforce curve and downforce threshold.
- Down Force Direction (Vector3):
  - Purpose: Specifies the direction of the downforce applied to the rocks.
- Vertex Position Influence (float):
  - Purpose: Modifies the influence of downforce based on vertex position.
- Down Force Curve (AnimationCurve):

    - Purpose: Defines a curve for customizing the downforce effect on the rocks.
- Down Force Threshold (float):
    - Purpose: Specifies the threshold value for the downforce effect on the rocks.
- Use Random Down Force Direction (bool):
    - Purpose: Toggles the use of a random downforce direction for the rocks.
- Down Force Random Seed (int):
    - Purpose: Specifies the randomness seed for generating the downforce direction.
- X/Y/Z Axis Offset (float):
    - Purpose: Specifies the offset along the X/Y/Z axis for positioning the rocks.
- X/Y/Z Rotation (float):
    - Purpose: Specifies the rotation around the X/Y/Z axis for orienting the rocks.
- X/Y/Z Scale (float):
    - Purpose: Specifies the scale along the X/Y/Z axis for resizing the rocks.
- Use Perlin Noise (bool):
    - Purpose: Toggles the use of Perlin noise for generating surface variations on the rocks.
- Noise Scale (float):
    - Purpose: Specifies the scale of the Perlin noise effect.
- Noise Strength (float):
    - Purpose: Specifies the strength of the Perlin noise effect on the rocks.
- Tilt Angle (float):
    - Purpose: Specifies the angle of tilt around the selected tilt axis for the rocks.
- Tilt Axis (Vector3):
    - Purpose: Defines the axis around which the rocks tilt.
- Tilt Pivot Point (Vector3):
    - Purpose: Specifies the pivot point for the tilt operation on the rocks.

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Rock Cluster Generation:

The RockCluster script is a component designed for creating clusters of rocks within a Unity scene. It is part of the ROCKGEN 2024 toolset and works in conjunction with the RockGen component to generate customizable rocks.

Features:

- Dynamic Rock Generation: Automatically generates clusters of rocks based on specified parameters.
- Customization: Allows users to adjust various parameters such as the number of fragments, ground level, placement radius, and more.
- Integration with RockGen: Utilizes the RockGen component to control the appearance and characteristics of individual rocks within the cluster.
- Editor Tools: Provides editor-only tools for easier setup and visualization of placement parameters.
- After generating the cluster, you have the flexibility to rearrange and modify its individual components using standard Unity Editor actions. This includes the ability to move, rotate, resize, and adjust the parameters of each rock part individually through the associated RockGen component.

List of cluster generation parameters:

- numberOfFragments (int):
    - Purpose: Determines the number of rock fragments to generate in the cluster.
- groundLevel (float):
    - Purpose: Sets the base level at which the rocks will be placed. Rock fragments will be randomly distributed around this ground level within the specified deviation.
- minDeviation (float):
    - Purpose: Specifies the minimum deviation from the ground level at which the rocks will be placed. Provides variation in height for the generated rocks.
- maxDeviation (float):
    - Purpose: Specifies the maximum deviation from the ground level at which the rocks will be placed. Provides variation in height for the generated rocks.
- minPlacementRadius (float):
    - Purpose: Sets the minimum distance from the center at which rock fragments can be placed. Rocks will not be generated closer to the center than this value.
- maxPlacementRadius (float):
    - Purpose: Sets the maximum distance from the center at which rock fragments can be placed. Rocks will not be generated farther from the center than this value.
- sizeCurve (AnimationCurve):
    - Purpose: Defines the curve that determines the size of the generated rocks based on their distance from the center. Allows users to control the size distribution of the rocks.

- sizeDeviation (float):
    - Purpose: Specifies the amount of deviation allowed from the size defined by the size curve. Adds randomness to the size of the generated rocks.
- randomizeXRotation (bool):
    - Purpose: Determines whether to randomize the X-axis rotation of the generated rocks.
- randomizeYRotation (bool):
    - Purpose: Determines whether to randomize the Y-axis rotation of the generated rocks.
- randomizeZRotation (bool):
    - Purpose: Determines whether to randomize the Z-axis rotation of the generated rocks.
- xRotationRange (Vector2):
    - Purpose: Sets the range of random rotation values around the X-axis for the generated rocks.
- yRotationRange (Vector2):
    - Purpose: Sets the range of random rotation values around the Y-axis for the generated rocks.
- zRotationRange (Vector2):
    - Purpose: Sets the range of random rotation values around the Z-axis for the generated rocks.
- centerOffset (Vector3):
    - Purpose: Specifies an offset from the center of the rock cluster where the rocks will be generated. Allows users to adjust the position of the generated rocks relative to the center.

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Thank you for choosing ROCKGEN 2024 to enhance your Unity projects! If you have any requests, questions, or feedback, please don't hesitate to reach out to us. You can contact us via email at philunitypublisher@gmail.com or join our community on Discord at https://discord.com/invite/NqcZJE5HYF

Happy rock crafting!

https://wiskered.com/