12.1.17 Editors - Geometry Nodes Editor - Header - Add Menu - Point

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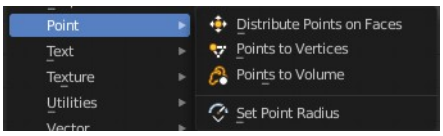
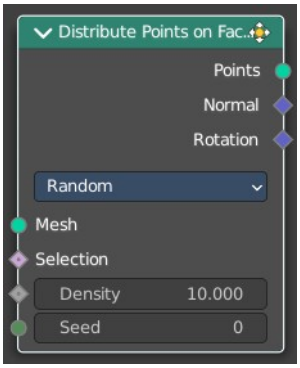
Add menu - Point



Distribute Points on Faces

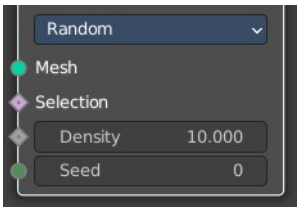


Distributes points randomly on the faces of a mesh geometry.

Point, corner and polygon attributes of the input geometry are transferred to the generated points. That includes vertex weights and UV maps. Additionally, the node has Normal and Rotation outputs.

The node also generates a stable ID, which is then stored in the built-in id attribute. It is used as a stable identifier for each point. When the mesh is deformed or the density changes the values will be consistent for each remaining point. This attribute is used in the Random Value and Instance on Points nodes.

Inputs Random mode



Mesh

Standard geometry input.

Selection

The selection of which face corners should be considered for point distribution.

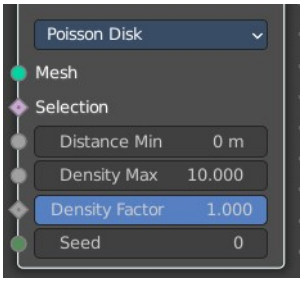
Density

Density of the points.

Seed

The random seed for the point distribution.

Inputs Poisson Disk mode



Mesh

Standard geometry input.

Selection

The selection of which face corners should be considered for point distribution.

Distance Min

The minimum distance that two points can have.

Distance Max

The naximum distance that two points can have.

Density Factor

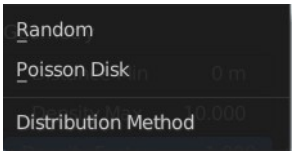
Density of the points.

Seed

The random seed for the point distribution.

Properties

Distribution method



Random

Distributes the points randomly. This allows overlappings.

Poisson Disk

Distributes the points randomly, but prevents overlappings by defining a minimum and maximum distance.

Output

Points

Points output.

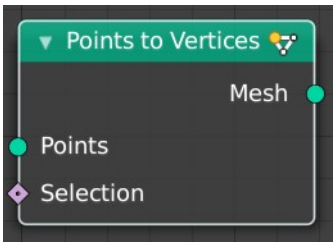
Normal

Normal output.

Rotation

Euler Rotation output. Please note that the Z axis of the result rotation will be arbitrary. The mesh normal used to create the rotation does not have enough information to set all three rotation axes.

Points to Vertices



Generates a mesh vertex in the output geometry for each point cloud point in the input geometry.

Inputs

Points

Points input.

Selection

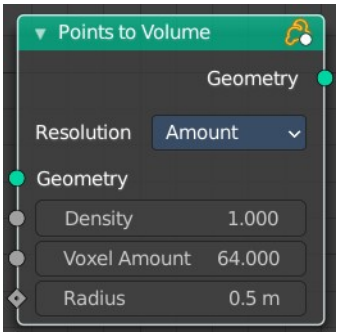
Selection input.

Outputs

Mesh

Standard mesh output.

Points to Volume



Creates a fog volume sphere around every point in the input geometry. The new volume grid is then called density.

Inputs

Geometry

Points input.

Density

The density of the volume.

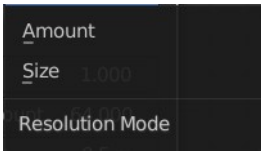
Voxel Amount

Voxel amount of the volume.

Radius

The radius of the generated volume around each point.

Properties



Resolution

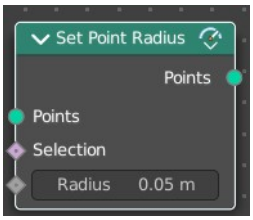
Base the voxel resolution at the amount or the size of the point cloud.

Outputs

Geometry

Standard geometry output.

Set Point Radius



The Set Point Radius node controls the size each selected point cloud point should display with in the viewport.

Inputs

Points

Geometry input.

Selection

Selection input.

Radius

The radius of the points.

Outputs

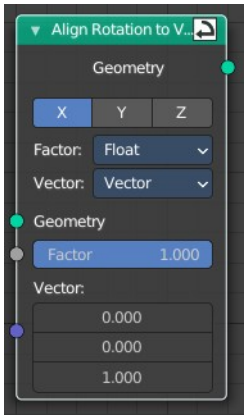
Points

Standard geometry output.

Legacy Point Nodes

These nodes existed in a former Bforartists version, but are now deprecated. They do not show in the regular menu or UI anymore. And you cannot insert them in a newer Bforartists version. But old projects that uses this nodes still loads with these nodes showing and enabled.

Align Rotation to Vector



The Align Rotation to Vector node rotates points into a given direction. It uses the Rotation attribute for that.

Inputs

Geometry

Standard geometry input.

Factor

Determines how much the points are rotated towards the vector. Zero effectively disables the node and one means that the points are aligned with the vector perfectly.

Vector

The direction vector that points should be rotated to. The vector is in the local space of the object that is being modified. When it is all zeros for a point, it is not rotated at all.

Properties

Axis

Local axis of the object that is to be rotated towards the vector input.

Factor

Type of the Factor input socket.

Vector

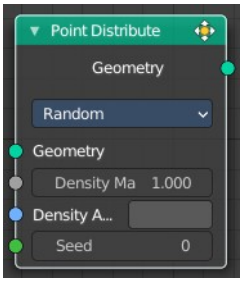
Type of the Vector input socket.

Outputs

Geometry

Standard geometry output.

Point Distribute



The Point Distribute node distributes points on the surface of the input geometry object.

Inputs

Geometry

Standard geometry input. Note that only meshes are supported.

Distance Min

The minimal distance points can have to each other. Note that this option is only available on distribution methods that supports it.

Density Max

The point density for the point distribution. In other words, how many points there will be within one square meter. Note that this will be capped on distributions with the Distance Min option. If the density is greater than what the minimal distance allows, no new points will be added after this threshold has been passed.

Density Attribute

Which attribute to use for influencing the point density. The input values are mapped between zero and the Density.

Seed

Random seed input.

Properties

This properties most probably just shows under some circumstances, which we haven't managed to reproduce yet. The Blender manual does not give any hint here.

Distribution Method

Random

Distribute points randomly on the surface.

Poisson Disk

Project points on the surface evenly with a Poisson disk distribution.

Seed

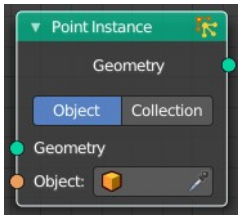
The random seed to use when generating points.

Output

Geometry

Generated points.

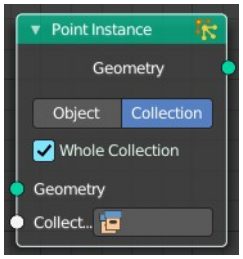
Point Instance



The Point Instance node instances an element to each of the points present in the input geometry. It works for both point cloud and mesh vertices.

Note that this node only works if the modifier belongs to a point cloud object.

Inputs



Geometry

Standard geometry input.

Object / Collection

The object or collection to instantiate.

Properties

Instance Type

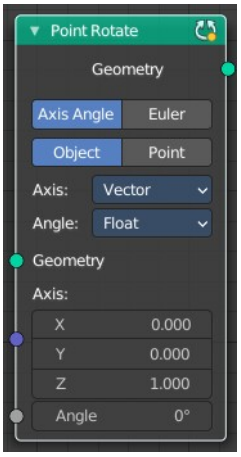
Instance an object or a collection. The input type changes dependant of the choice here.

Outputs

Geometry

Standard geometry output.

Point Rotate



Rotates points.

Inputs

Geometry

Use the rotation of an existing geometry.

Rotation

The input rotation. Baset at a vector, or based at an attribute.

Properties

Rotate Type

Axis Angle
Rotate around an axis by an angle.

Euler
Rotate around the x, y and z axis.

Rotate Space

Object
Rotate points in the local space of the object.

Point
Rotate every point in its local space.

Input Type Rotation

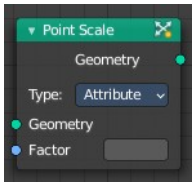
If the rotation is based at an attribute or at an vector.

Outputs

Geometry

Standard geometry output.

Point Scale



Changes the scale attribute of every point in the geometry by the specified amount. Either from the attribute input or a vector input. Note that the Attribute Vector Math Node comes also wwith the Multiply operation and the scale attribute functionality.

The scale attribute is used by the Point Instance Node to determine the size of every instanced object or collection.

Inputs

Geometry

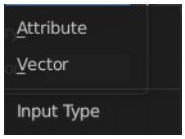
Standard geometry input.

Translation

The attribute or vector input.

Properties

Type



Attribute
Use the values from the attribute to move each point by a different amount.

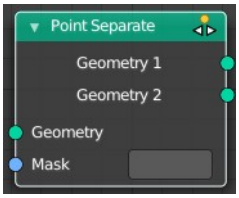
Vector
Use a single vector to translate every single point. Equivalent to the Transform Node.

Output

Geometry

Standard geometry output.

Point Separate



Produces two output geometries. The point cloud component of the input geometry is split between the two outputs, based on the threshold and the input attribute

Tip! To get a more precise result you can combine the node with the Attribute Compare node.

Inputs

Mask

The name of the attribute used to calculate which geometry output each point will belong to. Any value of “true” will move to the second output, and any value of “false” will move the point to the first output.

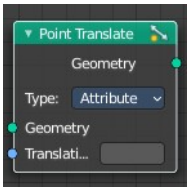
If the attribute has any data type besides boolean, the value will be implicitly converted, so a value of exactly zero is false, and any other value is true.

Outputs

Geometry 1
Points with a mask attribute value of “true” will be moved to the first input.

Geometry 2
Points with a mask attribute value of “false” will be moved to the first input.

Point Translate



Moves every point of the geometry by the specified amount. Either from the attribute input or a vector input. Note that the Attribute Vector Math Node comres also with the Addition

operation and the position attribute.

Inputs

Geometry

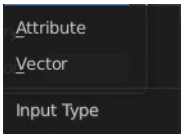
Standard geometry input.

Translation

The attribute or vector input.

Properties

Type



Attribute

Use the values from the attribute to move each point by a different amount.

Vector

Use a single vector to translate every single point. Equivalent to the Transform Node.

Output

Geometry

Standard geometry output.