12.1.8 Editors - Geometry Nodes Editor - Header - Add Menu - Curve

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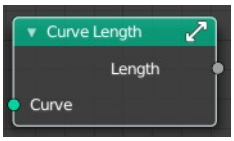
Add - Curve

Here you find curve related nodes.

Cuve Length



Retreives the length of all splines added together.

Inputs

Curve

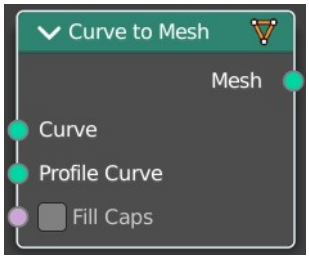
The input curve.

Outputs

Length

The length of the curve.

Cuve to Mesh



Converts a curve object to a mesh object. Optionally, a profile curve can be provided to give the curve a custom shape.

Inputs

Curve

The input curve.

Profile Curve

If a profile curve is provided, it will be extruded along all splines. Otherwise the generated mesh will just be a chain of edges.

Fill Caps

For cyclic profile curve. Fill the ends of the generated mesh for each spline combination with an N-gon.

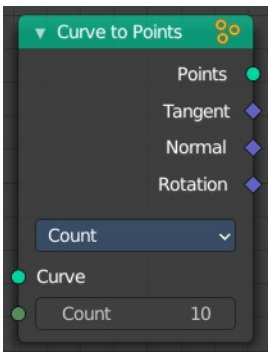
The resulting mesh is Manifold, the two new faces for each spline are simply connected to existing edges.

Outputs

Mesh

Standard mesh output.

Cuve to Points



Converts a curve object to a Point cloud.

Inputs

Curve

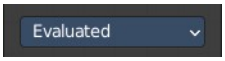
The input curve.

Properties

Mode

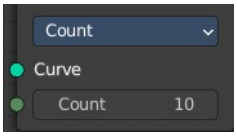
How to generate points from the input curve.

Evaluated



Create points from the evaluation points of the curve. This is based on the resolution attribute for nurbs and bezier splines.

Count



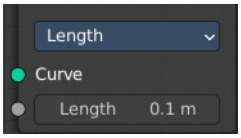
Sample each spline by evenly distributing the specified number of points along the spline.

Count Input

The number of points to distribute along the spline.

Length

Sample each spline by splitting the spline into segments by the specified length.



Length Input

The length of the single segments.

Outputs

Point

Generated point cloud.

Tangent

The normalized curve tangent at the sampled position, or the direct evaluated normal in Evaluated mode.

Normal

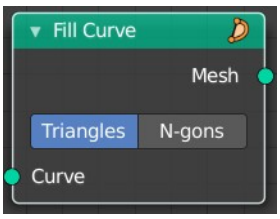
The normal value from the evaluated curve at each result point. This is the same value from the Normal Node at those positions.

Rotation

The Euler rotation build from the Tangent and Normal outputs.

Fill Curve

Fills the curve with mesh geometry. The mesh is only generated flat with a local Z of 0.



Inputs

Curve

The input curve.

Properties

Mode

Triangles or N-gons

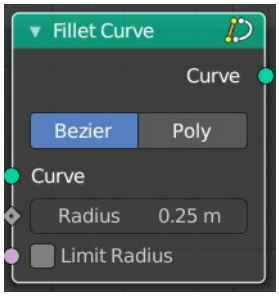
Fill the curve with either triangles, or use N-Gon geometry.

Outputs

Mesh

The output as mesh.

Fillet Curve



The Fillet Curve rounds corners on curve control points, similar to the effect of the Bevel Modifier on a 2D mesh.

A key difference is that the rounded portions created by the Fillet Curve node are always portions of a circle.

Input

Curve

The input curve.

Count

Polymode. Define the number of vertices that are created.

Radius

The radius of the arc

Limit Radius

Prevent overlapping when the defined radius exceeds the maximum possible radius for a given point.

Properties

Mode

Bezier

Creates a circular arc at vertices by changing handle lengths (applicable only for Bezier splines).

Poly

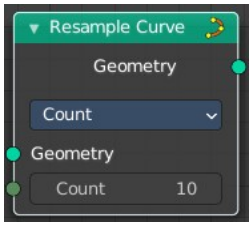
Creates a circular arc by creating vertices (as many as defined by the Count fields input) along the arc (applicable for all spline types).

Outputs

Curve

Standard geometry input with a curve component.

Resample curve



Creates a poly spline for each input spline. In the Count and Length modes, the control points of the new poly splines will have uniform spacing.

Input

Geometry

The input geometry.

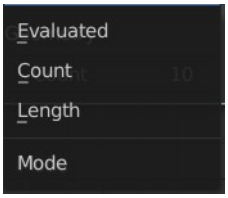
Count

The number of control points on the new splines.

Length

The approximate length between the control points of the new splines.

Properties



Mode

The resample mode.

Evaluated

Use the resolution attribute for spline and bezier curves.

Count

Use the count of the curve points.

Length

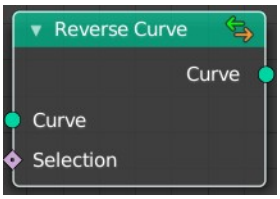
Use the length of the curve.

Output

Geometry

Standard geometry output.

Reverse Curve



Reverses the direction of the spline. The start point becomes the end point and vice versa. The shape of the spline is not modified.

Inputs

Curve

The input curve.

Selection

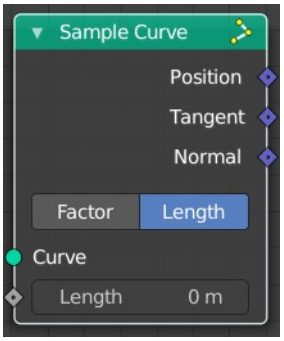
An optional selection attribute to determine which part of the spline should be reversed.

Outputs

Curve

Standard geometry output.

Sample Curve



Calculates a point on a curve at a certain distance from the start of the curve, specified by the length or factor inputs. It also outputs data retrieved from that position on the curve.

The sampled values are linearly interpolated from the values at the evaluated curve points at each side of the sampled point.

In case that the curve contains multiple splines, the sample position is found based on the total accumulated length, including the lengths of all previous splines. The order of the splines is the same order as displayed in the Spreadsheet Editor.

Input

Curve

The input geometry.

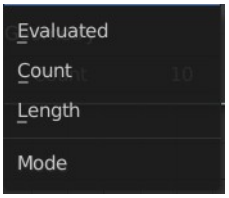
Factor

The resample amount with method Factor.

Length

The resample amount with method Length.

Properties



Mode

How to find the endpoint positions for the trimmed spline.

Factor

Use a factor of the total length of the curve.

Length

Use the length of the curve.

Output

Position

The position at the sample along the spline.

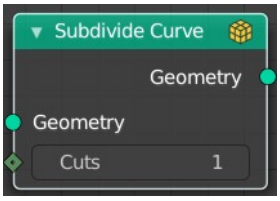
Tangent

The normalized curve tangent at the sample.

Normal

The normalized curve normal at the sample.

Subdivide Curve



Subdivides the curve. The shape is not changed.

Inputs

Geometry

The input curve.

Cuts

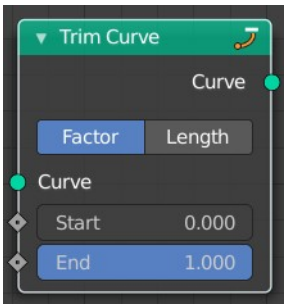
The number of cuts per segment.

Outputs

Geometry

Standard geometry output.

Trim Curve



The Curve Trim node shortens each spline in the curve by removing sections at the start and end of each spline.

Bézier splines will still output as Bézier splines. The first and last control point and its handles will be moved as necessary to preserve the shape. But NURBS splines will be transformed into poly splines in order to be trimmed.

Cyclic splines are currently not supported.

Note that if the Start input is larger than the End, then the resulting spline will have a single point, located at the sample location of the Start value.

Inputs

Curve

Standard geometry input with a curve component.

Start

The factor or length used to determine where to start each output spline.

End

The factor or length used to determine where to end each output spline.

Properties

Mode

How to find endpoint positions for the trimmed spline.

Factor

The endpoint positions of each spline's length is determined by a factor. The input values should be between 0 or 1.

Length

The endpoint positions of each spline is determined by a length from the start of each spline. The input values should be between 0 and the length of the splines.

Outputs

Curve

Standard geometry output.

Curve Handle Positions

Get the position of the left or right handle of a curve point.

Outputs

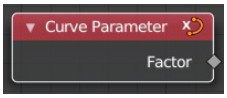
Left

The left handle of the curve point.

Right

The right handle of the curve point.

Curve Parameter



The Curve Parameter node outputs how far along each spline a control point is, with a value between zero and one. The output is different from dividing the index by the total number of control points, because the control points might not be equally spaced along the curve.

The first value is zero, so the output corresponds to the length at the control point rather than including the length of the following segment.

When used on the spline domain, the node outputs the portion of the total length of the curve (including all splines) has been traversed at the start of each spline. The order of the curve's splines is visible in the Spreadsheet Editor.

Note that for NURBS and Bézier spline curves the value retrieved from this node is the value at every control point, which may not correspond to the visible evaluated points. For NURBS splines the difference may be even more pronounced and the result may not be as expected. A Resample Curve Node node can be used to create a poly spline, where there is a control point for every evaluated point.

Outputs

Factor

The factor of the curve.

Curve Tangent

Retreive the tangent direction of a curve. The output values are normalized vectors.

Note that for NURBS and Bézier spline curves the value retrieved from this node is the value at every control point, which may not correspond to the visible evaluated points. For NURBS splines the difference may be even more pronounced and the result may not be as expected. A Resample Curve Node node can be used to create a poly spline, where there is a control point for every evaluated point.

Outputs

Factor

The vector of the tangent.

Curve Tilt

Outputs the angle used to turn the curve normal around the direction of the curve tangent in its evaluated points.

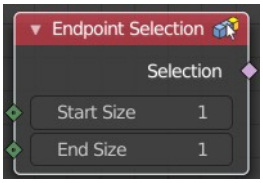
The output is per control point. For NURBS and Bézier splines, the values will be interpolated to the final evaluated points.

Outputs

Tilt

The tilt angle for the normal in radians.

Endpoint Selection



The Endpoint Selection node allows for the Selection of an aribitrary number of endpoints from each spline in a curve. The start and end inputs are evaluated on the spline domain. The result is outputted as a boolean field on the point domain.

Input

Start Size

The start point of the spline.

End Size

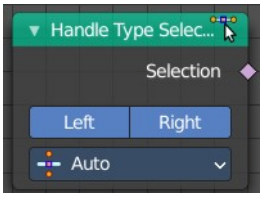
The end point of the spline.

Outputs

Selection

Selection output.

Handle Type Selection



Creates a selection based on the handle types of the control points.

Properties

Left / Right

Wether to check for the type of handles.

Handle Type

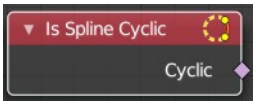
What handle type to compare.

Output

Selection

The selection.

Is Spline Cyclic



Retreive if the curve is set to cyclic.

Outputs

Cyclic

If the spline is cyclic or not.

Spline Length

Retreive the total length of each spline in a curve.

Outputs

Length

The length of each spline in the curve.

Spline Resolution

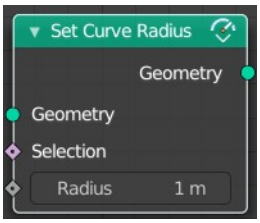
Retreive the curve resolution. Means the number of spline points.

Outputs

Resolution

The spline resolution.

Set Curve Radius



Set the curve radius.

Input

Geometry

The input curve.

Selection

A selection of the input curve.

Radius

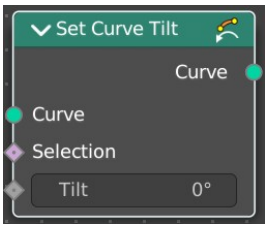
The radius to set.

Outputs

Geometry

Standard geometry output.

Set Curve Tilt



Controls the tilt angle at each curve control point.

Input

Geometry

The input curve.

Selection

Whether or not to change the value on each control point. True values mean the value will be changed, false values mean the value will remain the same.

Tilt

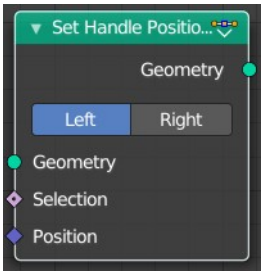
The tilt rotation.

Outputs

Curve

Standard geometry output.

Set Handle Positions



Set the handle positions of bezier curves

Input

Geometry

The input curve.

Selection

A selection of the input curve.

Position

The position of the handle.

Properties

Mode

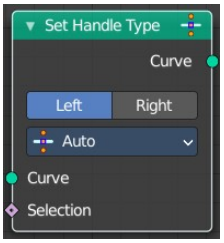
Left or right handles.

Outputs

Geometry

Standard geometry output.

Set Handle Type



Sets a handle type for the curve points of a bezier curve. Handle types determines how the interpolation before and after the curve point happens.

Input

Curve

The input curve.

Selection

A selection of the input curve.

Properties

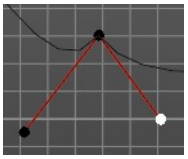
Mode

Left or right handles.

Handle Type

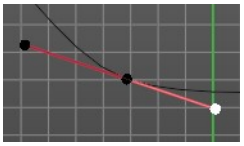
The different available handle types.

Free



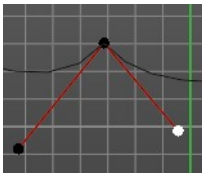
The handles can be adjusted individually.

Auto



The left and the right handle will always point to each other. The length of the handles will start in equal size.

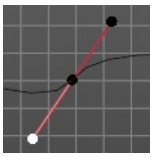
Vector



The handles can be adjusted individually.

Aligned

The left and the right handle will always point to each other.

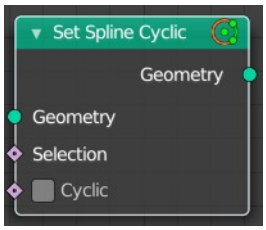


Output

Curve

Standard geometry output.

Set Spline cyclic



Sets the spline cyclic. Means looping.

Input

Geometry

The input curve.

Selection

A selection of the input curve.

Cyclic

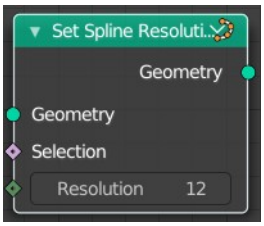
Cyclic or not

Outputs

Geometry

Standard geometry output.

Set Spline Resolution



Sets the resolution of the spline. Means how many evaluated points should be generated on the curve for each control point.

Input

Geometry

The input curve.

Selection

A selection of the input curve.

Resolution

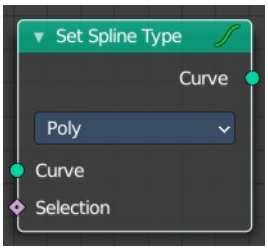
The resolution of the spline.

Outputs

Geometry

Standard geometry output.

Set Spline Type



Change the curve spline type.

Input

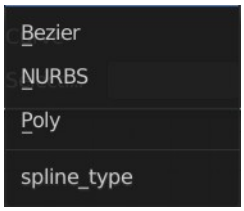
Curve

The input curve.

Selection

A selection of the input curve.

Properties



Spline Type

The spline type to set the curve to.

Note that when converting from a NURBS spline to a Bézier spline, at least six points are needed. When the number of points is not a multiple of three a full conversion is not possible and the spline has to be truncated.

Output

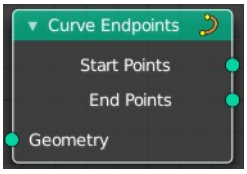
Curve

Standard geometry output.

Legacy - Curve

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.

Cuve Endpoints



Extracts the start and endpoints of a curve.

Inputs

Geometry

The input curve.

Outputs

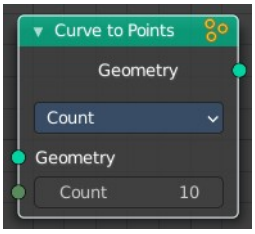
Start Points

The start points.

End Points

The end points.

Cuve to Points



Creates a point geometry along the curve. The generated points have a tangent, normal and rotation attribute that can be used for instancing.

Note that the radius of the generated points is 1/10 of the radius of the curve.

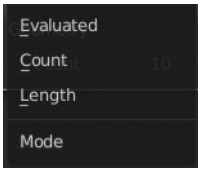
Inputs

Geometry

The input curve.

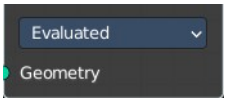
Properties

Mode



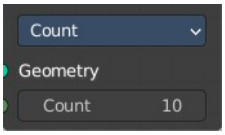
The sample method.

Evaluated



Creates a point geometry at every curve node. It takes the built-in resolution attribute into account. But the result may not have equal distances between the points.

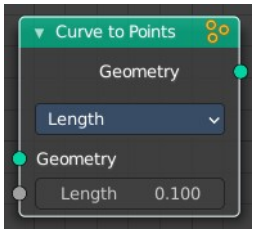
Count



Samples the points along the curve. The distance between the points will be equal.

Count

The number of points to use.



Length

The calculation happens by splitting the spline into segments with the defined length. The length will be rounded down. That way a whole numer of samples will fit in each input spline.

Length

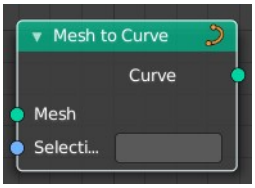
The length of each segment.

Outputs

Geometry

Standard mesh output.

Mesh to Curve



Converts a curve object to a mesh object.

Inputs

Mesh

The input mesh.

Selection

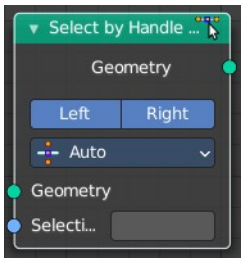
A selection of the mesh.

Outputs

Curve

Standard curve output.

Select by Handle Type



Select curve points by their handle type.

Input

Geometry

The input curve.

Selection

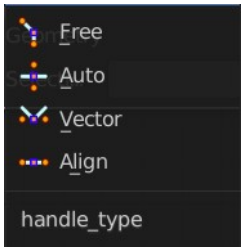
A selection of the input curve.

Properties

Left / Right

Wether to check for the type of handles.

Handle Type



What handle type to compare.

Output

Curve

Standard geometry output.