









Create a Bezier curve

To create a Bezier curve



1. Select **Create > Bezier Curve Tool** or click the Bezier Curve Tool icon () in the Curves shelf.
2. Do one of the following:
 - To place an anchor, click the scene.
 - To place an anchor and manipulate its tangent, click and drag the mouse on the scene.
 - **To add an anchor to the existing curve while preserving its shape, click anywhere on the curve.**
 - To delete an anchor, select it and press .
 - To close the curve, hold  +  and click the first anchor of the curve.
3. If you choose another tool, then select the curve and return to the Bezier Curve Tool, you can append additional anchors to the most recently created anchor.
4. When you have finished placing anchors, press  to end the curve and exit the Bezier Curve Tool. If you want to draw additional curves, you can also press 'g' to end the current curve, but remain in the tool.

To append anchors to the end of an existing curve

1. Select the curve you want to append to.
2. Select **Create > Bezier Curve Tool** or click the Bezier Curve Tool icon () in the Curves shelf.
3. Click the last anchor in the curve.
The last anchor is always the end point of the curve that is not yellow.
4. Click (or click-drag) anywhere in the scene.
An anchor appears and is connected to the curve.

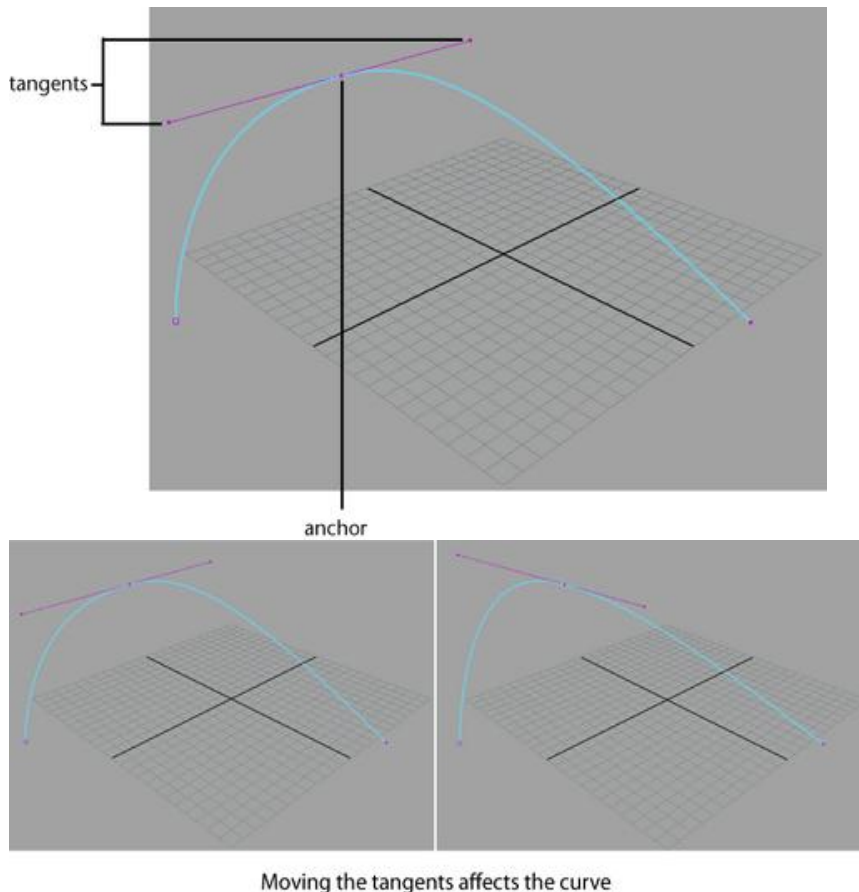
Edit Bezier curves

Topics in this section

- Add / Remove anchors
- Add / Remove tangents
- Transform anchors and tangents
- Open / Close a curve
- Break / Smooth tangents
- Weight / Even tangents
- Convert a curve between Bezier and NURBS

Parent topic: [Editing NURBS](#)Bezier curves

Bezier curves are a subset of NURBS curves that are composed of two types of control vertices, *anchors* and *tangents*. Anchors lie on the curve and determine the origin of tangents. Tangents determine the shape of the curve leading to an adjacent anchor.



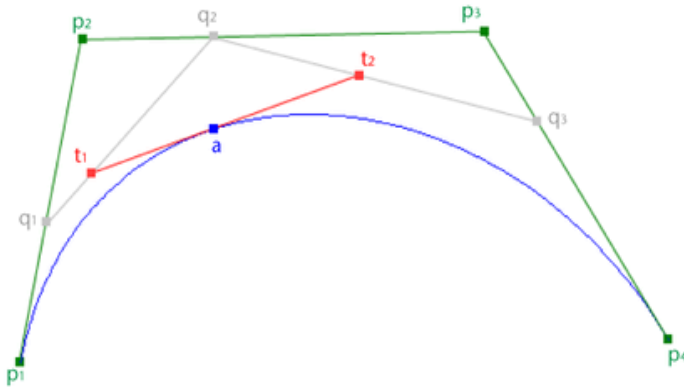
Since Bezier curves are a subset of NURBS curves, you can perform the majority of NURBS operations to Bezier curves as well. You can also perform NURBS operations on combinations of Bezier curves and NURBS curves. In general, an operation involving all Bezier curves results in a Bezier curve while operations involving a combination of Bezier and NURBS curves results in a NURBS curve.

Related topics

- [Create a Bezier curve](#)
- [Edit Bezier curves](#)

Mathematics behind Bezier curves

All Bezier curves in Maya are cubic, meaning a curve between two anchors is determined by four points, p_1 to p_4 .



The curve starts at p_1 and moves towards p_2 before it arcs toward p_4 by way of p_3 .

At any point, you can find the position of anchor a from the following equation:

$$a(x) = (1-x)^3 P_1 + 3(1-x)^2 x P_2 + 3(1-x)x^2 P_4$$

Where x is any value greater or equal to 0, and less than or equal to 1.

Mathematically, a Bezier curve is built by plotting a point for every value of x and then connecting those points. In Maya, you can draw a Bezier curve by plotting anchors and adjusting the tangents (t_1 and t_2) manually.