

# Shapes 2:

## Shapes Bézier Path Tools in Corel® Painter™

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Painter's Shapes make use of Bézier curves—mathematical formulae that efficiently encapsulate a wide range of curvilinear objects. Bézier curves are the digital equivalent to the engineering draftsman's french curves. And speaking of France, it was the French automobile engineer Pierre Bézier that developed these curves for use in the Renault CAD/CAM automobile design system. Bézier curves have become the basis for vector-based drawing applications, such as Corel Draw and Adobe Illustrator. The good news is that you don't need a degree in advanced mathematics to take advantage of Bézier curves—they are a completely visual curve creation tool.

### Bézier Curve Terminology

The visual components of *Bézier curves* are remarkably simple. A Bézier *curve* is comprised of *anchor points* connected by *line segments*. In its simplest form this can be a *straight line*. When the *path* is a *curve*, *wings* extend from the *anchor points*. The *wings* have *control handles* on them. By *dragging* the wing's *control handle*, the *curvature* of the associated *segment* is adjusted. A *line segment* can be dragged and adjusted, as well. *Line segments* change in real-time as adjustments are made, making it very easy to arrive at the intended result. Both *straight* and *curved* segments can be used within a *single* line. A series of *anchor points* can be used to describe an amazingly complex line.

A *path* is either *open* or *closed*. An *open path* describes a *line*; a *closed path* describes a *shape*. *Open paths* have *endpoints*; *closed paths* do not.

*Anchor points* can be either *smooth* or *corner points*. A *smooth anchor point* allows the adjustment of the line segments on *both* sides of the *anchor point* by dragging its *control handle*. A *corner point* allows *independent* adjustment of the wing *control handles*.

### Shapes Bézier Curve Adjustments

The *Pen* tool is the primary Bézier *curve* creation tool. *Straight* lines are created by simply clicking on the image in a point-to-point fashion. A *Shapes* layer is automatically generated. Clicking a *series* of points will result in a faceted line/shape. *Clicking* and *dragging* will create a *smooth point* with *wings*. An existing *open path* is added to by positioning the *Pen* tool over an *endpoint*. The cursor changes to the *Resume at Endpoint* cursor. *Clicking* the *endpoint* adds to the existing *open path*.

An *open path* is *closed* by positioning the *Pen* tool cursor over the *initial endpoint*. The cursor changes to the *Join Endpoints* cursor. *Clicking* on the *endpoint* closes the *path*.

The *Shapes Selection* tool is the primary *anchor point* selection tool. Its cursor appears as a *hollow arrow*. This tool is accessed from either the *Tool* menu or by holding down the *CTRL/CMD* key when using any of the *Shapes Editing* tools.

When the *Shapes Selection* tool is active, holding down the *CTRL/CMD* key will toggle the cursor to the *Shapes Whole Selection* tool. On Mac systems, this cursor appears as a *black filled* arrow. On Windows systems, the cursor appears as a larger *white filled* arrow. Using the *Shapes Whole Selection* tool, click and drag on any portion of a *Shapes* element to move the *entire* Shape.

A single *anchor point* is selected by clicking on it with the *Shapes Selection* tool. Multiple anchor points are selected by clicking and dragging a *selection rectangle* around the points with the *Shapes Selection* tool.

A selected *anchor point* displays its *wings*. The *Shapes Selection* tool is used to reposition the points, as well as adjust the orientation of the *wings*. By default, each *wing's* length is *independently* adjusted. Hold down the *Shift* key to *linearly* adjust *both* wings.

The *Convert Point* tool converts a *smooth point* to a *corner point* and vice versa. A point is converted with the *Convert Point* tool by positioning the cursor over the *wing control*

*point* of an active *anchor point* and *dragging* the control point. The *anchor point* is converted. Further adjustment of the wings is performed with the *Shapes Selection* tool.

Besides adjusting wing control points, the *Shapes Selection* tool is used to *move* anchor points. Doing so changes the geometry of the *Shape*. Alternatively, Bézier *path segments* are directly manipulated by clicking and dragging the *curve segment*.

It takes a bit of practice to become facile with Bézier *curve* creation and editing. Wing *control points* can get looped. Curve segments can spring out into unexpected shapes. Your control will develop through usage of the *Shapes* curve adjustment tools.

### Shapes Bézier Curve Editing Tools

These tools are used for radical surgery to existing Bézier shapes. The *Scissors* tool is used to *split* an open path or convert a closed path to an open path. Use the *Shapes Selection* tool to first choose the path segment to be split. Select the *Scissors* tool and click on the desired point of the active path to *split* the segment. A *new anchor point* appears at the split point. Use the *Shapes Selection* tool to click and drag the point. The line segment *separates* from the former single path. The new *endpoints* will have *wings* for adjustment.

The *Add Point* tool is used to *add* points to an existing *open* or *closed* Bézier *path*. Use the *Shapes Selection* tool to first choose a path segment to add points to. Select the *Add Point* tool and click on the desired location on the path segment to *add* a point. A *new anchor point* appears on the path. Use the *Shapes Selection* tool to adjust the point.

The *Delete Point* tool is used to *delete* points from an existing *open* or *closed* Bézier *path*. Use the *Shapes Selection* tool to first choose a path segment to *delete* points from. Select the *Delete Point* tool and click on the desired existing anchor on the path segment to *delete* it. The anchor point is deleted from the path. The anchor points formerly on either side of the deleted point now create a path segment.

### Shapes Freehand Bézier Quick Curve Tool

There are times when a more spontaneous Bézier *path* is desirable. The Bézier *Quick Curve* tool is useful in these situations. The *Quick Curve* tool is used similarly to other Painter brushes except that it results in a single weight Bézier *open* or *closed path* (depending on whether you connect the endpoints). As

with all Bézier *paths*, line weight can be uniformly adjusted via the *Shapes Attributes* dialog after the fact. When drawing with the *Quick Curve* tool, a *dotted line preview* visualizes the *path*. When the path is completed (by lifting your stylus), the preview path converts into a Bézier *path* with *anchor points*.

### Shapes Bézier Oval and Rectangle Tools

These tools are used to create the universally functional oval and rectangular shapes. By default, both tools create unconstrained ovals and rectangles. Perfect circles and squares are created by holding down the *Shift key* before clicking and dragging the cursor. Both ovals and rectangles contain adjustable anchor points.

### Shapes, Selections, and Layer Conversions

Shapes are capable of being converted into both *layers* and *selections*. In fact, these three Painter constructs are highly transmutable: *selections* can be converted into *Shapes* and *layers*; *layers* can be converted into *selections*; *selections* can be converted into *Shapes* and *layers* (by constraining a selection fill on an existing layer). This interplay opens up many possibilities.

*Shapes* can be converted into either a *layer* or *selection* via the *Shapes* menu, the *Shapes Tools Property Bars*, or the *Shapes Tools Contextual Menu*.

*Selections* can be converted into *Shapes* via the *Select* menu, the *Selection Tools Property Bars*, or the *Selection Tools Contextual Menu*.

*Layers* can be converted into *selections* via the *Select* menu > *Auto* or *Color Select* commands or the *Layer palette Contextual Menu*.

### Fun To Follow!

We are now finished with examining Painter's Shapes organization, tools, and adjustments. In the next installment, we'll take our Shapes knowledge and apply it. There are indeed some surprising ways to utilize Shapes into your workflow...or to just have fun!

*Viva la Painter!*

*John Derry is a pioneer of digital painting and one of the original authors of Corel® Painter™. Since 1985, he has leveraged his background in drawing and painting to advance the look and experience of traditional art-making tools on the computer. John has a bachelor's degree and a master's degree in Fine Art and is a practicing artist and photographer. He is currently serving as Corel's Painter Ambassador-at-Large. John's Web site is at [www.pixlart.com](http://www.pixlart.com).*

# Shapes Bézier Path Tools

## in Corel® Painter™



### Shapes Bézier Curve Terminology



### Shapes Bézier Curve Adjustments

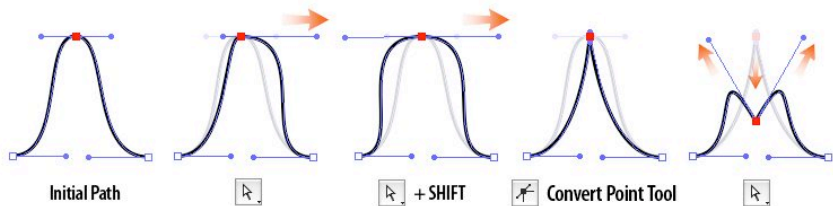
#### Pen Tool Cursors

- ☐ Default
- ☒ Resume at Endpoint
- ☒ Join Endpoints

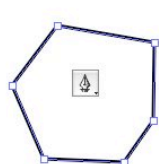
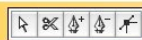
**Shapes Selection Tool:**  
Drags individual anchor points, line segments and wing handles.  
*Available from other Shapes editing tools by pressing the CTRL/CMD key.*

**Shapes Whole Selection Tool:**  
Moves entire Shapes path.  
*Available from the Shapes Selection Tool by pressing the CTRL/CMD key.*

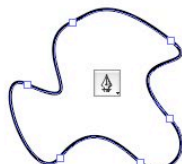
*Note: On Windows systems, the Shapes Whole Selection Tool appears as a larger white hollow cursor.*



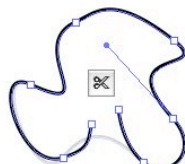
### Shapes Editing Tools



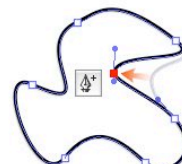
Straight Line Closed Path created by only Clicking individual points.



Curved Line Closed Path created by Clicking and Dragging individual points.



Open Path created from Closed Path using the Scissors Tool.

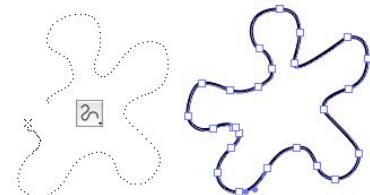


Additional Point added to Closed Path using the Add Point Tool.

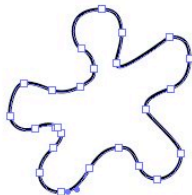


Point removed from Closed Path using the Remove Point Tool.

### Shapes Freehand Bézier Quick Curve Tool

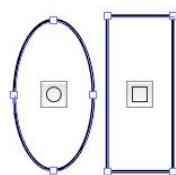


Freehand Quick Curve Tool used to create drawing path.

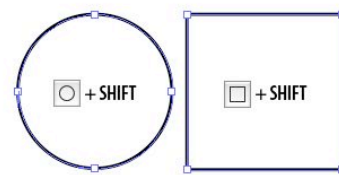


Final resulting Shapes path.

### Shapes Oval and Rectangle Tools

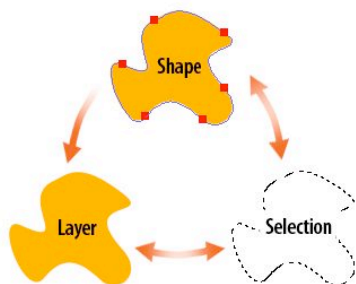


Click and drag diagonally to create ovals and rectangles.

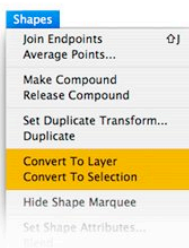


Pressing the SHIFT key, click and drag diagonally to create perfect circles and squares.

### Shapes, Selections, and Layer Conversions



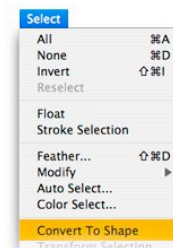
#### Shapes Menu



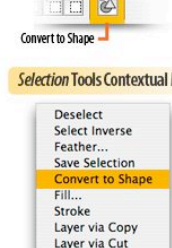
#### Shapes Tools Property Bars



#### Select Menu



#### Selection Tools Property Bars



#### Selection Tools Contextual Menu

