Path
TOOLKIT

User guide
version 1.2

Contents

What is PathToolkit?

PathToolkit is a plug-in for Adobe Illustrator extending the application with a set of powerful vector editing tools which simplify many complex drawing scenarios. Working with vector graphic is, essentially, working with shapes. First, you define a shape and then add color, transparency and special effects. PathToolkit does not provide fantastic filters of stunning visual effects, but instead, is focused on making basic shape editing features great, so you dont't have to waste your creative energy for low-level tasks.

System requirements

PathToolkit comes in versions for Windows and Mac OS X.

System requirements for running on Mac:

- Intel or PowerPC Mac
- Mac OS X version 10.4 or higher
- Adobe Illustrator CS2, CS3, CS4 or CS5

System requirements for running on Windows:

- PC running Windows XP, Windows Vista or Windows 7, 32 or 64 bit
- Adobe Illustrator CS2, CS3, CS4 or CS5

Overview

PathToolkit provides drawing and path editing tools.

Drawing tools include:

Arc center-start-end tool
draws an arc defined by its center and the starting and ending points

Arc by 3 points tool
draws an arc defined by the three points the arc should pass through

Arc start-end-direction tool
draws an arc defined by the three points the arc should pass through

3 Point Circle tool
draws a circle defined by the 3 points that the circle should pass through

Tangent Circle tool
draws a circle with a specified radius that is tangent to two curves

Curvature Circle tool
used to measure a path's curvature raduis at a specified point or to reconstruct a circle from an arc

Path editing tools include:

Fillet tool
round any corner between path segments with a specified radius

Connect tool
join two open path ends with a smooth curve

Trim tool
remove path pieces at the points of intersection

Extend tool
append a perfectly tangent segment to an existing path; a line, an arc or a smooth curve

Orient tool
transform artwork from two reference points to two target points

Straighten tool
append a perfectly tangent segment to an existing path; a line, an arc or a smooth curve

Join paths command
concatenate a bunch of separate paths into a single shape

Installing PathToolkit

Installation is different depending on the platform.

Installing on Mac OS X

• Quit Illustrator, if running.

• Double-click on the downloaded 📄 **PathToolkit_mac.dmg** file

• Finder will open a new window displaying the contents of PathToolkit distribution (Icons for plug-in folders will be displayed only if corresponding versions of Illustrator are installed on your system).
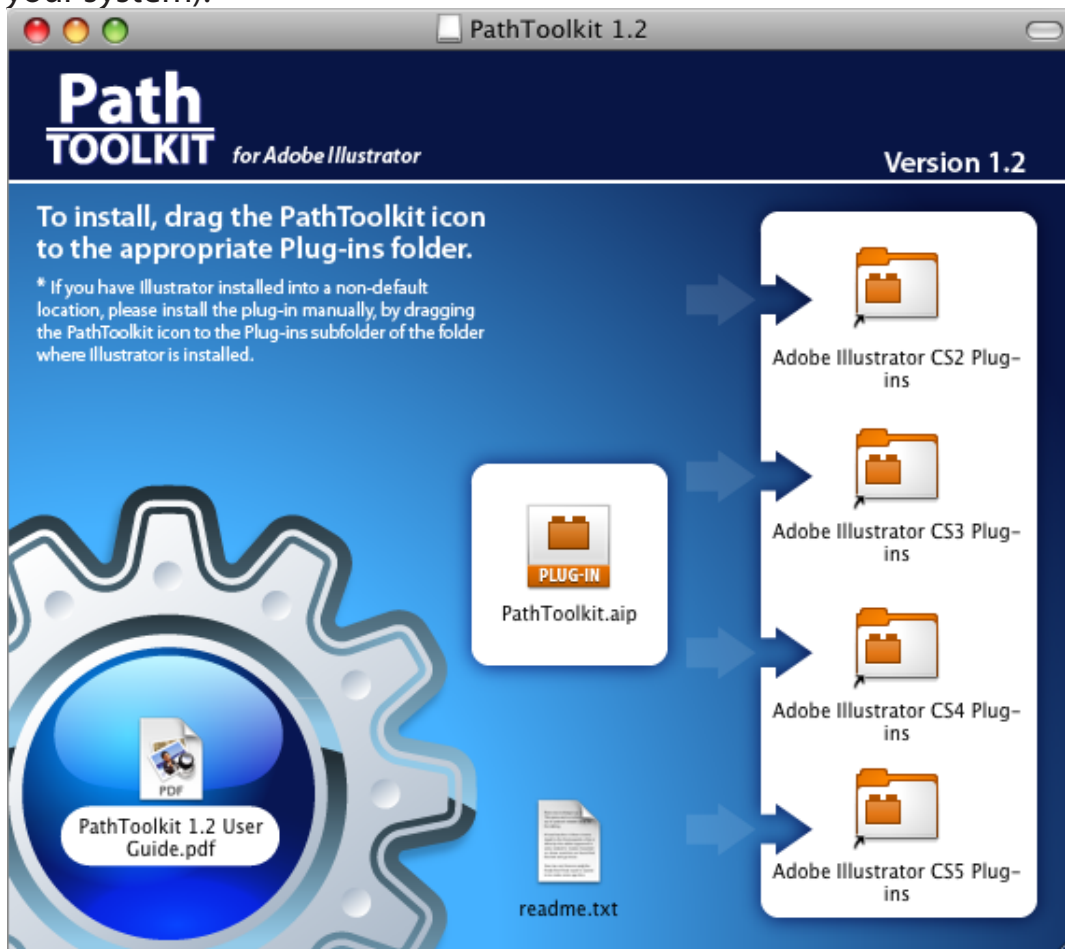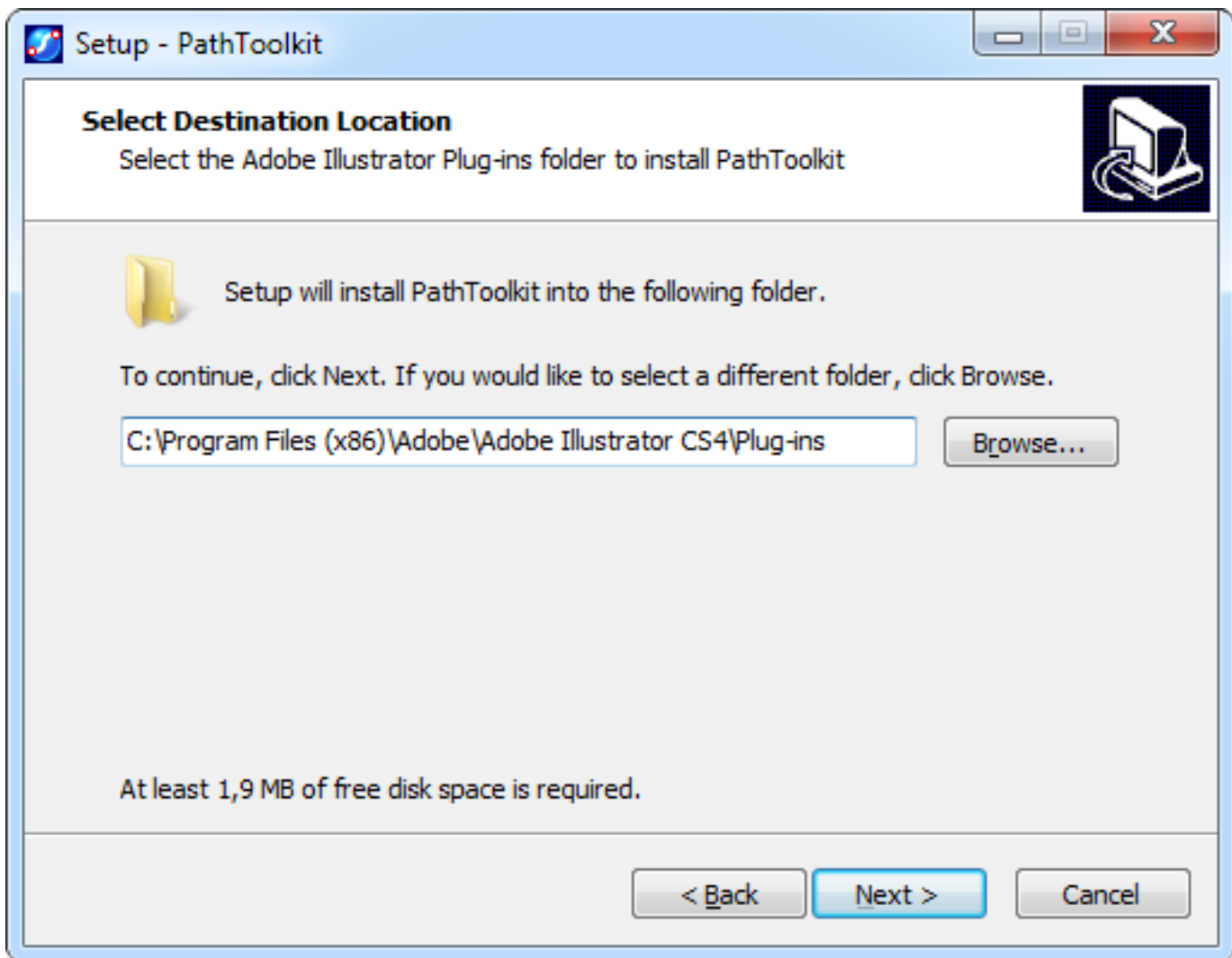

• Drag the 📦**PathToolkit.aip** icon into the appropriate Adobe Illustrator Plug-ins folder depending on the version of Adobe Illustrator you have installed. If you have Illustrator installed into a non-default location (not under /Applications), install the plug-in manually by dragging the PathToolkit icon into a Plug-ins subfolder of Illustrator installation folder.

• Alternatively, drag the 📦**PathToolkit.aip** icon into any folder of your choice and set this folder as the Additional Plug-ins folder on the "Plug-Ins and Scratch Disks" page of Illustrator preferences (requires Adobe Illustrator version CS3 or higher).

• Start Illustrator.

• Now, PathToolkit is ready to use.

Installing PathToolkit on Windows

- Quit Illustrator, if running.
- From the downloaded **PathToolkit_win.zip** file, launch the **PathToolkitSetup.exe** installer.

- Setup will detect the installation directory for the latest version of installed Illustrator automatically. In some cases, however, it might not find the target directory, if Illustrator is installed into a non-default location. In this case, select the Plug-ins subfolder of Illustrator installation folder.

Setup - PathToolkit

Select Destination Location

Select the Adobe Illustrator Plug-ins folder to install PathToolkit

Setup will install PathToolkit into the following folder.

To continue, click Next. If you would like to select a different folder, click Browse.

C:\Program Files (x86)\Adobe\Adobe Illustrator CS4\Plug-ins   Browse...

At least 1,9 MB of free disk space is required.

< Back   Next >   Cancel

- After the setup is complete, start Illustrator.
- Now, PathToolkit is ready to use.

Manual installation on Windows

Alternatively, you may install the plug-in manually, by copying the **PathToolkit.aip** file from the archive to Illustrator plug-ins folder. Depending on Illustrator version, the standard folders are:

c:\Program Files\Adobe\Adobe Illustrator CS2\Plug-ins
c:\Program Files\Adobe\Adobe Illustrator CS3\Plug-ins
c:\Program Files\Adobe\Adobe Illustrator CS5\Plug-ins
c:\Program Files\Adobe\Adobe Illustrator CS5\Plug-ins

On 64-bit system these folders are:

c:\Program Files (x86)\Adobe\Adobe Illustrator CS2\Plug-ins
c:\Program Files (x86)\Adobe\Adobe Illustrator CS3\Plug-ins
c:\Program Files (x86)\Adobe\Adobe Illustrator CS5\Plug-ins
c:\Program Files (x86)\Adobe\Adobe Illustrator CS5\Plug-ins

The plug-in may be also installed into any folder. In that case this folder should be set as the Additional Plug-ins folder on the "Plug-Ins and Scratch Disks" page of Illustrator preferences (requires Adobe Illustrator version CS3 or higher).

Rounding corners

Rounded corners are used frequently in designs, ranging from web buttons to complex architectural blueprints. PathToolkit adds extra degrees of freedom for creating round corner effect. With the Fillet tool, you are not limited to rounding all corners of a shape at the same time and with the same radius. Moreover, you don't have to close a shape to apply rounded corner effect - just pick any two paths, either straight lines or curves, and create a round transition between them.

The simple way
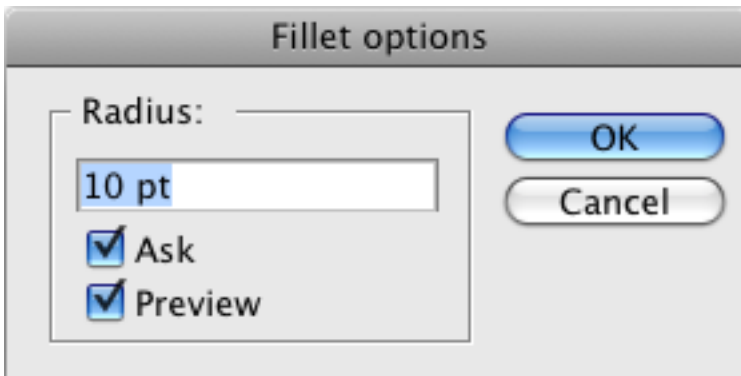
Double-click the Fillet tool icon to display the Fillet options dialog. Set the desired fillet radius and press Ok. You may also check the "Ask" checkbox to make the application prompt for the radius each time you use the tool.
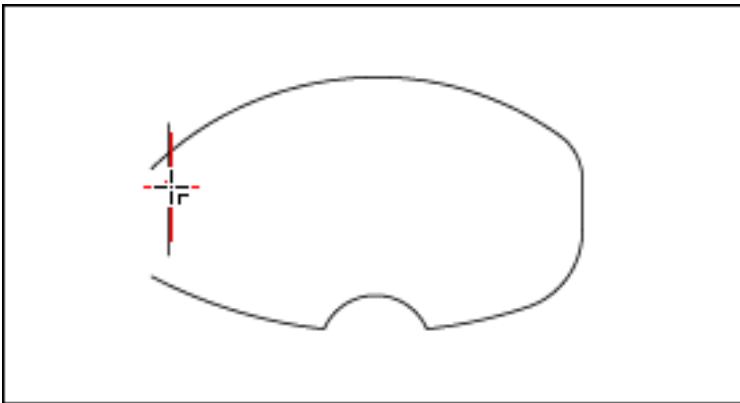
Position the Fillet tool over the first path near the point where the fillet arc must start. A small triangle appears near the tool cursor when it is positioned correctly. A tangent mark is also drawn to indicate the curve affected by the tool.
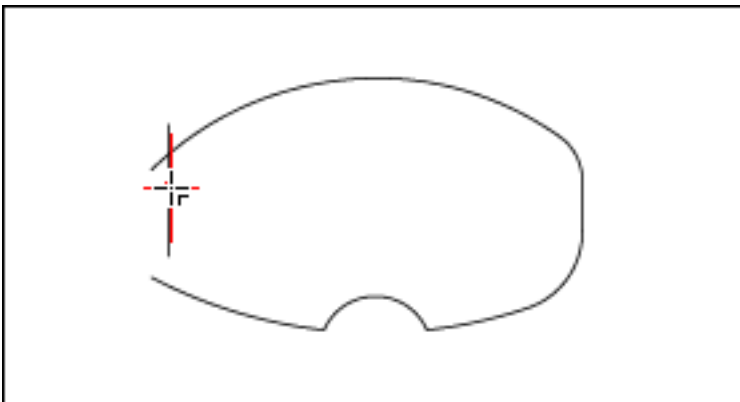
Position the Fillet tool over the first path near the point where the fillet arc must start. A small triangle appears near the tool cursor when it is positioned correctly. A tangent mark is also drawn to indicate the curve affected by the tool.
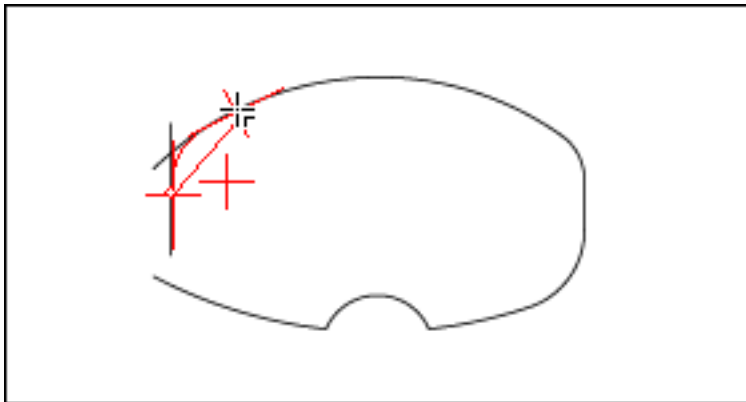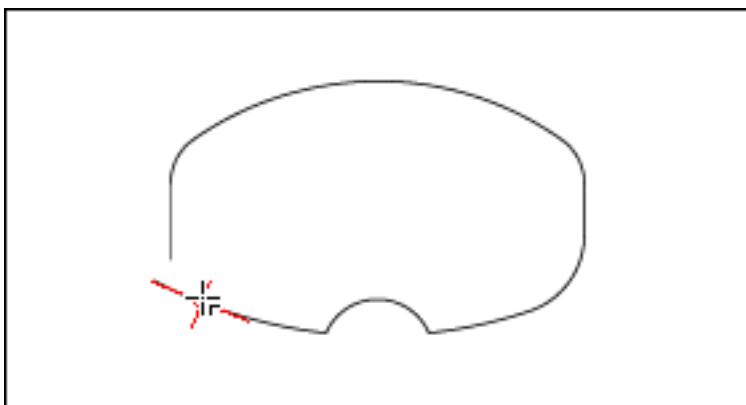
Press and hold the mouse button and drag the pointer to the second path. If the pointer is positioned correctly, and rounding the corner with the specified radius is possible, an arc connecting the paths is displayed.
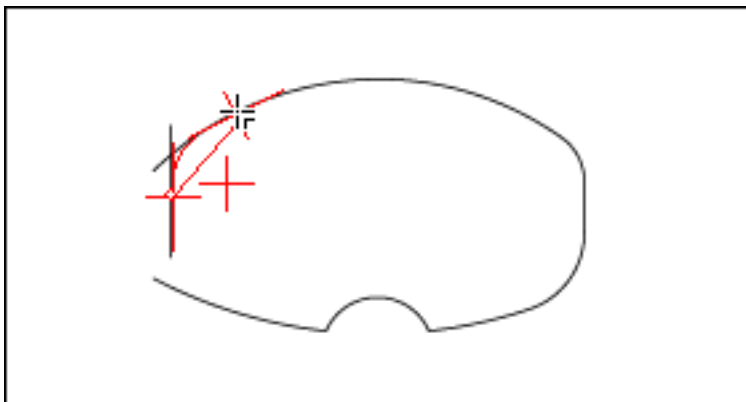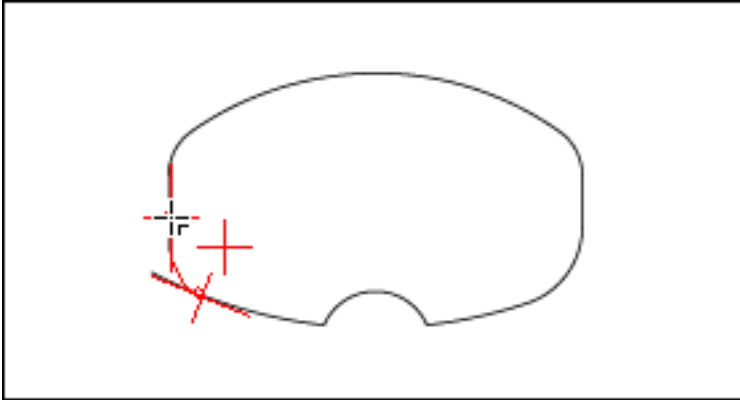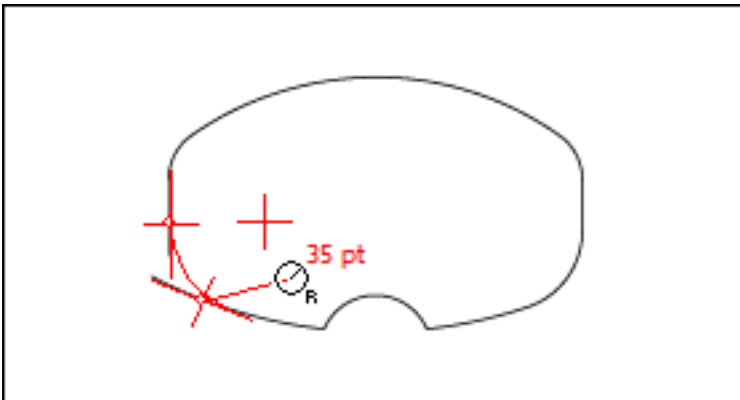
Press and hold the mouse button and drag the pointer to the second path. If the pointer is positioned correctly, and rounding the corner with the specified radius is possible, an arc connecting the paths is displayed.
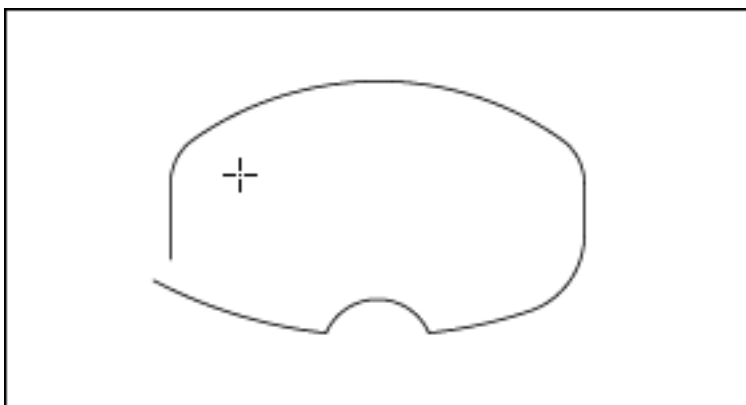
Release the mouse button. The two paths get connected by an arc segment forming a rounded corner.

The advanced way

Position the Fillet tool over the first path near the point where the fillet arc must start. A small triangle appears near the tool cursor when it is positioned correctly. A tangent mark is also drawn to indicate the curve affected.

Press and release the mouse button. Reposition the pointer over the second path. An arc connecting the paths is displayed if the pointer is positioned properly

Press and hold the mouse button, and drag the pointer to establish the desired radius. The connecting arc is drawn as you drag the mouse.
* Hold the Shift key while dragging to snap the radius to a discrete value, depending on the document view zoom. For example, if the ruler units are set to points, the radius may be snapped to 1 pt, 0.5 pt, 0.25 pt, 0.1 pt and so on. This allows to apply rounding with a specific radius without keyboard input.
* Hold the Option(Alt) key while dragging to revert the fillet direction.
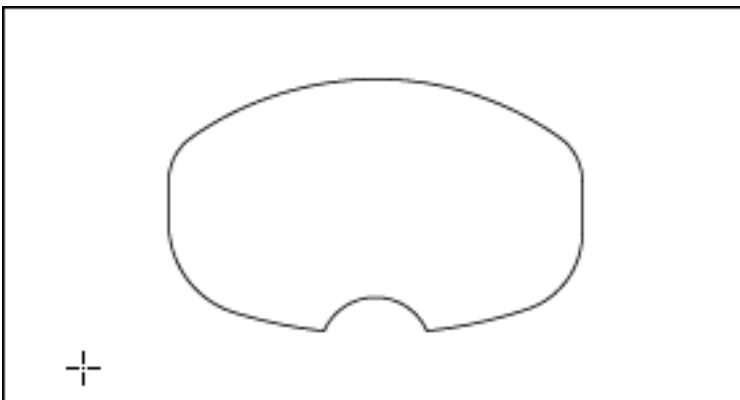
Release the mouse button. The two paths become connected with an arc segment forming a rounded corner.

Joining paths

Working with vector graphic you often find you have to join many disconnected paths into a single shape. This often happens when importing graphics. It can take a lot of time to select all the points pair by pair and apply join to them; and if two points do not coincide exactly, an unwanted extremely small line segment connects them. With PathToolkit, you simply select all the paths you need and join them into a single shape with one simple operation. For points that do not match exactly, you may choose to average them before joining or to connect them with a line segment or a smooth join.
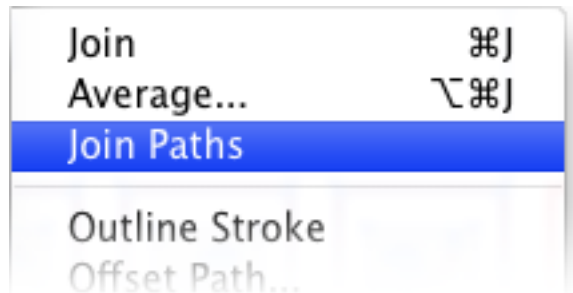
Select the paths to join. Then, from the Object menu, select Path -> Join Paths.
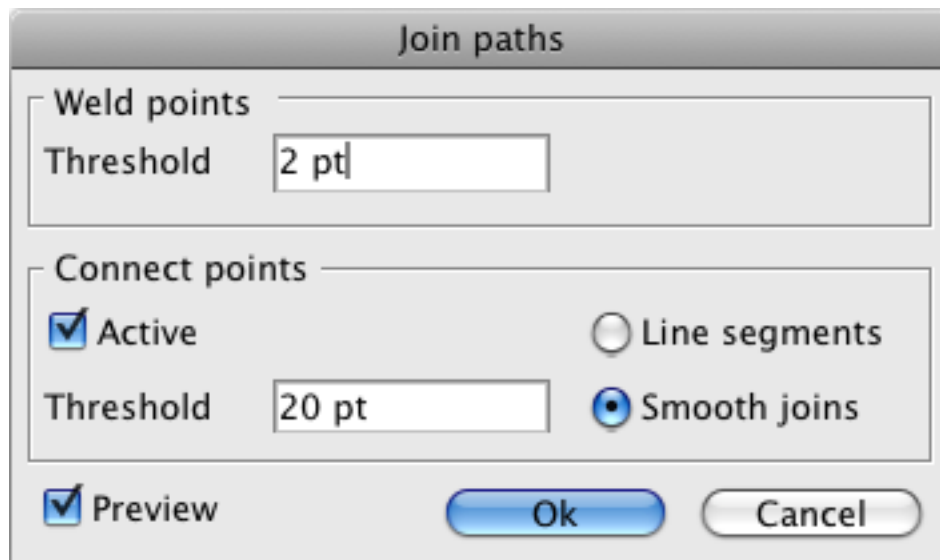
Select the paths to join. Then, from the Object menu, select Path -> Join Paths.
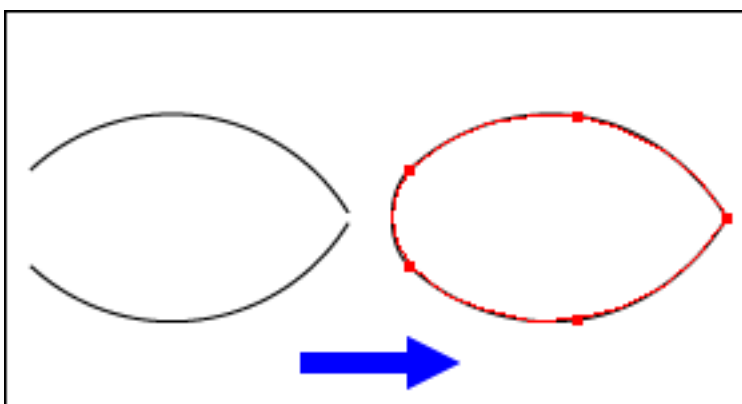
This figure shows an example of two paths joined with the Join Paths command. The two close points have been welded into a single point, and the gap between the two distant points has been filled by a smoothly joining path segment.
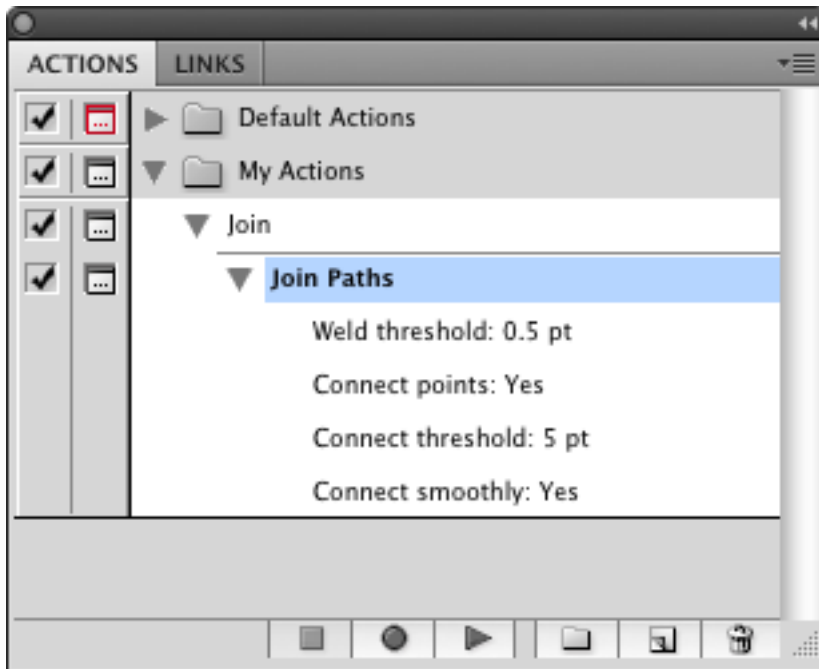
The Join Paths command is recordable in the Actions palette, so you can assign a keyboard shortcut to it. This also allows creating several different presets to perform different joins.

Connecting paths

With the standard tools, it is sometimes hard to connect two paths with a smooth join without changing the direction of the original paths. The [icon] Connect tool provides a fast and easy way to do this.
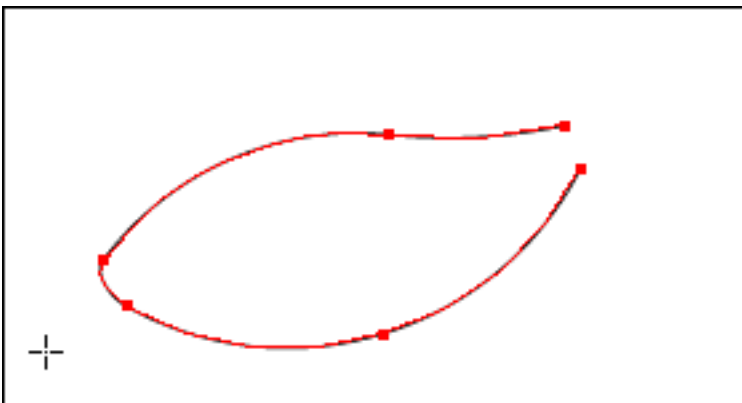
The simple way

With the [icon] Connect tool selected, position the pointer over the first endpoint you wish to connect. A small triangle mark appears near the cursor when the pointer is positioned properly.

Press and hold the mouse button. Drag the pointer to the other endpoint. The path segment connecting the endpoints is displayed when the cursor is positioned over an endpoint.

Release the mouse button. A smooth path segment connects the endpoints.

The advanced way
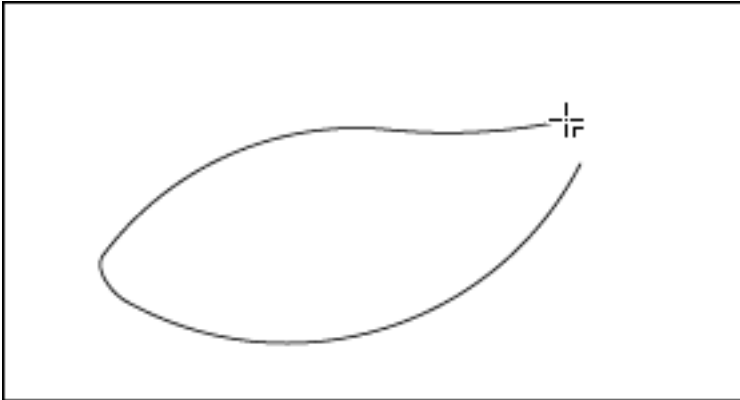
With the Connect tool selected, position the pointer over the first endpoint you wish to connect. A small triangle mark appears near the cursor when the pointer is positioned properly.
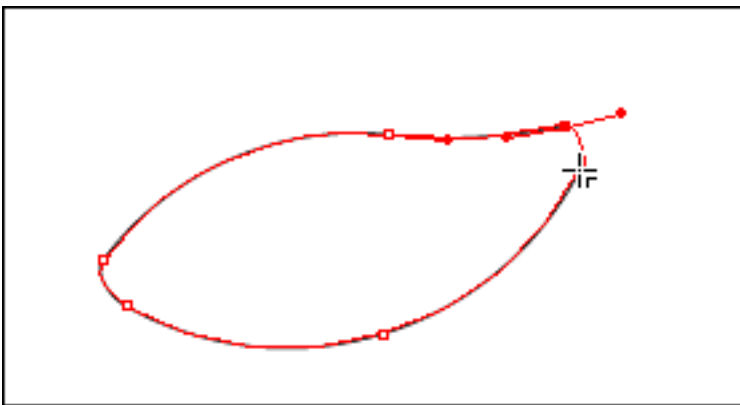
Press and release the mouse button. Position the pointer over the other endpoint. When the cursor is over the second endpoint, the joining segment is displayed.
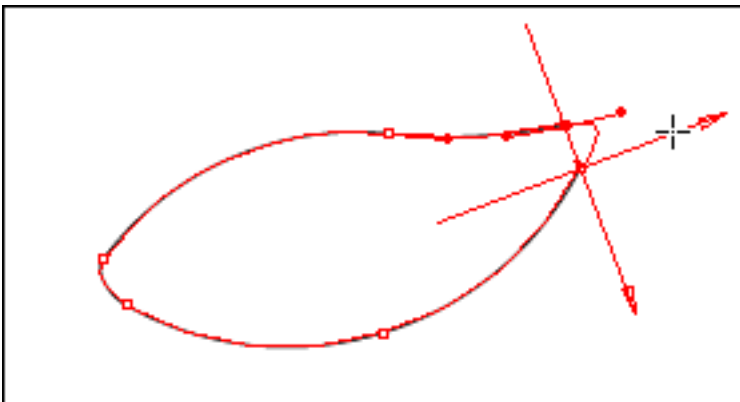
Press and hold the mouse button and drag the pointer to adjust the tension and balance of the join. Two axes are displayed when you start dragging, showing the directions for tension and balance adjustments.
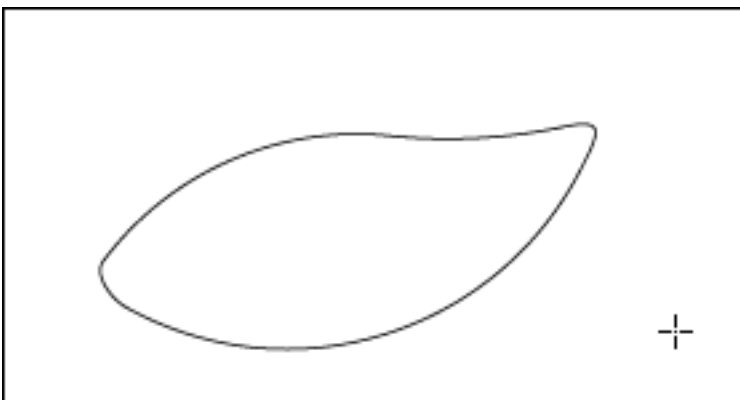
Release the mouse button. The paths become connected with a smooth join, closing the shape if necessary.

Trimming paths

There are many shape combining operations in Illustrator, but most of them operate on closed paths only. In many cases using the [Trim icon] Trim tool in conjunction with the [Join icon] Join Paths command would save much time – simply trim paths based on their intersections with other paths and then join them as needed.
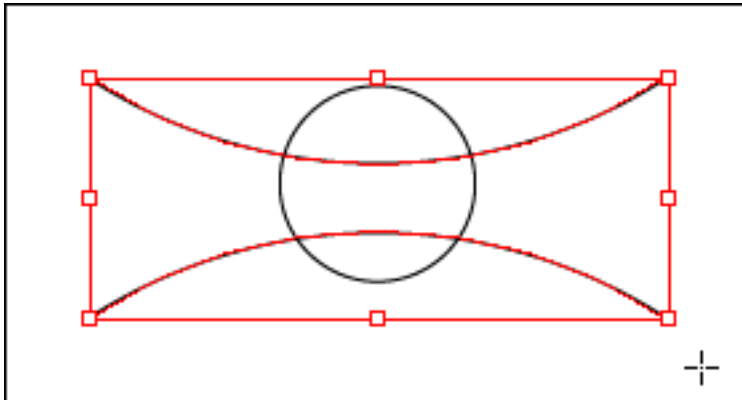
Select the paths to use as trimmers.
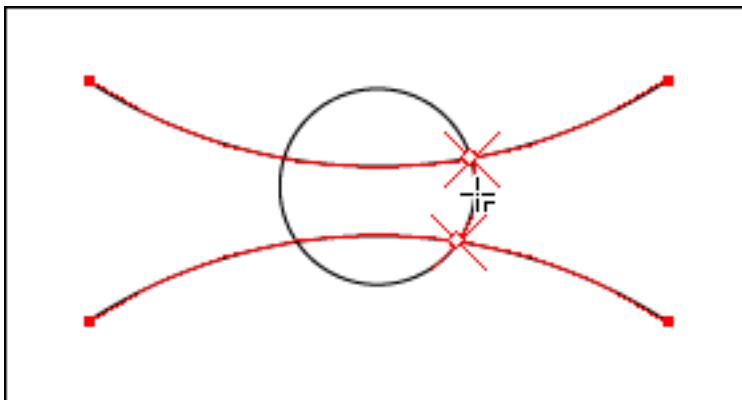
With the [Trim icon] Trim tool selected, position the mouse pointer over the path piece you want to remove. Two diagonal crosses are displayed, marking the exact path range that will be removed.
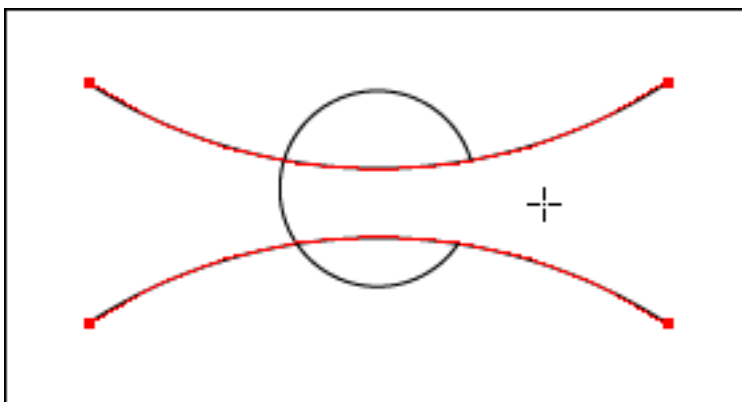
Press and release the mouse button. The marked path range is now trimmed away.

Extending paths

The ⊞ Extend tool is used to append a continuous segment to an existing path. You can extend a path to an arbitrary point or to intersection with another path. PathToolkit provides three flavors of the Extend tool: the ⊞ Line Extend tool appends a straight line segment, the ⊞ Arc Extend tool extends the path with an arc, and the ⊞ Smooth Extend appends a smooth curve.

Using the Line Extend tool
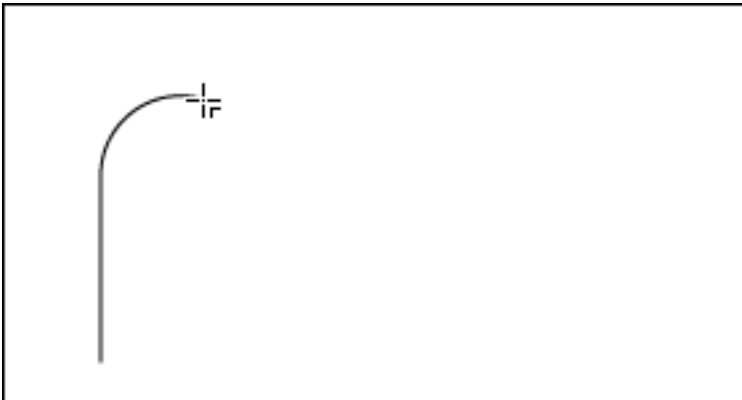
With the ⊞ Line Extend tool selected, position the mouse pointer over the endpoint of the path you want to extend. A small triangle appears near the cursor when the pointer is positioned properly.
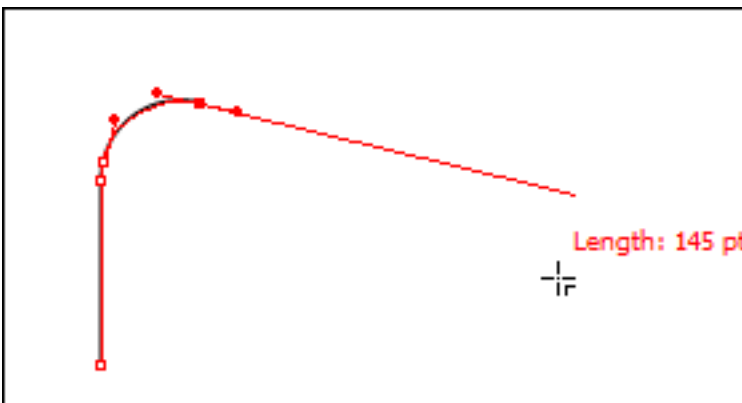
Press and hold the mouse button. Drag the pointer to the end of extension. The extension line is being drawn as you drag the mouse. Additionally, the length of extension, measured in in the current document ruler units, is displayed.

* Hold the Shift key while dragging to snap the extension length to a discrete value, depending on the document view zoom. For example, if the ruler units are set to points, the extension length may be snapped to 1 pt, 0.5 pt, 0.25 pt, 0.1 pt and so on.
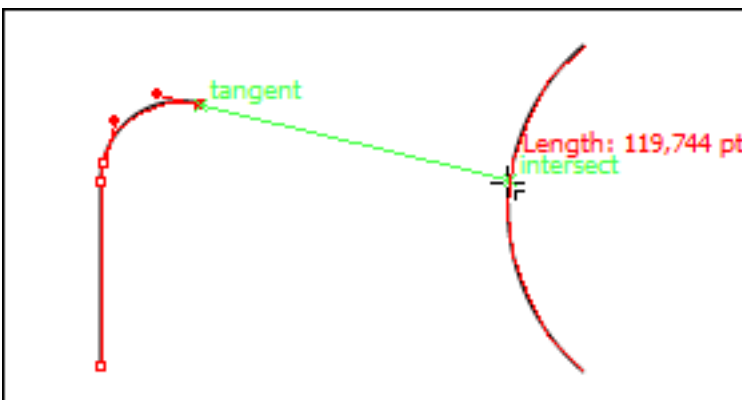
Use Smart guides to extend the path to the point where the extension intersects another object. Turn the smart guides on (View -> Smart Guides menu), and the tool shows an additional constraint line allowing to find the point of intersection. You will have to check the "Transform tools" checkbox in the "Smart guides" page of Illustrator preferences for this feature to work.
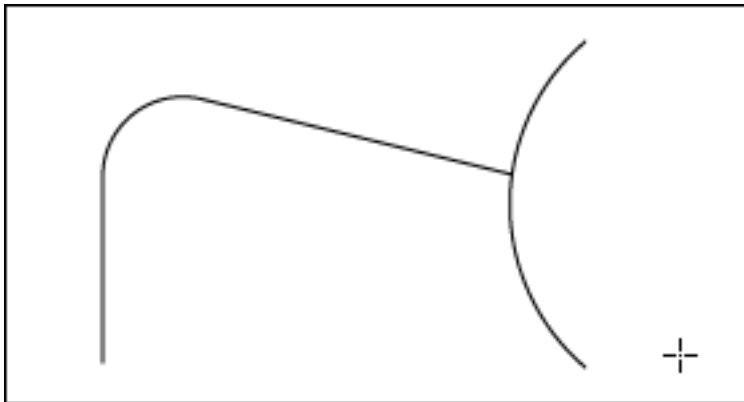
Release the mouse button. The path is now extended with a line segment tangent to the path at the endpoint.

## Using the Arc Extend and Smooth Extend tools

Radius: 38,186 pt
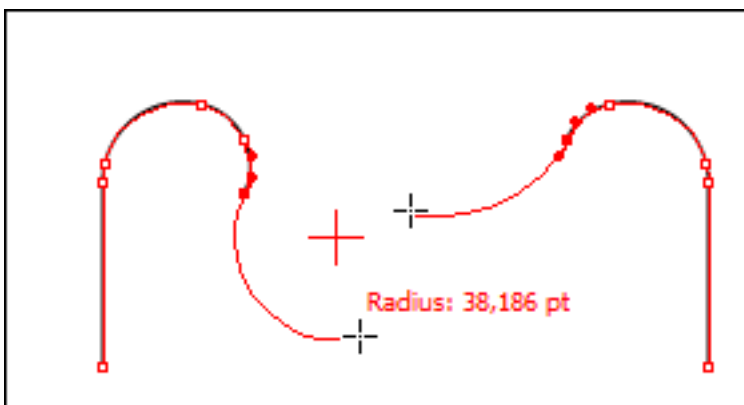
Using the [Arc Extend icon] Arc Extend and the [Smooth Extend icon] Smooth Extend tools is similar to using the Line Extend tool. First, with the proper tool selected, position the pointer over the endpoint of the path you want to extend. A small triangle appears near the cursor if the pointer is positioned correctly. Press and hold the mouse button and drag the mouse to the endpoint of extension. The extension curve is being drawn as you drag the mouse. For the [Arc Extend icon] Arc Extend tool, the center and the radius of the extension arc are also displayed. Then, release the mouse button and the extension curve is appended to the path.

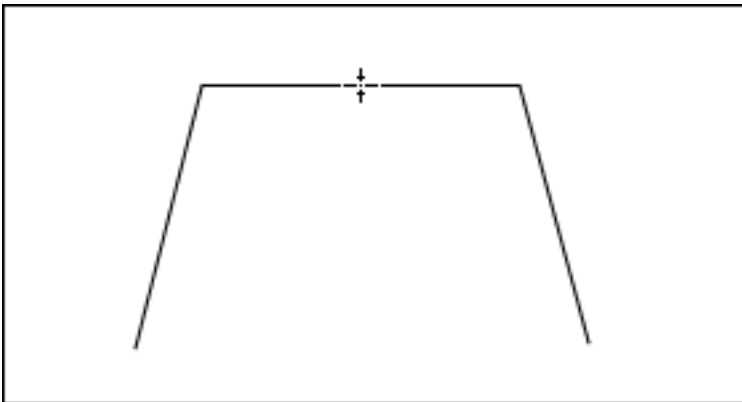# Straightening path segments

The Straighten tool is useful for refining existing artwork. It provides an easy way to tidy up shapes, aligning segments along horizontal or vertical axis.
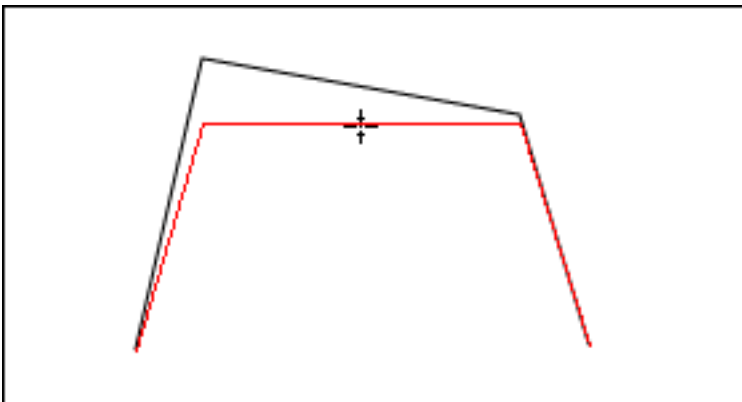
Aligning points
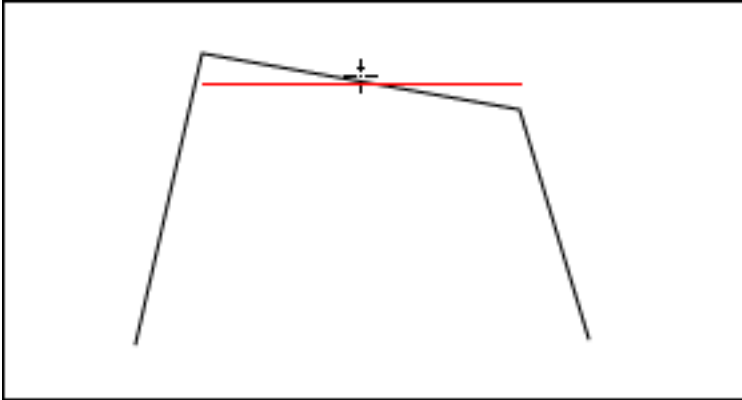
With the Straighten tool selected, position the mouse pointer over the path segment you want to straighten. A hint is displayed if the pointer is over a path segment.

* The tool determines alignment axis automatically. Hold the Option (Alt) key to change the alignment axis from horizontal to vertical and vice versa.
* Hold the Shift key to leave the segment curved, limiting the effect to aligning points only.

Press and release the mouse button. The tool straightens the path segment along horizontal or vertical axis.

Positioning the straightened segment

With the Straighten tool selected, position the mouse pointer over the path segment you want to straighten. A hint is displayed if the pointer is over a path segment. Press and hold the mouse button and move the cursor to establish the new position of the segment.
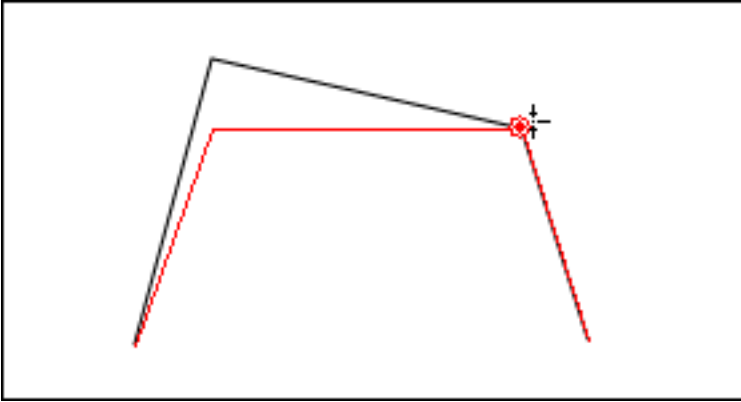
When Smart Guides are not enabled, the Straighten tool provides its own snapping mechanism, allowing to align the straightened segment with one of its points. While dragging, position the mouse cursor over one of the segment's points. The point is highlighted and the segment position is snapped to that point.

Setting segment's direction
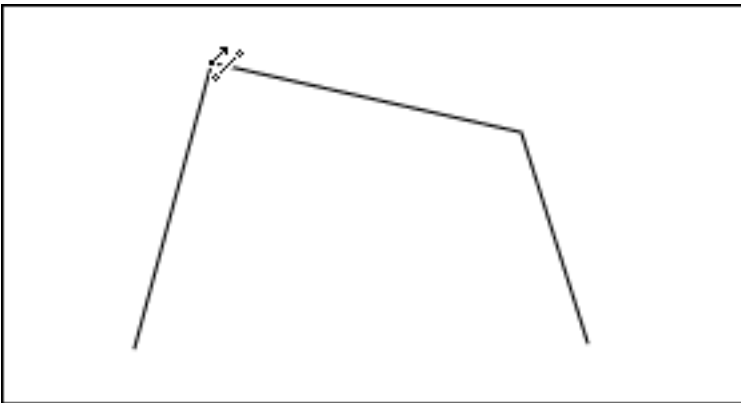
With the Straighten tool selected, position the mouse pointer over a path point. The cursor changes to direction arrow when is is positioned over a point.
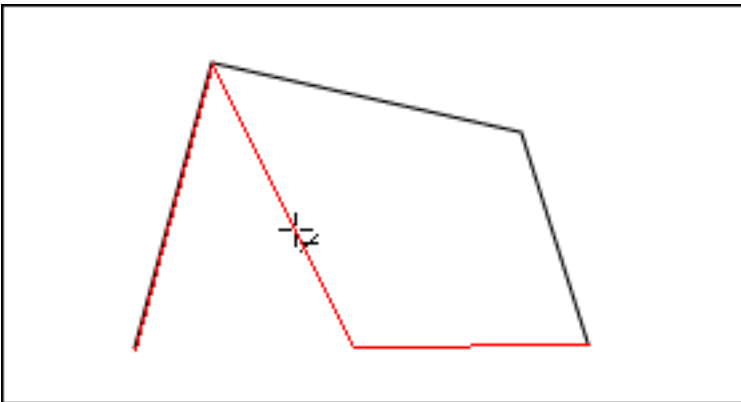
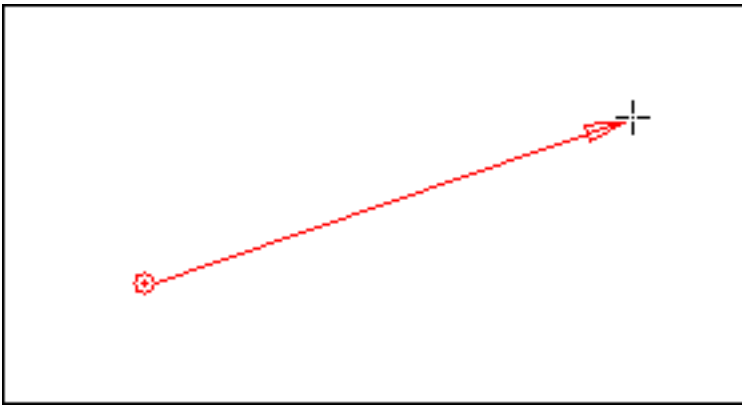Press and hold the mouse button and move the pointer to establish the segment's direction.
* Hold the Shift key to constrain the segment's angle to a multiple of 45 degrees.

Transforming artwork

The idea behind the Orient tool is to transform selected artwork from two reference points to two target points. This kind of transformation may be used:
  • To scale artwork along arbitrary axis; useful for scaling rotated objects
  • To position complex artwork to fit artwork points exactly to target points
 • To straighten rotated artwork without calculating angles

Defining the reference axis

First, define the reference axis which will serve as the origin of the transformation. Deselect all artwork, if any, and, with the Orient tool selected, position the mouse pointer over the point where the axis should begin. Press and hold the mouse button. Drag the pointer to establish the endpoint of the axis. Now you see the arrow which shows the reference axis. Alternatively, you may double-click the mouse button to reset the axis instead of deselecting artwork. When there's no reference axis defined in the document, this operation draws a new axis without affecting artwork.

* Hold the Shift key while dragging to constrain the axis angle to a multiple of 45 degrees.

Transforming artwork to a new axis
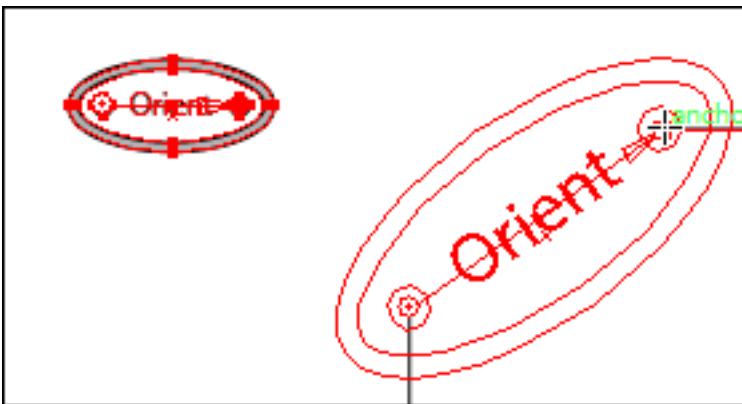
Make sure the reference axis is defined. Select the artwork you want to transform. With the Orient tool selected, position the mouse to the first target point. Press and hold the mouse button. Drag the mouse to establish the second target point. The new axis is drawn and the transformed artwork is displayed as you move the pointer.
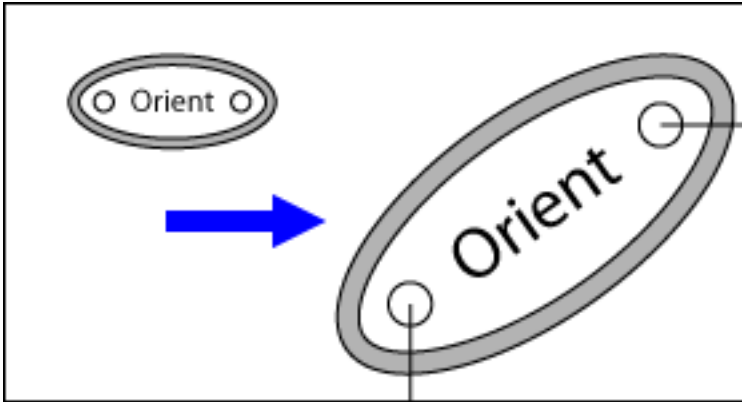
* Hold the Option(Alt) key while dragging to make a copy of the original artwork.
* Hold the Shift key while dragging to constrain the target axis to 45 degrees angle.
* If scaling is enabled, the tool scales artwork proportionally by default. Hold the Command (Ctrl) key to make the scaling unproportional.
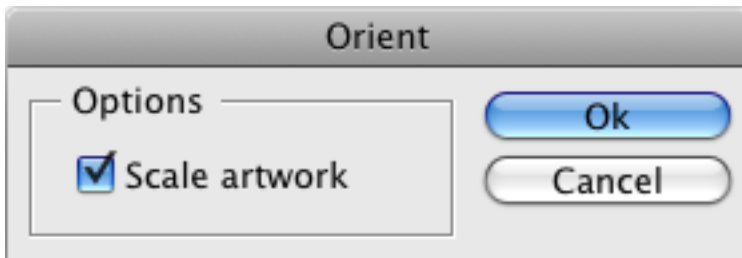
By default, Orient tool scales artwork to make reference points fit the target points. In some cases you might want to transform artwork without scaling. To turn scaling off, double-click the Orient tool icon to display the tool options dialog. Uncheck the "Scale artwork" checkbox and press the Ok button.

## Transforming artwork by adjusting axis
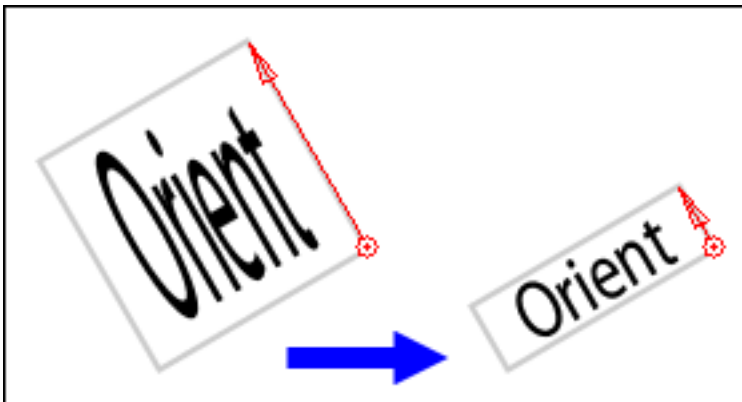
Select the artwork to transform. Activate the Orient tool and ensure the reference axis is displayed. Position the mouse pointer over the endpoint of the axis. If Smart Guides are on, an "axis end" text is displayed near the cursor. Press and hold the mouse button. Drag the pointer to the new location of the axis endpoint. Release the mouse button. The artwork is now transformed the same way as the axis.

* Hold the Shift key while dragging to lock the axis direction so that only scaling transformation is in effect.
* Hold the Command (Ctrl) key to make the tool scale artwork unproportionally.
* Hold the Option (Alt) key to duplicate the original artwork.
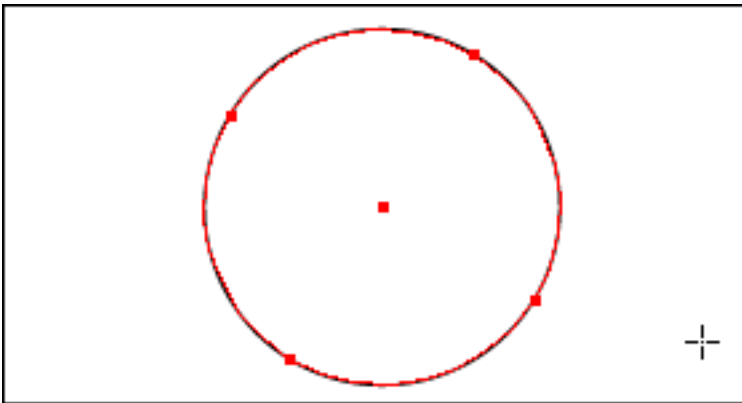
Drawing circles

PathToolkit provides two different ways to draw circles. The ⬚ 3 point Circle tool allows you to draw a circle defined by the two opposite diameter points or by the 3 points that the circle should pass through.

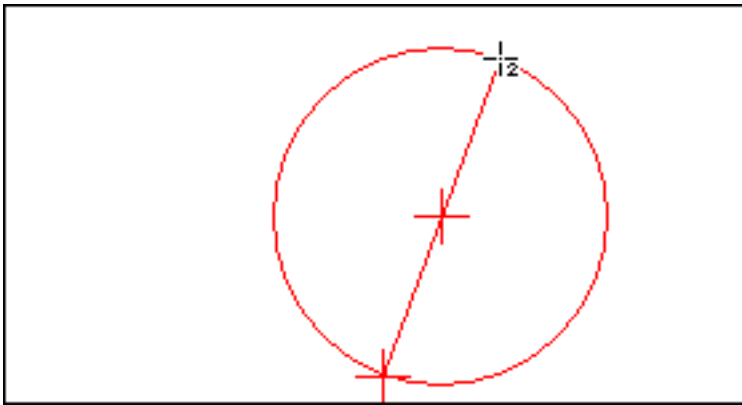## Drawing a circle by specifying its diameter
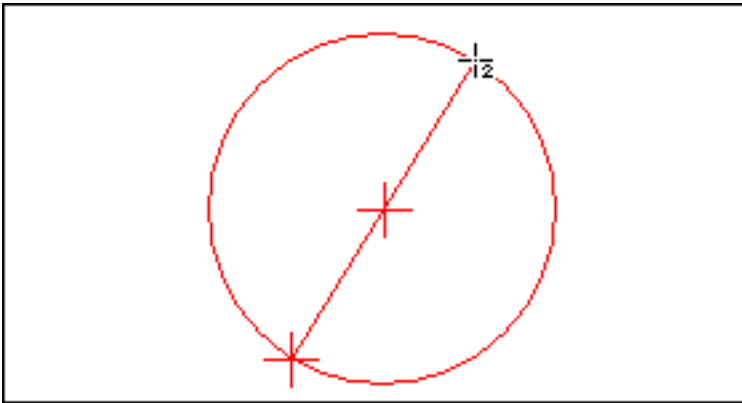
With the ⬚ 3 point Circle tool selected, position the mouse pointer to the first point of the diameter. Press and hold the mouse button and drag the pointer to the other point of the diameter. The circle is being drawn as you drag the mouse.

* Hold the Shift key while dragging to constrain the diameter angle to a multiple of 45 degrees.
* Hold the Option (Alt) key while dragging to snap the diameter to a discrete value, depending on the current view zoom. This allows precise drawing without keyboard input
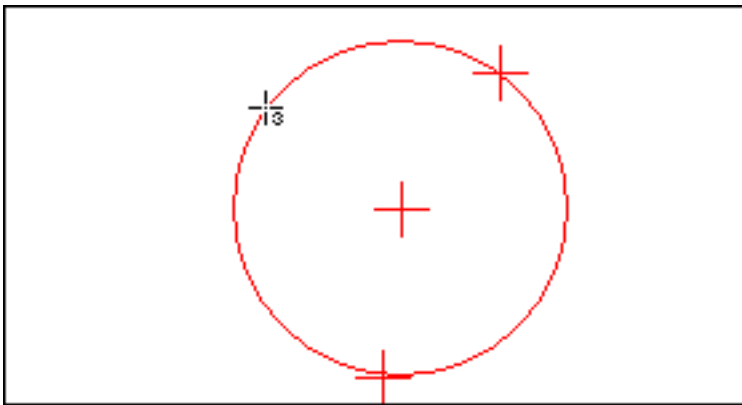
Release the mouse button. The circle defined by the diameter is created.
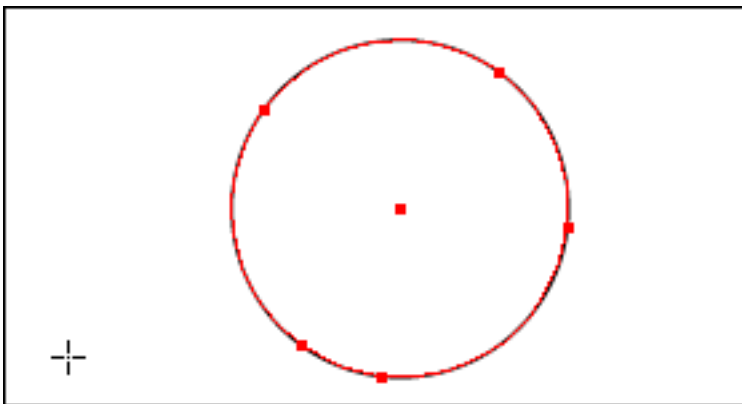
Drawing a circle by specifying 3 points

With the ⬚ 3 point Circle tool selected, position the mouse cursor to the first point that the circle must pass through. Press and release the mouse button. Move the mouse to the second point.

Press and hold the mouse button and drag the pointer to the third point. A circle is drawn as you move the mouse.


The circle defined by the three points is now created. PathToolkit may insert additional points to ensure that the circle passes exactly through the defined points.
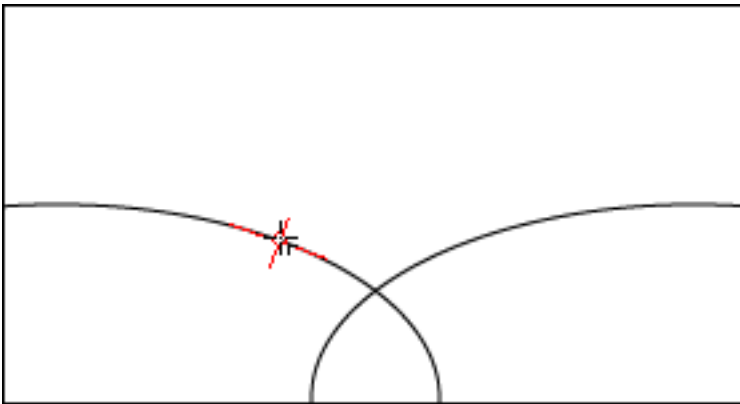
Drawing circles with the Tangent Circle tool

In some cases you might want the ⬚ Fillet tool not to trim the paths but simply draw a circle or an arc that would join them with a round corner. That is what the ⬚ Tangent Circle tool does – it draws a circle with the specified radius and that is tangent to the two paths.

The simple way
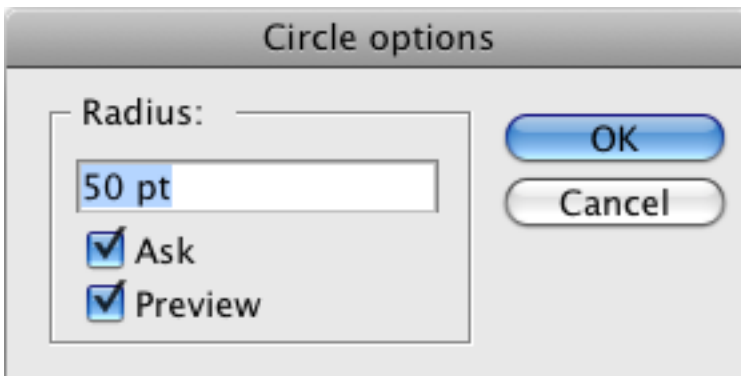
Double-click the ⬚ Tangent Circle tool icon to display the ⬚ Tangent Circle options dialog. Set the desired circle radius and press Ok. You may also check the "Ask" checkbox to make the application prompt for the radius each time you use the tool.

With the ⬚ Tangent Circle tool selected, position the pointer over the first path the circle must be tangent to. A small triangle mark appears near the tool cursor when the pointer is positioned correctly. A tangent mark is also displayed to mark the curve you select.
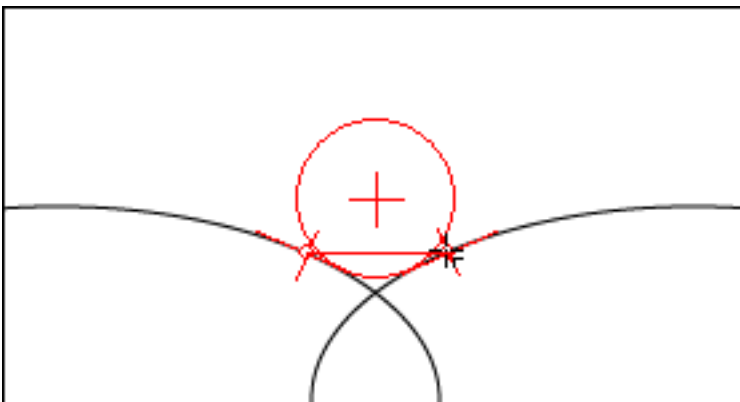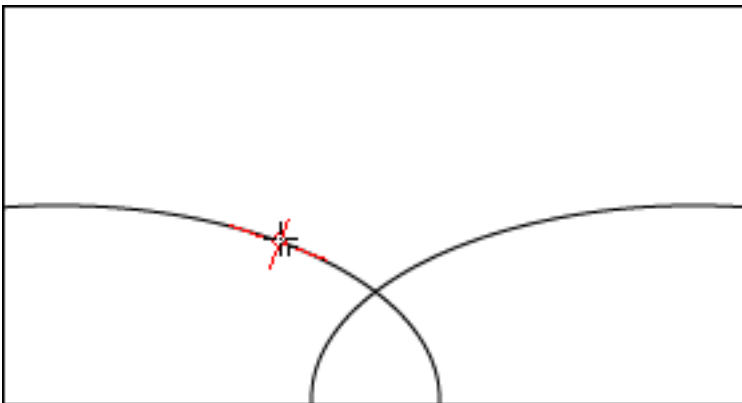
Press and hold the mouse button and drag the pointer to the second path. If the pointer is positioned correctly, and drawing the tangent circle with the specified radius is possible, the circle is displayed.
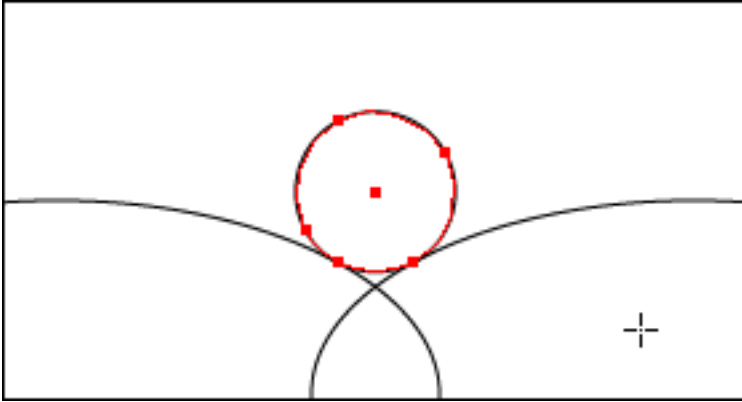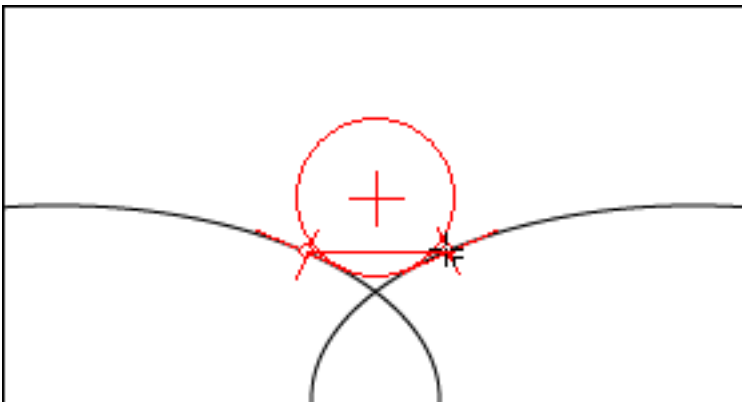
Release the mouse button. Now the tangent circle with the specified radius is drawn.

* For precision reasons, PathToolkit inserts additional control points on the circle where the it is tangent to the paths.

The advanced way

With the Tangent Circle tool selected, position the pointer over the first path the circle must be tangent to. A small triangle mark appears near the tool cursor when the pointer is positioned correctly. A tangent mark is also displayed to mark the curve you select.

Press and release the mouse button. Move the tool pointer over the second path. A small triangle mark appears near the cursor when the tool is positioned properly. If drawing the circle tangent to the paths with the specified radius is possible, the circle is displayed.
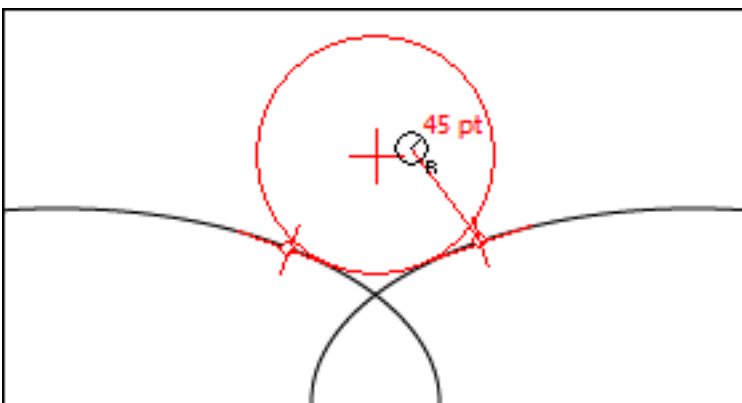
Press and hold the mouse button and drag the pointer to establish the desired radius for the circle. The circle is being drawn as you move the mouse.

* Hold the Shift key while dragging to snap the radius to a discrete value, depending on the document view zoom. For example, if the ruler units are set to points, the radius may be snapped to 1 pt, 0.5 pt, 0.25 pt, 0.1 pt and so on. This allows to set the desired radius without keyboard input.
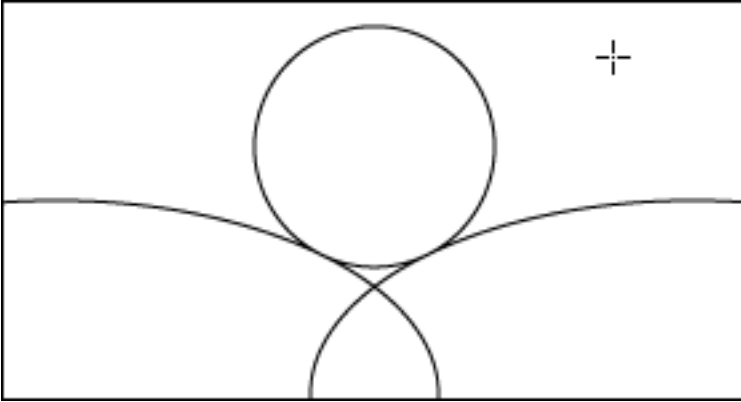
Release the mouse button. The tangent circle is now created.

Drawing arcs

PathToolkit provides three different arc tools. The Arc center-start-end tool draws an arc defined by its center point and the start and end points, the Arc by 3 points tool draws an arc that passes through 3 points, and the Arc start-end-direction tool draws an arc defined by its start and end points and the direction at start or at end.

Arc center-start-end
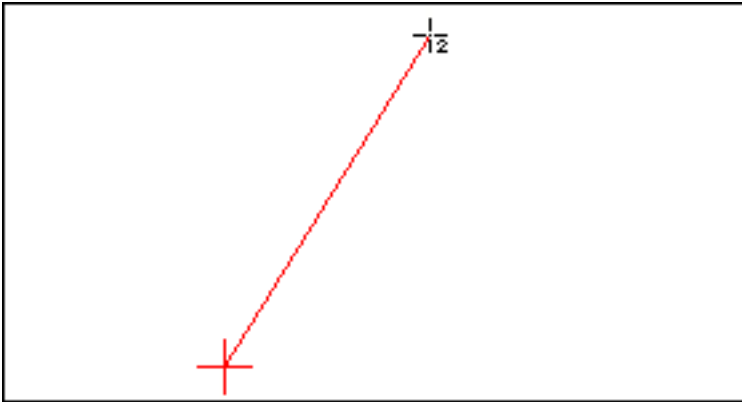
The Arc center-start-end tool draws an arc defined by its center and the start and end points. To use this tool, select it from the toolbox and position the cursor over the center point. Press and release the mouse button. Move the cursor to the point where the arc should start. A line from the center point to the cursor position is drawn as you move the mouse.

* Hold the Shift key to constrain the angle to the start point to a multiple of 45 degrees.
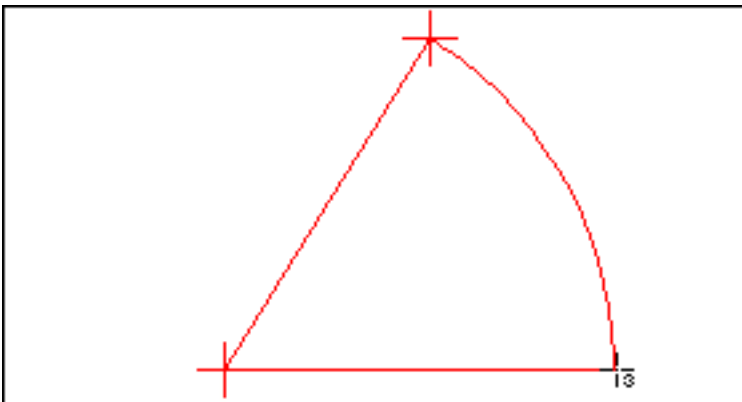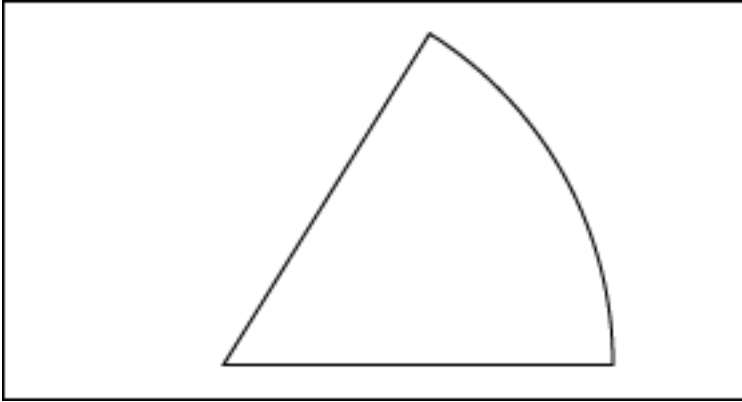
Press and hold the mouse button. Reposition the mouse pointer to the end point of the arc. The arc is being drawn as you move the mouse.

* Hold the Shift key while dragging to constrain the angle to a multiple of 45 degrees.
* Hold the Option (Alt) key while dragging to revert the arc direction.
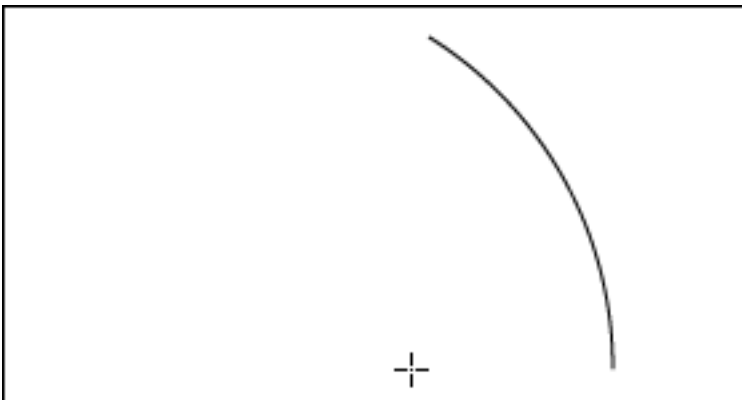
Release the mouse button. The arc from the start point to the end point is now created.

* Hold the Command (Ctrl on Windows) key while dragging to the last point to draw a pie shape instead of an arc. Because Illustrator changes the current tool to selection arrow when you press the Command key, it is required to start the drag first and hold the Command key after the drag is started.
* This function is available for all the three Arc tools.

Arc by 3 points
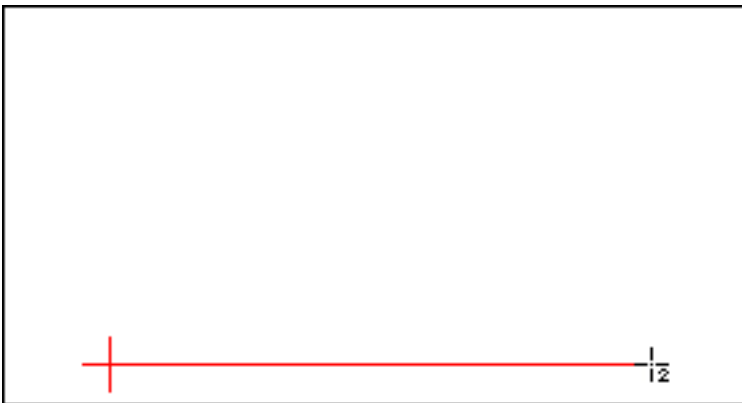
The [icon] Arc by 3 points tool draws an arc defined by three points that the arc should pass through. To use this tool, select it from the toolbox and position the cursor over the start point of the arc. Press and release the mouse button. Reposition the mouse to the end point of the arc. A line from the start point to the cursor is drawn as you move the mouse.

* Hold the Shift key while moving the mouse to constrain the line to a multiple of 45 degrees.
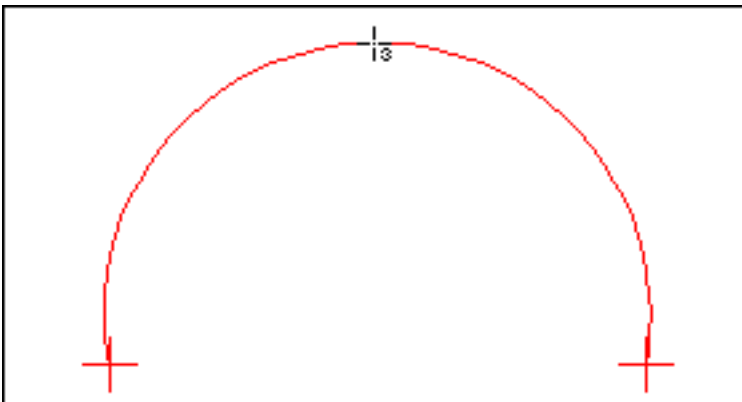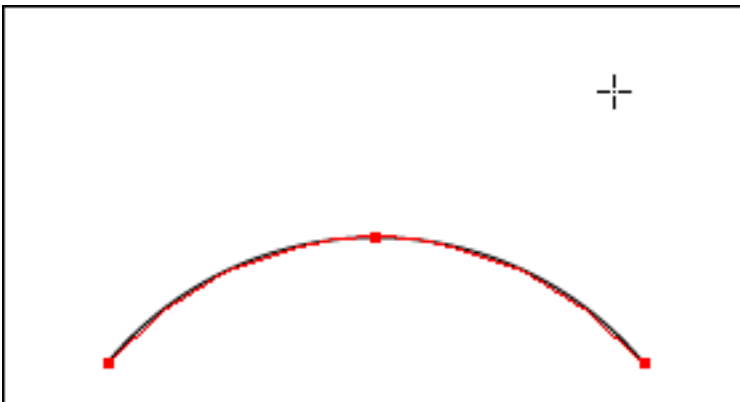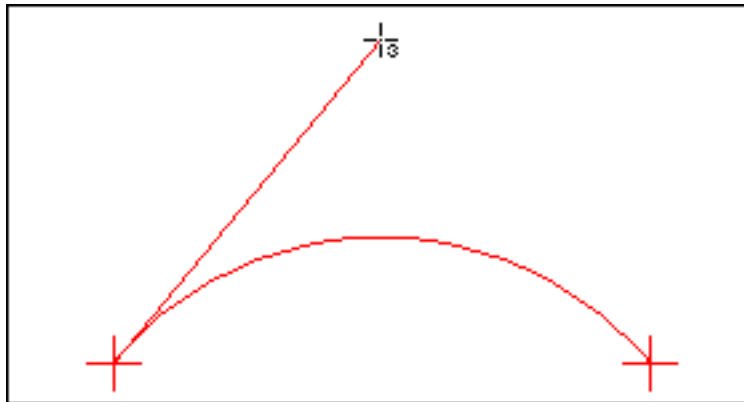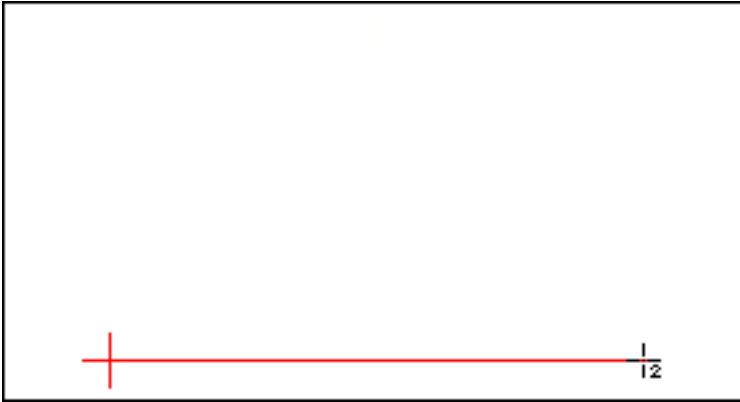
Press and hold the mouse button and drag the mouse to the third point. The arc is being drawn as you move the tool.
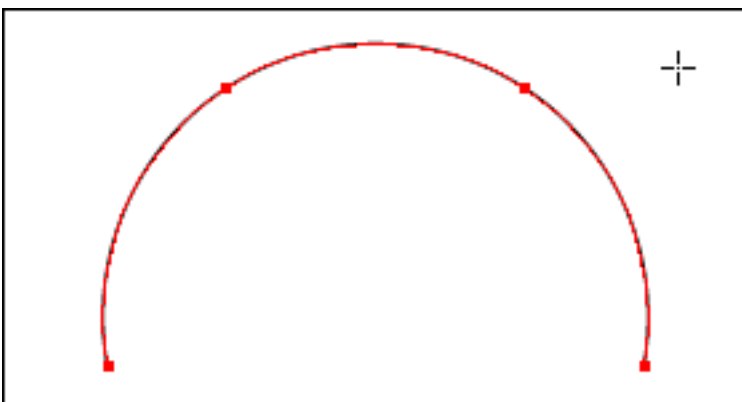
Release the mouse button. The arc defined by the three points you clicked is now created.

Arc start-end-direction

The Arc start-end-direction tool draws an arc defined by its start and end points and the direction either at start or at end. To use this tool, select it from the toolbox and position the cursor over the start point of the arc. Press and release the mouse button. Reposition the pointer to the end point of the arc. A line from the start point to the cursor is drawn as you move the mouse.

* Hold the Shift key while moving the mouse to constrain the line between the start and end points to 45 degrees angle.

Press and hold the mouse button and drag the mouse to establish the direction from the start point. The arc is being drawn as you move the tool.

Release the mouse button. The arc is now created.

* Hold the Option (Alt) key while dragging to draw an arc defined by the direction from the endpoint.

Drawing curvature circles

The ⬚ Curvature Circle tool can be used to measure curve radius at a point or to restore a whole circle from an arc segment.
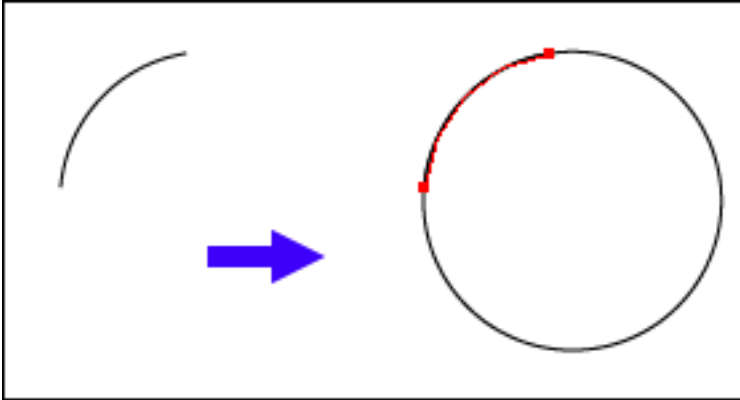
This figure shows reconstructing a circle from a small arc segment using the the ⬚ Curvature Circle tool.
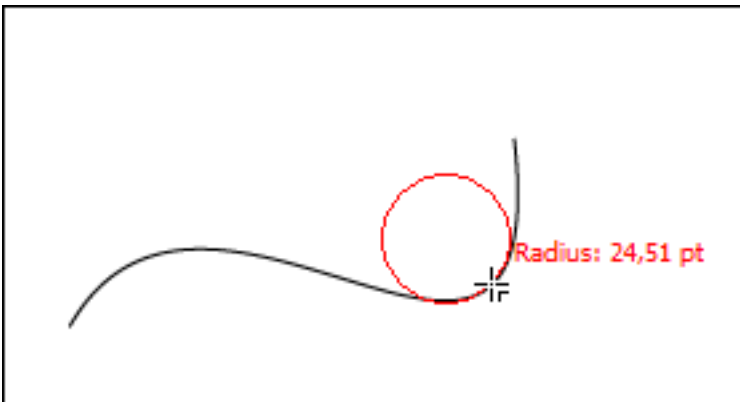
With the ⬚ Curvature Circle tool selected, position the pointer over a path. A circle with the radius matching the curvature radius of the path at the point under the cursor, and the radius label, are displayed.
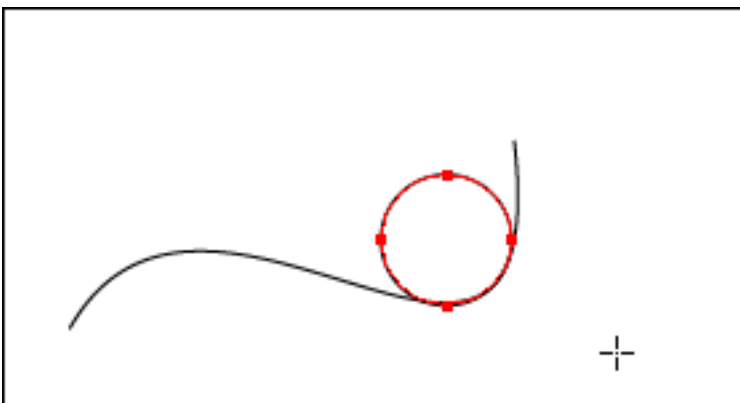
Press and release the mouse button. The circle is now created.

Further quesions

With any questions regarding PathToolkit, please contact us:
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Sales: sales@pathtoolkit.com