

Adobe Illustrator is a standard illustration software package used in the design professions. It will allow you to create detailed vector based artwork and text, giving you a powerful tool to use in the creation of print media and web graphics.

Computer graphics fall into two main categories, bitmap graphics and vector graphics. Adobe Illustrator is a vector based software package. Drawing programs such as Illustrator create vector graphics made of lines and curves, defined by mathematical objects called vectors. A vector graphic is resolution-independent! What this means for you is that unlike bitmap images, a vector based piece of artwork can be scaled to any size and printed on any output device at any resolution without losing its detail or clarity. **Vector graphics are the best choice for type, and bold graphics that need to maintain their crispness at various scales.**

In Adobe Illustrator you “draw” objects. Objects are simply the points, lines, shapes and paths that you create on the page. What makes Illustrator powerful is its ability to manipulate any object as a graphic element.

Creating Files

Creating a new files in Illustrator is easy: just go to File>New. After opening a new document the first thing you will want to do is set up your work area.

To change the size of the artboard choose File>Document Setup. The Document Setup dialogue box will appear. You can use the dialogue box to choose a preset artboard size from the Size pop up menu. Or you can create a custom size artboard as large as 227 inches by 227 inches.

Opening Saved Files

You can also open up saved documents into Illustrator. When you do this the Open command opens the document as a new Adobe Illustrator Document. (The file extension for Illustrator documents is document_name.ai)

To open a document: Choose File>Open

Note: If you want to change the units in the document choose File>Preferences>Units and Undo dialogue box

Work Space:

The **menu bar** across the top organizes commands under menus.

The **Tools panel** contains tools for creating and editing images, artwork, page elements, and so on. Related tools are grouped together.

The **Control panel** displays options for the currently selected tool.

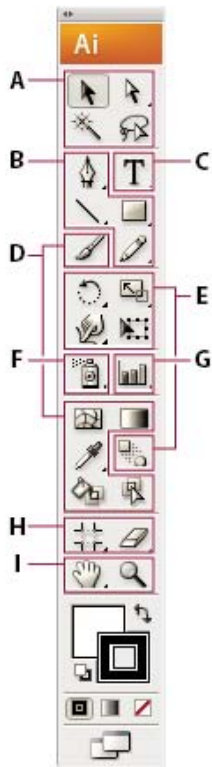
The **Document window** displays the file you’re working on.

Panels help you monitor and modify your work. Certain panels are displayed by default, but you can add any panel by selecting it from the Window menu. Many panels have menus with panel-specific options. Panels can be grouped, stacked, or docked.

Placing Files

The place places images into existing Illustrator documents in one of two ways. You can choose to create an external link to a file, (depending on file format), or you can embed a file into the .ai document.

Tools panel overview



A Selection tools

- **Selection (V)**
- **Direct Selection (A)**
- **Group Selection**
- **Magic Wand (Y)**
- **Lasso (Q)**

B Drawing tools

- **Pen (P)**
 - **Add Anchor Point (+)**
 - **Delete Anchor (-) Point**
 - **Convert Anchor Point**
- **Line Segment (\\)**
 - **Arc**
 - **Spiral**
 - **Rectangular Grid**
 - **Polar Grid**
- **Rectangle (M)**
 - **Rounded Rectangle**
 - **Ellipse (L)**
 - **Polygon**
 - **Star**
 - **Flare**
- **Pencil (N)**
 - **Smooth**
 - **Path Eraser**

C Type tools

- **Type (T)**
 - **Area Type**
 - **Type On a Path**
 - **Vertical Type**
 - **Vertical Area Type**
 - **Vertical Type On a Path**

D Painting tools

- **Paintbrush (B)**
- **Mesh (U)**
- **Gradient (G)**
- **Eyedropper (I)**
 - **Measure**
- **Live Paint Bucket (K)**
- **Live Paint Selection (Shift+L)**

E Reshaping tools

- **Rotate (R)**
 - **Reflect (O)**
- **Scale (S)**
 - **Shear**
 - **Reshape**
- **Warp (Shift-R)**
 - **Twirl**
 - **Pucker**
 - **Bloat**
 - **Scallop**
 - **Crystallize**
 - **Wrinkle**
- **Free Transform (E)**
- **Blend (W)**

F Symbol tools

- **Symbol Sprayer (Shift+S)**
- **Symbol Shifter**
- **Symbol Scruncher**
- **Symbol Sizer**
- **Symbol Spinner**
- **Symbol Stainer**
- **Symbol Screener**
- **Symbol Styler**

G Graph tools

- **Column Graph (J)**
 - **Stacked Column Graph**
 - **Bar Graph**
 - **Stacked Bar Graph**
 - **Line Graph**
 - **Area Graph**
 - **Scatter Graph**
 - **Pie Graph**
 - **Radar Graph**

H Slicing and cutting tools

- **Crop Area (Shift+O)**
 - **Slice (Shift+K)**
 - **Slice Select**
- **Eraser (Shift+E)**
 - **Scissors (C)**
 - **Knife**

I Moving and zooming tools

- **Hand (H)**
 - **Page**
- **Zoom (Z)**

■ Indicates default tool * Keyboard shortcuts appear in parenthesis

When you create an external link to a file it is not included in the Illustrator file itself, creating a smaller sized file. When you choose to embed an object, on the other hand, it becomes a permanent part of the .ai document. To place a saved document: Choose File>Place The Place Dialogue box will open.

Note: If you choose to make an external link to an a file it must always accompany the Illustra-
tor File! To avoid the potential headaches associated with this you may choose to embed the
file instead.

Viewing artwork

Scrolling with the hand tool:

By selecting the hand tool you have the ability to drag an image anywhere on the artboard, or
into the scratch area.

Note: To select the hand tool while allowing another tool to be active hold down the space bar.

Zooming:

The Zoom in/Zoom out tool allows you to enlarge or decrease the view of your artwork. Once
the tool is selected you can click on any area you wish to zoom in on. To zoom out position the
pointer over the area you wish to zoom out from and click while holding down the option key on
the keyboard. (The plus symbol inside the magnifying glass will change to a minus sign.)

Note: To select the zoom in tool while allowing another tool to be active hold the space-
bar and the command key, (the "apple key"), and zoom. To select the zoom out tool use
spacebar+command key+option key to zoom.

The Selection Tools

Making selections is critical to be able to use Illustrator effectively. In order to make any kind of
adjustment to a drawing you must first select what you wish to manipulate.



Illustrator takes advantage of the following selection tools:

The **selection tool** is used to select entire objects

The **Direct Selection Tool** is used to select portions, or segments of objects

The **Group selection tool** is used to select a single object within a set of objects you have
defined as a group.

Position the selection tool over the portion of the artwork that you wish to manipulate and click.
When the object turns blue you know that it has been selected.

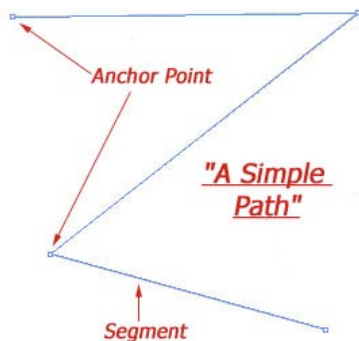
Drawing with Illustrator

Adobe Illustrator provides a number of ways to draw objects, from simulated paintbrushes to
detailed pen strokes. This tutorial focuses on drawing using the Pen Tool because it will give
you the most control over your vector artwork.

Paths

A path is any line or shape that you create using the Illustrator drawing tools. A simple line, a
rectangle, or the detailed edge of a drawn leaf are all paths.

In Illustrator, line segments, anchor points, and direction lines work together to create to create
paths. Once you draw a path you can edit it by changing its size, shape, location and color
The first and the last points on a path are referred to as endpoints.



Path Types

There are two kinds of paths, open, and closed. Open paths have a distinct beginning and end, (think Line), while closed paths loop and have no end, (think circle).

To create a closed path use anchor points to loop a line around so it is heading towards an endpoint, or some other anchor point at the position you want to close the path. Position the pen tool over this anchor point and click when you see a small open circle form next to it. This will join the first and last anchor points.

Note: After creating a closed path the next time you click with the pen tool a new path will begin.

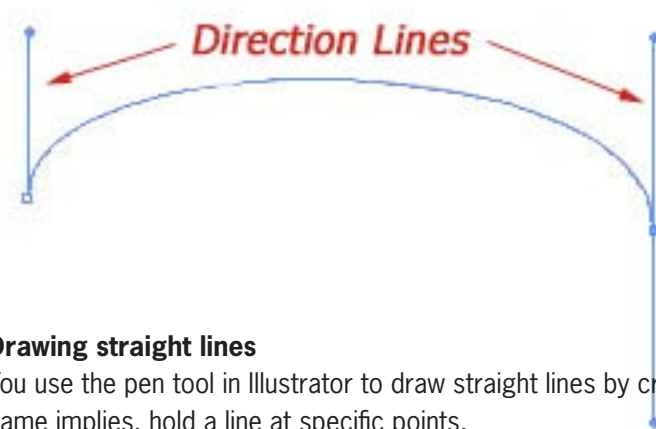
Joining Paths

In order to create a line which begins from an existent anchor point position the pen tool over the anchor point and click when a small slash forms next to it. This will combine the two anchor points.

Direction Lines

On a curved segment a selected anchor point displays one or two direction lines ending in direction points. The position, direction and length of the direction lines control the shape of a curve. Moving direction lines reshapes a curve!

Direction lines are always tangent to (touching), the curve at the anchor points. The slope of each curve, and the length or each direction point determine the height, or depth, of the curve.



Drawing straight lines

You use the pen tool in Illustrator to draw straight lines by creating anchor points, which as the name implies, hold a line at specific points.

To begin a line position the pen tool over the point where you want the line to begin and click. You will create an anchor point. To complete a line segment position the pen tool over the point where you want the segment to end. A second anchor point is created and a line forms between the two. Every subsequent click of the mouse will add another line segment to the path. If you see a carrot symbol next the pen tool while you are using it that means that the segment will begin at the last anchor point.

To keep lines vertical, horizontal and diagonal hold down the shift key while creating line segments. This is known as constraining the line.

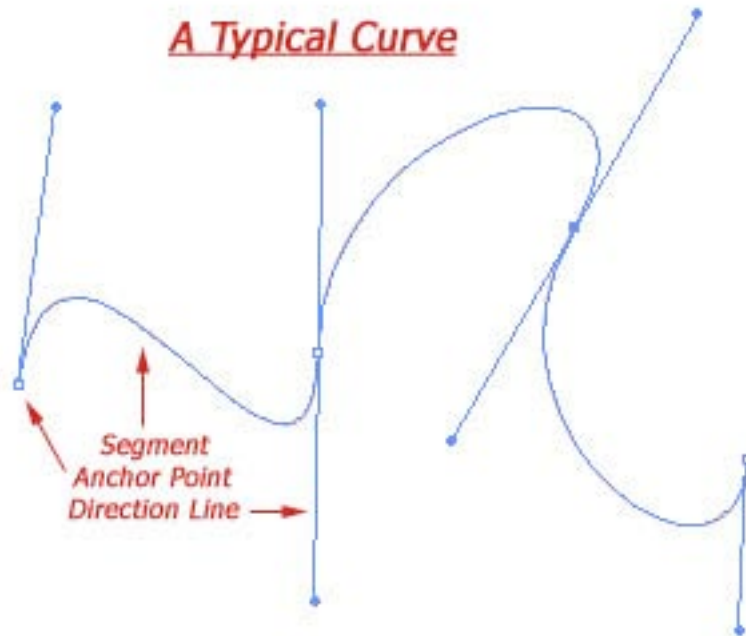
In order to begin a new line segment you must end the current path. To do this you “click away” from the line. Choose the selection tool from the toolbox and click away from the line to end the path. Or you can Choose Edit>Deselect All. If you see a small x next to the pen tool you know that you are a click away from a new path.

Note: The quickest way to click away from a line is to hold down the command key, which turns whatever tool is active into the last selection tool used, and click away from the line.

Drawing Curves

Notice! You are about to enter the wild world of curves. Be patient as the territory may feel strange at first. Don't worry, the ride gets less bumpy in little time!

In Adobe Illustrator you draw what is known as a Bezier Curve. You do this by setting anchor points and dragging to create the desired curve. The process will take some getting used to, but once learned, it will allow you to create curves with a great deal of precision and control.



To draw a curve you use the pen tool to first set an anchor point where you want the curve to begin. Before you release the mouse button drag in the direction you want the “bump” of the curve to go. (e.g. To draw mountains drag upward. To draw depressions drag down!) As you drag direction lines sprout up from the anchor point. (Remember: Direction lines can be manipulated to change the curves direction.)

The next step in creating a curve is to set an anchor point at the position you want the curve to end. Click at this point and, again before you release the mouse button, drag in direction you want the curve to go. (To make a C-shaped curves drag downward. For S-shaped curves drag upward.)

To continue the line segment keep creating anchor points. Just click and go for straight lines. Click and drag to make curves. Click away from the current path with the selection tool to end it.

Tips for Drawing Curves

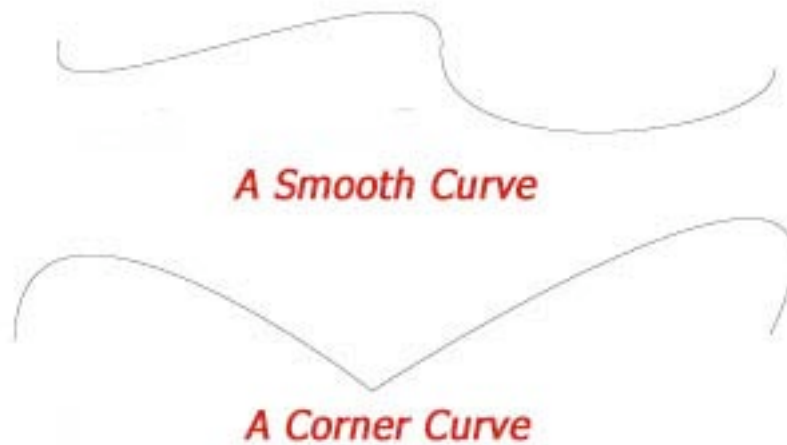
Four out of five curve experts agree that the best way to have control over the look of a curve is to drag the direction point one third of the length of the desired curve were it laid flat.

Try and use as few anchor points as possible when drawing curves. Think about taking broad strokes with a pen. Using less anchor points will not only make your curves “sexier”, it will allow your file size to be smaller, and your display time to be less.

Try to position an anchor point on each end of a curve, rather than having a third anchor point placed somewhere along the curves length.

Corner points vs. Smooth curves

Curves can also be manipulated by changing corner points into smooth curve points, and smooth points into corner points. Creating a corner point lets you change the direction of a curve.



To create a corner point first draw two curved segments according to the directions above. To change the anchor point at their middle to a corner point use the Convert Direction Point Tool, and click on the anchor point you want to become a corner point. You can also do this process in reverse to change a corner point into a smooth curve

Creating Basic Shapes

Illustrator makes it easy to draw, edit, and combine basic shapes.



To create a basic shape:

Select a shape making tool and click where you want the shape to originate on the page and then drag until the shape is the desired size.

Manipulating Objects:

Illustrator provides a wide range of tools to manipulate objects.

Note: Always remember that you must first select the items you wish to manipulate.

Transform tools: scale, rotate, sheer, flip, smooth...

Manipulating Straight Paths

The main way to manipulate straight lines is to select and move the location of anchor points. As you do this you can immediately see the effect it has on the path.

To Move an Anchor Point:

Select the anchor point and drag it to a new location.

Note: You know an anchor point is selected when its hollow rectangle becomes solid.

You can also drag the object around the artboard by using the select tool. Drag inside the bounding box to move the object.

Editing Curves

Like lines, curves can be manipulated. One way to do so is to move the location of anchor points. As you do this you can immediately see the effect it has on the path. Moving anchor points is the same no matter what the paths shape.

A second way to manipulate curves is to change the length or orientation of an anchor points direction lines. Simply grab a direction line using a selection tool and drag. Again, you immediately see the effects of dragging direction lines.



See the effect of moving direction lines?

Curves can also be manipulated by changing corner points into smooth curve points, and smooth points into corner points.

To change an anchor point to a corner point use the Convert Direction Point Tool, and click on the anchor point you want to become a corner point. You can also do this process in reverse to change a corner point into a smooth curve.

Manipulating Shapes

Shapes can be manipulated in many ways. Like lines, and curves, closed paths can be manipulated. One way to do so is to move the location of anchor points. As you do this you can immediately see the effect it has on the path.



Dragging Anchor Points:
A Polygon Before and After

Note: Moving anchor points is the same no matter what a paths shape.

More ways to manipulate basic shapes

To duplicate an object: select it, copy it, and then paste it into the artwork

To add points/corners/sides to an object press the up and down arrows on the keyboard as you drag out the shape.

To rotate a shape move the pointer in an arc, (do not depress the mouse button) after you have dragged it out to the desired size.

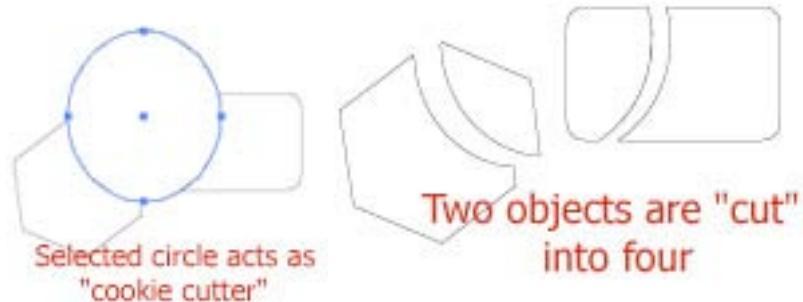
To move a shape, hold down the spacebar and move the object after you have dragged it to the desired size, but before you depress you mouse button

Cutting Paths

There are several ways to “cut” a path.

The Slice Tool:

The slice command, (found under the Object menu), lets you select an object and use it like a cookie cutter to cut through other objects.



The Knife and Scissors Tools:



The knife command:

The knife tool slices objects along a freehand path you draw with the tool “cutting” the object into parts.

To use select the knife icon from the toolbox and then drag the pointer over an object. The knife will cut in a freehand path of your choosing.

Note: To cut in a straight path option-drag with the knife tool.

The Scissors command:

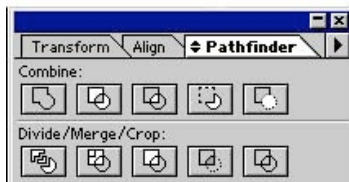
The scissors tool is a quick way to cut a path into two separate segments.

To use the scissors tool select it from the toolbox and place the pointer over the point on the path you want to cut.

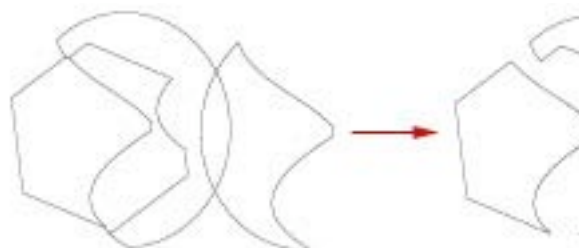
Remember: You cannot edit any object until you select it!

The Pathfinder

Pathfinder commands change the shapes of objects by adding or subtracting the outlines, or paths, around them. The pathfinder commands combine, isolate and subdivide objects. They also build new objects by intersection.



Note: To know what each tool does hold the pointer over the icons at the bottom of the dialog box until their name is revealed.



Experiment with the different pathfinder options!

Working with Type

One of the powerful features of Adobe Illustrator is the ability to use type as a graphic element.

To add type you use the type tool.

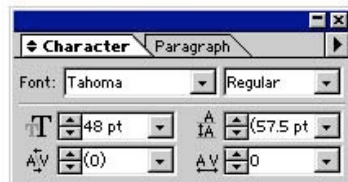
Select the type tool from the toolbox, and the pointer turns into an I-Beam. To begin adding type to a piece of artwork you position the I-Beam over the portion of the image where you want the type to begin, click, and then type away!

Note: To stop typing you click away from the type using a selection tool.

Setting Type Attributes

The character pallet has controls for manipulating type by allowing you to set the font, size, leading, kerning and other type characteristics.

Setting type attributes



If the character pallet is not visible choose Type<Character Pallet

Once type has been selected its attributes are displayed in the character pallet, and selecting different attributes immediately changes the type.

Note: In order to change type attributes you must first select the type using the selection tool.

To convert text to an object: Type menu > Convert to Outlines

Rulers and Guides:

Illustrator can display rulers in both the horizontal and vertical direction. They are useful when you need to accurately place objects on the page, or when you need to line up imported documents.

To show or hide the rulers choose View>Show Rulers or View>Hide Rulers

Note: To set the unit of measurement for the rulers choose File>Document Setup and choose the unit of measurement from the pop up menu.

Ruler Guides are straight horizontal or Vertical lines created by the Ruler that will further help you to align objects on a page.

Hint: Guides are a great way to set up a alignment lines across both the length and width of the page, allowing you to align objects in "boxes"

To create a Ruler Guide you need to have your rulers showing. Then you simply place the pointer in either of the rulers and drag. Drag from the top ruler down for horizontal guides, and from left to right for vertical guides.

Layers

Layers are useful because they allow you to organize your work into levels that can be edited or viewed separately. Once you create your layers you can work with them in various ways. They can be duplicated, reordered, merged, removed and flattened.

Trace artwork

If you want to base a new drawing on an existing piece of artwork, you can trace it. For example, you can create a graphic based on a pencil sketch drawn on paper or on a raster image saved in another graphics program by bringing the graphic into Illustrator and tracing over it.

The easiest way to trace artwork is to open or place a file into Illustrator and automatically trace the artwork with the Live Trace command. You can control the level of detail and how the tracing is filled. When you are satisfied with the tracing results, you can convert the tracing to vector paths or a Live Paint object.

Automatically trace artwork

1. Open or place a file to use as the source image for the tracing.
2. With the source image selected, do one of the following:
 - To trace the image using a tracing preset, click the Tracing Presets and Options button in the Control panel, and select a preset.

To trace the image using the default tracing options, click Live Trace in the Control panel, or choose Object > Live Trace > Make.

To set tracing options before you trace the image, click the Tracing Presets and Options button in the Control panel, and choose Tracing Options. Alternatively, choose Object > Live Trace > Tracing Options. Set tracing options, and then click Trace.