



Online Guide

Adobe Illustrator™ version 5.5



Adobe Illustrator Online Guide

This online guide contains all the information you need to use the Adobe Illustrator program. Use the list of topics to the left of the window to find the topic you are interested in; double-click the page icon to the left of a topic name to jump to that topic in the guide.

Click any of the following topics for more information:

- [How to use this online guide](#)
- [Tools](#)
- [Palettes](#)
- [Menu commands](#)
- [Index](#)

How to Use This Online Guide

Use the following procedures to navigate through this guide:

- Press Return or PageDown to scroll one *screenful* at a time.



- Click the Next Page button in the tool bar or press the Down Arrow key to go to the next page of the guide.



- Click the First Page button in the tool bar to return to the opening screen of this guide.



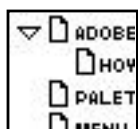
- Click red, underlined text to jump to the topic indicated. Red underlined text indicates text that is “linked” to another part of the guide.



- Click the Go Back button in the tool bar to return to your previous location.



- Click the arrow button to jump to the next page of any continued topic.



- Double-click the page icon to the left of a bookmark name to jump to the topic marked by that bookmark. Click the triangle to the left of a bookmark to show and hide subtopic bookmarks.

See the Acrobat Reader Online Guide for more information on using the Acrobat Reader program.

Palettes

- [Layers palette](#)
- [Info palette](#)
- [Paint Style palette](#)
- [Gradient palette](#)
- [Character palette](#)
- [Paragraph palette](#)
- [Tab Ruler palette](#)

Menu Commands

- [File menu](#)
- [Edit menu](#)
- [Arrange menu](#)
- [View menu](#)
- [Object menu](#)
- [Font menu](#)
- [Type menu](#)
- [Window menu](#)
- [Filter menu](#)



File

File		
New...	⌘	N
Open...	⌘	O
Close	⌘	W
Save	⌘	S
Save As...		
Revert to Saved		
Place Art...		
Import Styles...		
Document Setup...	⌘⇧	D
Page Setup...		
Print...	⌘	P
Preferences		▶
Quit	⌘	Q

Preferences	
General...	⌘ K
Color Matching...	
Hyphenation Options...	
Plug-Ins...	

Edit

Edit		
Undo	⌘	Z
Redo	⌘⇧	Z
Cut	⌘	X
Copy	⌘	C
Paste	⌘	V
Clear		
Select All	⌘	A
Select None	⌘⇧	A
Paste In Front	⌘	F
Paste In Back	⌘	B
Publishing		▶
Show Clipboard		

Publishing	
Create Publisher...	
Subscribe To...	
Publisher Options...	
Show Borders	

Click a command to jump to an explanation of that topic.



Arrange and View

Arrange		
Repeat Transform	⌘ D	
Move...	⌘ ⇧ M	
Bring To Front	⌘ =	
Send To Back	⌘ -	
Group	⌘ G	
Ungroup	⌘ U	
Lock	⌘ 1	
Unlock All	⌘ 2	
Hide	⌘ 3	
Show All	⌘ 4	

View		
Preview	⌘ Y	
Artwork	⌘ E	
Preview Selection	⌘ ⇧ Y	
Show Template	⌘ ⇧ W	
Show Rulers	⌘ R	
Show Page Tiling		
Hide Edges	⌘ ⇧ H	
Hide Guides		
Zoom In	⌘]	
Zoom Out	⌘ [	
Actual Size	⌘ H	
Fit In Window	⌘ M	
New View...	⌘ ⇧ V	
Edit Views...		

Object

Object		
Paint Style...	⌘ I	
Custom Color...		
Pattern...		
Gradient...		
Attributes...	⌘ ⇧ A	
Join...	⌘ J	
Average...	⌘ L	
Guides	▶	
Masks	▶	
Compound Paths	▶	
Cropmarks	▶	
Graphs	▶	

Guides		
Make	⌘ 5	
Release	⌘ 6	
Lock	⌘ 7	

Masks		
Make		
Release		

Compound Paths		
Make	⌘ 8	
Release	⌘ 9	

Graphs		
Style...		
Data...		
Design...		
Column...		
Marker...		

Cropmarks		
Make		
Release		

Click a command to jump to an explanation of that topic.



Font

Font	
Courier	▶
Helvetica	▶
Times	▶
Symbol	

Times
Roman
Italic
Bold
Bold Italic

Type

Type	
Size	▶
Leading	▶
Alignment	▶
Tracking...	⌘ ⇧ K
Spacing...	⌘ ⇧ O
Character...	⌘ T
Paragraph...	⌘ ⇧ P
Link Blocks	⌘ ⇧ G
Unlink Blocks	⌘ ⇧ U
Make Wrap	
Release Wrap	
Fit Headline	
Create Outlines	

Size
Other... ⌘ ⇧ S
6 pt
7 pt

Leading
Other...
Auto
6 pt

Alignment
Left ⌘ ⇧ L
Center ⌘ ⇧ C
Right ⌘ ⇧ R
Justify ⌘ ⇧ J
Justify Last Line ⌘ ⇧ B

Window

Window	
New Window	
Show Toolbox	⌘ ⇧ T
Show Layers	⌘ ⇧ L
Show Info	⌘ ⇧ I
Show Paint Style	
Show Gradient	
Show Character	
Show Paragraph	
Show Tab Ruler	⌘ ⇧ T
Untitled art 1 <50%>	

Click a command to jump to an explanation of that topic.



Filter

Filter		
Last Filter	⌘ ⇧ E	
Colors		▶
Create		▶
Distort		▶
Objects		▶
Other		▶
Pathfinder		▶
Select		▶
Stylize		▶
Text		▶

Colors
Adjust Colors...
Blend Front to Back
Blend Horizontally
Custom to Process...
Blend Vertically
Desaturate
Desaturate More
Invert Colors
Saturate
Saturate More

Create
Fill & Stroke for Mask
Mosaic...
Polygon...
Spiral...
Star...
Trim Marks

Distort
Free Distort...
Roughen...
Scribble...
Tweak...
Twirl...

Objects
Add Anchor Point
Align Objects...
Distribute Horizontally
Distribute Vertically
Move Each...
Offset Path...
Outline Path
Rotate Each...
Scale Each...

Pathfinder
Unite
Intersect
Exclude
Minus Front
Minus Back
Divide
Outline
Trim
Merge
Crop
Hard...
Soft...
Trap...
Options...

Other
Document Info...
Overprint Black...
Make Riders...
Delete Riders...

Click a command to jump to an explanation of that topic.



... Filter continued

Select

- Same Fill Color
- Same Paint Style
- Same Stroke Color
- Same Stroke Weight
- Select Inverse
- Select Masks
- Select Stray Points

Stylize

- Add Arrowheads...
- Bloat...
- Calligraphy...
- Drop Shadow...
- Punk...
- Round Corners...

Text

- Change Case...
- Check Spelling...
- Export...
- Find Font...
- Find...
- Revert Text Path...
- Rows & Columns...
- Smart Punctuation...

Click a command to jump to an explanation of that topic.

Opening Documents and Templates

When you start the program, a new document automatically opens. You can also open an artwork document with or without a *template*. A template is a black-and-white bitmapped image that you can trace over to create artwork. You can make the template visible or invisible, but you cannot change the template in any way.

To create a new document:

Choose New from the File menu. A blank artwork document appears with the name *Untitled art 1* in its title bar.

Note: When you open a new document, it includes the custom colors, gradient fills, patterns, and graph designs you've added to your Adobe Illustrator startup file. For more information on startup files, see [Creating a Custom Startup File](#).

To create a template:

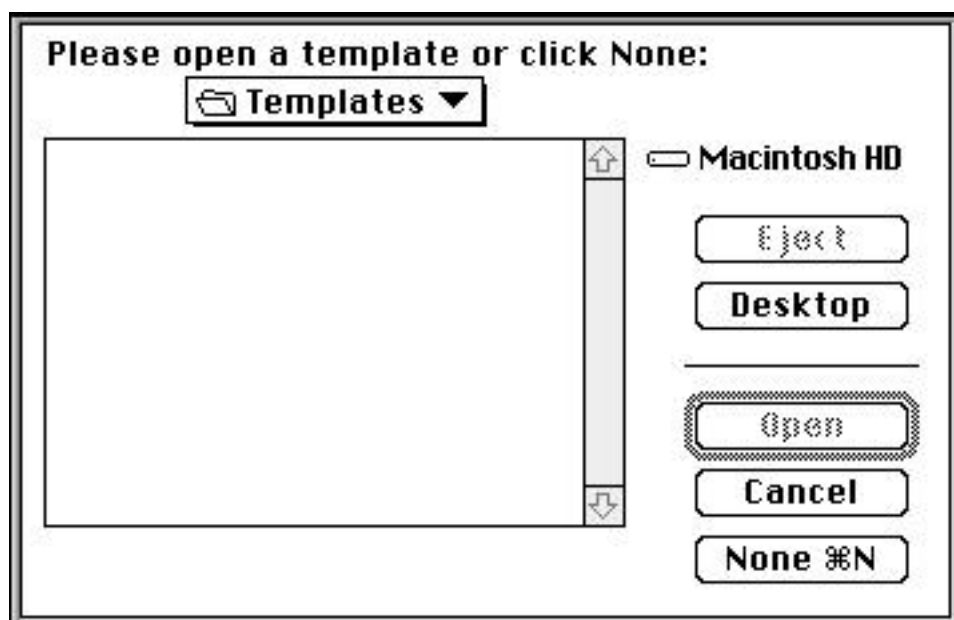
Choose one of two options:

- Scan an image and save it using the PICT format. For information on scanning images, see [Scanning Images](#).
- Create and save an image in the PICT or MacPaint file formats, using an application other than Adobe Illustrator.



To open a template with a new document:

- 1 Press the Option key while choosing New from the File menu. The Open Template dialog box appears.



- 2 Select the name of a template you want to open, and click Open.
- 3 To hide the Template at any time, choose Hide Template from the View menu.

To open an existing document and template:

- 1 Choose Open from the File menu, select the name of the artwork document you want to open, and click Open.
- 2 When you open an existing artwork document, the corresponding template document is displayed automatically.
- 3 To change the template associated with a document, open the document by pressing Command-Option-O, and select a new template when prompted.

Correcting Mistakes

You can use the Undo command to correct mistakes you make while using the Adobe Illustrator program. To undo an operation, choose Undo from the Edit menu. There is a 200-level undo memory in Adobe Illustrator; you can undo up to 200 of the last operations you performed, in reverse order, by repeatedly using the Undo command. The default undo level is set at 10. You can manually set the number of undo levels, between 0 and 200, by entering a value in the Undo Levels text box in the General Preference dialog box. If an operation cannot be undone, the Undo command is dimmed.

To redo an operation that has been undone, choose Redo from the Edit menu.

Reverting to an Earlier Version of Your Document

The Revert to Saved feature restores your Adobe Illustrator document to the version that was last saved. To use this feature, choose Revert to Saved from the File menu. You should note, however, that you cannot undo this action.

Saving Documents

You can save a document in Adobe Illustrator in the default Adobe Illustrator file format using the Save command. If you want to save the document in a different file format, or with a special preview option, you must use the Save As command.

You can choose from seven main format options available on the Format pop-up menu in the Save As dialog box. Five of these options save the document in different versions of Illustrator, while the other two options enable you to save the document in EPS or Acrobat (PDF) format.

Saving documents to use with Adobe Illustrator on other computer systems

You may want to save an Adobe Illustrator document for use on a computer system on which an older version of the Adobe Illustrator program is available, or with another application that reads an older version of the Adobe Illustrator format. To save a document as an Adobe Illustrator 4.0 (Windows version), Adobe Illustrator 3.0, Adobe Illustrator 88, or Adobe Illustrator 1.1 document, choose the appropriate option from the Format pop-up menu in the Save As dialog box.

Saving Documents in EPS format

EPS format saves the document with an Encapsulated PostScript Format (EPSF) header, enabling you to open the document in the Adobe Separator program or to import and print your document from other software applications that support the EPS format.

To save a document in EPS format, choose EPS from the Format pop-up menu in the Save As dialog box and then choose the options you want from the EPS Format dialog box.

The Preview options in the EPS Format dialog box enable you to specify four different preview formats. Three of the options—1-bit IBM PC, 1-bit Macintosh, and 8-bit Macintosh—also allow an application to display a preview image of the artwork when the image is placed in a document.



The four EPS preview options are:

- *None*. This format saves the document as an EPS file, but does not include any preview image.
- *1-bit IBM PC*. This format includes a preview image that can be viewed on IBM PC-compatible computers.
- *1-bit Macintosh*. This format includes a preview image in a black-and-white Macintosh QuickDraw format.
- *8-bit Macintosh*. This format includes a preview image in a color Macintosh QuickDraw PICT format. The preview image is limited to a maximum of 256 colors and 72 pixels per inch. (The color limit does not affect the number of colors in the saved document.)

The Compatibility options in the EPS Format dialog box specify which Illustrator format you want the resulting EPS file to be compatible with.

If the document you are saving contains placed EPSF images, and you will be using the document with page layout applications, you can save a copy of the placed images with the document. To do so, click the Include Placed Images option in the EPS Format dialog box. This option is available only when you have placed EPS images in your document.

For you to revise or edit a document containing placed images, the placed images must be available to Adobe Illustrator when the document is opened. Adobe Illustrator will prompt you to locate the placed images if it is unable to find them when you open the document.



Saving documents in Portable Document Format to use on other computer systems

You can save files in Portable Document Format (PDF) in Adobe Illustrator as well as with Adobe Acrobat™. PDF files retain all the graphics, formatting, and fonts of the original document and can be opened by anyone with a Macintosh, Windows, UNIX, or DOS Acrobat viewer—regardless of whether the original application or fonts are on the viewing system. To save an Illustrator document as a PDF file, choose Acrobat (PDF) from the Format pop-up menu in the Save As dialog box.

For more information on using Acrobat and working with PDF files, see “Using Adobe Acrobat” in the *Adobe Illustrator Getting Started Guide*.

Customizing Files

You can quickly add style elements such as custom colors, gradients, patterns, and graph designs to Adobe Illustrator documents in two ways. You can bring these elements into an individual document by importing them from another document. You can also modify or replace the Adobe Illustrator startup file, so that these elements are automatically installed when you open the Adobe Illustrator application.

Importing styles

You can import the style characteristics—including custom colors, patterns, gradients, and graph designs—from an illustration file into your current file, using the Import Styles command in the File menu.

When you import styles into your file, the new custom colors, patterns, gradients, and graph designs are added to your file's scrolling lists.

Note: When importing new styles into a document, keep in mind that any new style possessing the same name as an existing style will overwrite the existing version.

To import a file's styles into another file:

- 1 Choose Import Styles from the File menu. The Import Style dialog box appears.
- 2 Select the illustration file from which you want to import styles. Click Open. The new styles are automatically be added to your file's existing styles.

Creating a custom startup file

You can create a custom startup file that contains the patterns, gradient fills, graph designs, and custom colors that you use most frequently. These items are then automatically be available in every new Adobe Illustrator document you create. In addition, any new documents you create will possess the same Document Setup and Page Setup settings as those found in the startup file, and will use the same zoom level, window size, viewing preferences, and scroll position as that those in the startup file when it was last closed.



To create a custom startup file:

- 1 Create a new startup file with no template, or open an existing startup file.
- 2 Create the [custom colors](#), [patterns](#), and [gradient fills](#) you want to have available in every document, or import them using the [Import Styles](#) command.
- 3 Drag the custom colors, gradient fills, or patterns into their appropriate palettes, or include them in the scrolling lists. Save any graph designs that you want available in your documents using the Graph Design dialog box.
- 4 Select the options you want as default settings in the [Document Setup dialog box](#).
- 5 Save the new file as Adobe Illustrator Startup and place it inside the Plug-Ins folder in the Adobe Illustrator 5.5 folder.

Note: Large startup files can affect the speed of starting the Adobe Illustrator program. If you notice that starting the program takes too long, you may want to reduce the size of your startup file by eliminating unnecessary elements from the file.

Choosing Preferences

The Adobe Illustrator Preferences file contains the settings you choose in the Preferences dialog boxes under the File menu. The Preferences file is saved in the Preferences folder in the System Folder.

To open the Preferences dialog boxes, choose Preferences from the File menu and then choose the Preferences dialog box name from the submenu.

For information on General Preferences, click the options in the dialog box below.

The screenshot shows the 'General Preferences' dialog box with the following settings:

- Tool behavior**
 - Constrain angle: 0 °
 - Corner radius: 12 pt
 - Freehand tolerance: 2 pixels
 - Auto Trace gap: 0 pixels
 - ☒ Snap to point
 - ☐ Transform pattern tiles
 - ☐ Scale line weight
 - ☒ Area select
 - ☐ Use precise cursors
- Keyboard increments**
 - Cursor Key: 1 pt
 - Size/leading: 2 pt
 - Baseline Shift: 2 pt
 - Tracking: 20 /1000 em
- Edit behavior**
 - Undo levels: 10
 - ☐ Paste remembers layers
- Greek text limit: 12 pt
- Ruler units: Points/Picas ▼
- Indent/shift units: Points/Picas ▼
- Buttons: Cancel, OK

For information on the other Preferences options, see the following topics:

- [Color Matching](#)
- [Hyphenating Words](#)
- [Plug-Ins Preferences](#)

Using the Toolbox

To select a tool from the default toolbox, click the tool. To select one of the additional tools, position the pointer on the current tool in the toolbox and drag to the right to highlight the tool of your choice. When you release the mouse button, the selected tool replaces the tool currently in the toolbox.

Click any tool name for an explanation of the tool:

Selection		Direct-selection
Hand		Zoom
Pen		Scissors
Brush		Freehand
Oval		Rectangle
Measure		Type
Rotate		Scale
Reflect		Shear
Paint bucket		Eyedropper
Gradient fill		Blend
Graph		Page

Default toolbox

	Group-selection
	Add-anchor-point, Delete-anchor-point, Convert-direction-point
	Auto trace
	Rounded-rectangle
	Area-type, Path-type

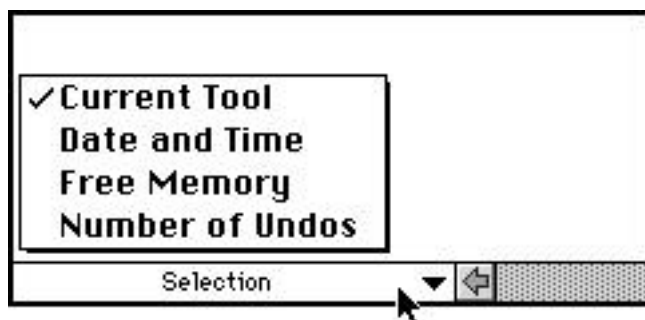
Additional tools: select and drag to make visible



If you want more room to work, you can hide the toolbox. The Show Toolbox and Hide Toolbox commands under the Windows menu control whether the toolbox is visible or invisible. If the toolbox is invisible, the menu will display the Show Toolbox command; if the toolbox is visible, the menu will show the Hide Toolbox command. To regain access to all of the tools, you must make the toolbox visible.

Using the Status Line

The Adobe Illustrator workspace displays a status line at the bottom of the screen. The status line can be formatted in four ways by using a pop-up menu. The pop-up menu appears when you position the cursor over the status line bar and hold down the mouse button. You can choose from four options: the current tool in use, the time and date, the amount of memory (RAM) currently available for Adobe Illustrator, and the number of undos and redos you've performed on the artwork (and that are still available to be undone or redone).



Scrolling through a Document

You can view different areas of a document by using the hand tool or the scroll bars. Moving the hand tool around on your document is analogous to moving a piece of paper around on your desk with your hand.

To scroll with the hand tool:

- 1** Select the hand tool. The pointer becomes a hand when you move it to the active window.
- 2** Hold down the mouse button and drag the hand in the direction in which you want the document to move. Be sure to keep the mouse button held down. The document moves with the hand.

***Shortcut:** To scroll with the hand tool while using another tool, hold down the spacebar and then drag with the mouse.*

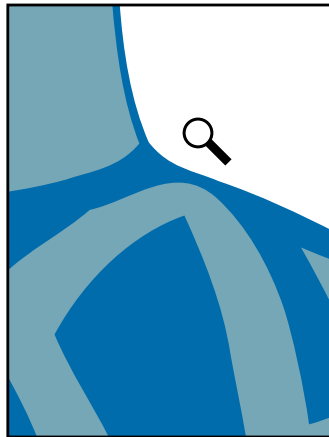
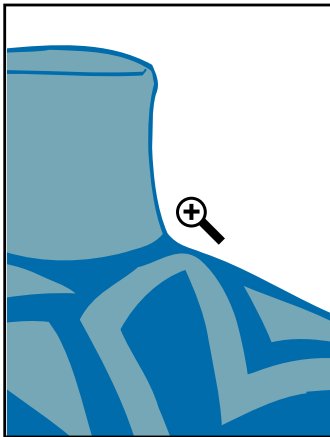
Magnifying and Reducing with the Zoom Tools

The zoom-in tool and the zoom-out tool let you magnify or reduce the display of any area in your document. Zooming in and out does not change the actual size of the document, only the magnification at which you see it. For information on resizing objects, see [Using the Scale Tools](#).

To magnify or reduce with the zoom tools:

1 Select the zoom tool. The pointer becomes a magnifying glass with a plus sign in its center, indicating that the zoom tool will magnify your view of the image. To toggle between magnification and reduction on the zoom tool, press the Option key (the magnifying glass shows a minus sign in its center when in reduction mode.)

2 Position the magnifying glass at the center of the area you want to magnify or reduce. Click to zoom in or out. Continue clicking until the document is at the magnification level you want. When the document has reached its maximum magnification or reduction level, the magnifying glass appears blank.



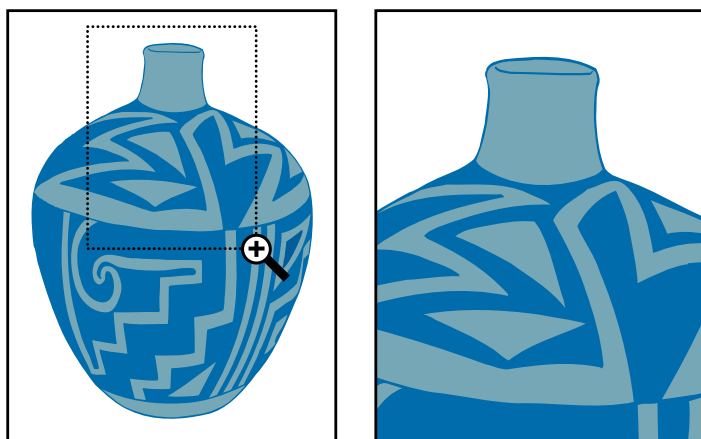
To magnify or reduce part of an image by dragging:

1 Select a zoom tool.

2 Drag to draw a marquee around the area you want to magnify or reduce.



Note: To draw the marquee from the center, hold down the Control key as you drag.



To move the marquee around the artwork:

- 1 Select a zoom tool.
- 2 Drag to draw a marquee and, without releasing the mouse button, hold down the spacebar.
- 3 Drag to move the marquee around the artwork. When the marquee is positioned correctly over the artwork, release the mouse button to zoom.

To zoom in or out while using another tool:

To access the zoom-in tool while using another tool, first hold down the spacebar and then press Command. To access the zoom-out tool while using another tool, press spacebar-Command-Option. (In text edit mode, you must press Command and then the spacebar, or Command-Option-spacebar, to use these shortcuts.)

Displaying Documents

You can display your document on-screen in many ways using the View menu commands. You can create custom views of your document, retaining your document's magnification, layering, and other viewing features for later retrieval. You can also display multiple views of your document at the same time; for example, you can simultaneously view different magnification levels of your document.

You can also change the way artwork is displayed on-screen. For example, you can see a preview of the illustration as you edit, you can choose to view only the artwork, or you can choose to view some of your image in Preview view and some in Artwork view.

Fitting documents in the window

Four commands under the View menu control how a document or page of a document fits in a window:

- The Fit In Window command centers the artboard in the window.
- The Actual Size command displays a document at its actual size and centers the document in the active window.
- The Zoom In command magnifies your view of the image.
- The Zoom Out command reduces your view of the image.

Viewing the artwork

You have three ways to view your artwork. You can display the artwork (that is, the lines that define the artwork without color effects), you can display a preview image of your artwork (that is, with color and all printing images included), or you can select only part of your image to preview while leaving other parts in Artwork view. You can edit your image in both Artwork and Preview views; you can also hide or show the [template](#) using the Hide Template or Show Template commands in the View menu.

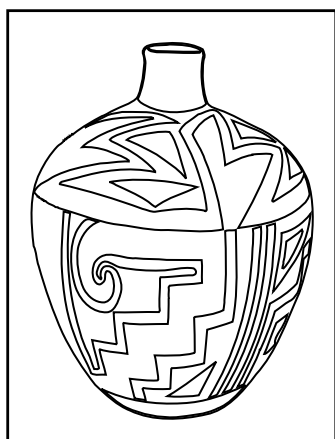


To change the viewing preferences:

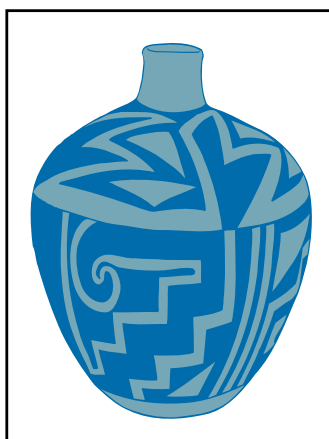
Choose one of three viewing options in the View menu:

- Artwork, to view and edit the artwork as a wireframe image.
- Preview, to view the image in a as it will be printed.
- Preview Selection, to preview selected parts of your image in Preview view while leaving other parts in Artwork view.

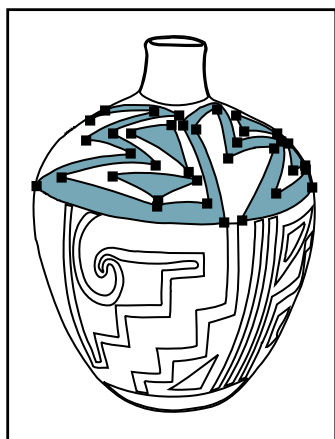
When you choose Preview Selection, the entire image appears as artwork; you can then select any part of the image with the selection tools to display the selected objects in Preview view.



Artwork view



Preview view



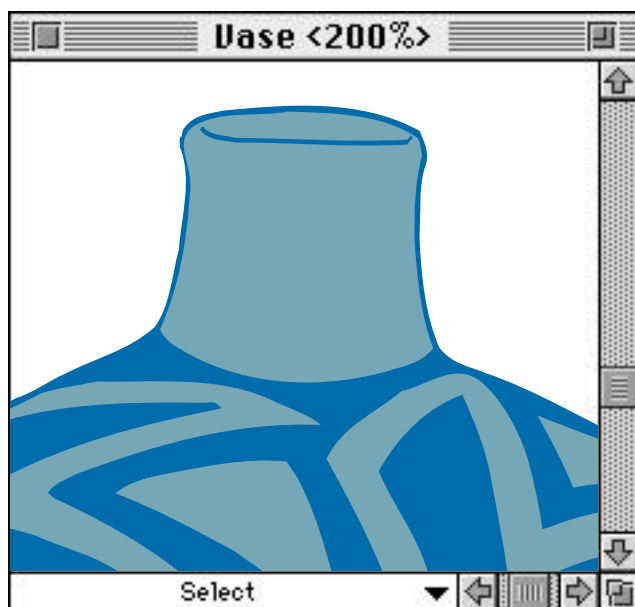
Preview selection

- You can also select individual parts of an image to show on-screen (or to show in Preview or Artwork view) using the [Layer commands](#).

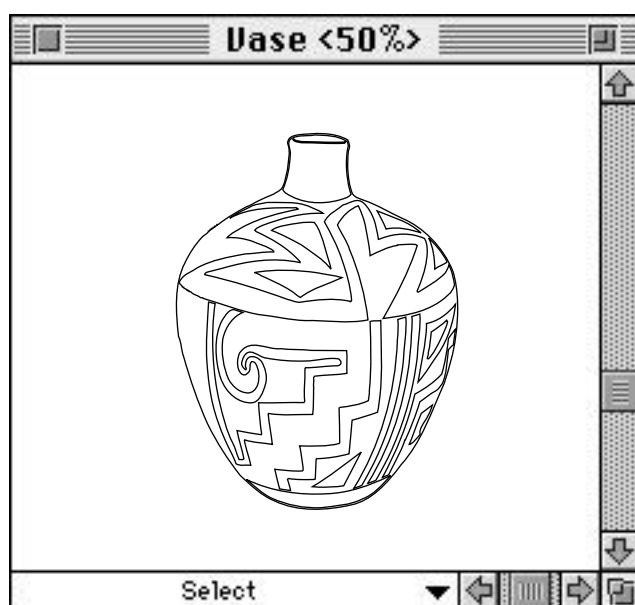


Creating custom views of a document

You can create up to 25 views of your document. When you create a view, the current zoom level, layer options, and viewing state (i.e., [Preview or Artwork](#)) settings are retained and named, so that you can retrieve the view at a later time. For example, you may want to save one view at a high magnification level, for doing close-up work on your document, and save another at a lesser magnification for placing objects on the page.



View of a 200% zoom level, Preview view



View of 50% zoom level, Artwork view



The view names are displayed at the bottom of the View menu; to retrieve a view, select the name of the view you want to use.

View	
✓ Preview	⌘Y
Artwork	⌘E
Preview Selection	⌘⇧Y
Show Template	
Show Rulers	⌘R
Hide Page Tiling	
Hide Edges	⌘⇧H
Hide Guides	
Zoom In	
Zoom Out	⌘[
Actual Size	⌘H
Fit In Window	⌘M
New View...	
Edit Views...	⌘^U
200% Preview	
50% Artwork	⌘^1
	⌘^2

View menu with custom view

Once you’ve created a view, you can rename it or delete it using the Edit Views command in the View menu.

To create a new view:

- 1 Choose New View from the View menu. The New View dialog box appears.
- 2 Enter a name for the new view you are saving, and click OK.

To edit or delete a view:

- 1 Choose Edit Views from the View menu. The Edit Views dialog box appears.
- 2 Rename the current view setting by entering a new name in the Name box, or delete the view setting by clicking the Delete button.



Displaying multiple views of a document

You can display several views of the same document in separate windows in the workspace. For example, you can simultaneously view several magnification levels of one drawing.

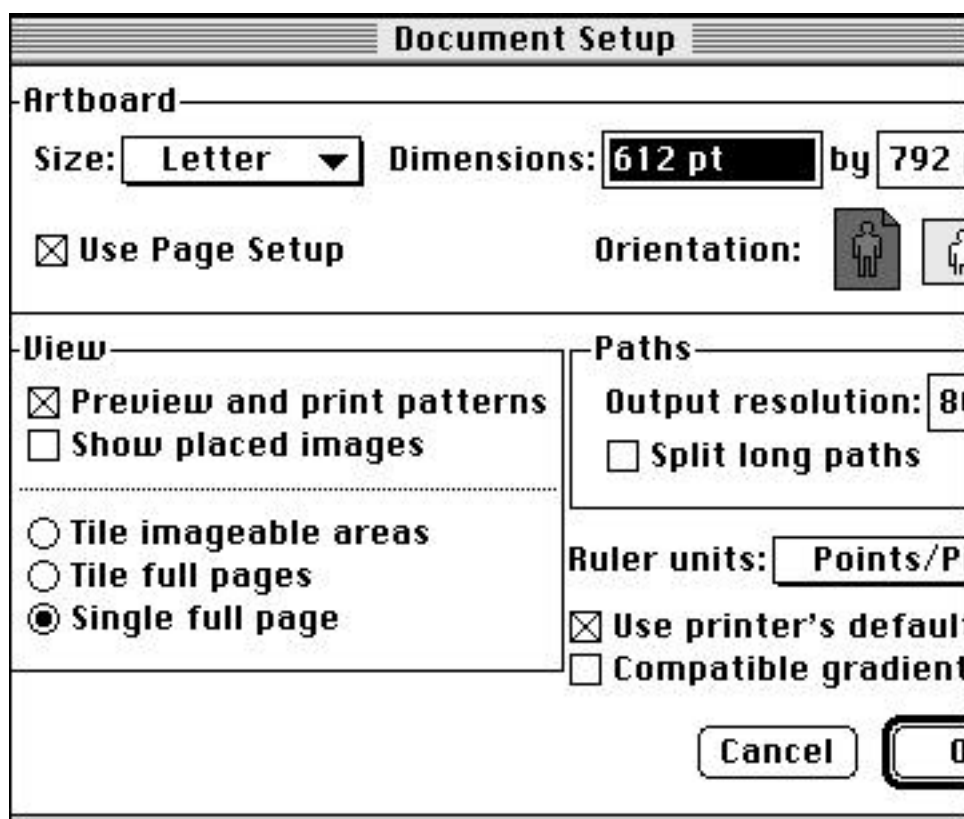
To open a new window:

Choose New Window from the Window menu.

A new window of the same size appears on top of the previously active window. The two windows are identical except for their window numbers. The title bar in window 2 shows that it is the active window.

Changing the Page Setup

The Document Setup options affect how documents are displayed and printed. To open the Document Setup dialog box, choose Document Setup from the File menu.



- See the following topics for more information:
 - [Adjusting the Artboard Size](#)
 - [Previewing and Printing Patterns](#)
 - [The Show Placed Images Option](#)
 - [Adjusting How Documents Are Displayed and Printed](#)
 - [Setting Output Resolution](#)
 - [Splitting Paths to Print Large, Complex Shapes](#)
 - [Printing Gradient Fills](#)

Adjusting the Artboard Size

In the Adobe Illustrator program, the work area is called the artboard. The default artboard is letter size (8-1/2 inches by 11 inches), unless otherwise specified in your startup file or the Document Setup dialog box. The boundaries of the artboard affect how you create artwork to fit on a page, and define the maximum printable area of your document.

You cannot move the artboard; however, you can change the artboard dimensions (to a maximum size of 120 inches by 120 inches) using the Document Setup dialog box in the File menu.

To change the artboard size:

- 1** Choose Document Setup from the File menu. The Document Setup dialog box appears.

- 2** Choose an artboard size in the Size box. You can choose letter (8-1/2 inches by 11 inches), legal (8-1/2 inches by 14 inches), or tabloid size (11 inches by 17 inches), or you can enter your own custom size up to 120-inch by 120-inch. If you choose Custom in the Size box, you must enter artboard dimensions in the Dimensions box. You can change the units of the artboard size by changing the ruler unit size in the Ruler Units box.

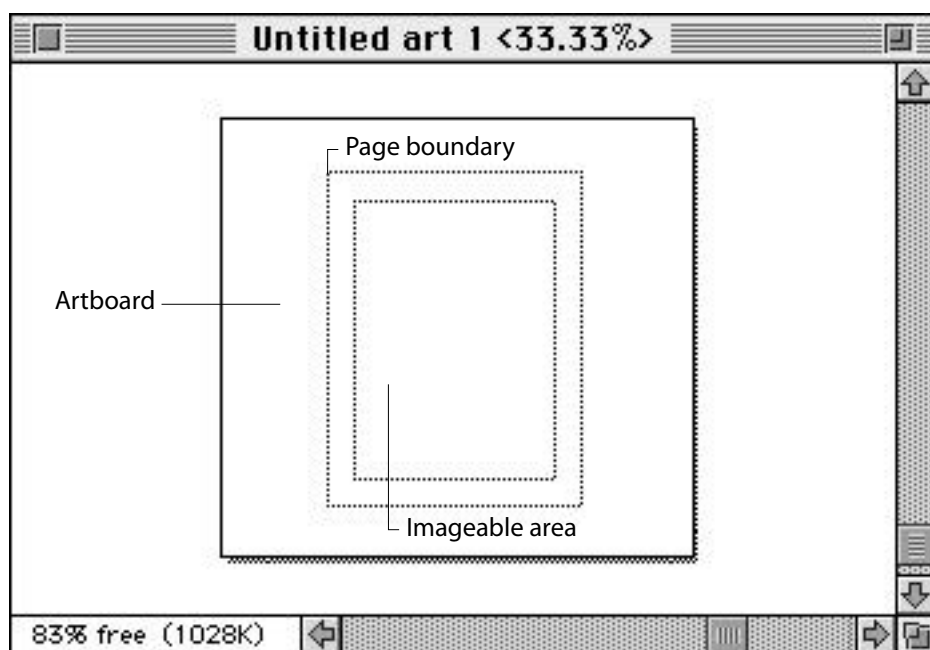
- 3** To automatically set the size of the artboard to match the page size set in the Page Setup dialog box, select the Use Page Setup option in the Document Setup dialog box. The artboard size will then automatically change any time you choose a new page size in the Page Setup dialog box.

Adjusting How Documents are Displayed and Printed

The artboard dimensions in the Document Setup dialog box do not necessarily match the paper sizes used with printers. As a result, when you print a document, the program subdivides the work area into rectangles that correspond to the *imageable* (printable) area of the page available on your printer. The subdivision of pages to fit on a printer is called *tiling*.

You define the imageable area automatically by selecting a page type in the Page Setup dialog box. On most printers, the imageable area is slightly smaller than the actual page. The imageable area appears either as dotted lines or as a gray rectangle.

You set how pages tile using the options in the Document Setup dialog box—Tile Full Pages, Tile Imageable Areas, and Single Full Page. Each option affects printing differently.

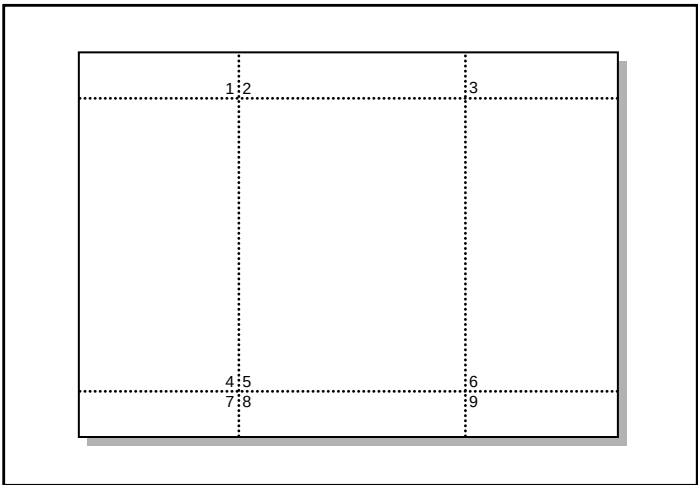


Note: To see a tiling format on-screen, you must choose *Show Page Tiling* from the *View* menu. The *Show Page Tiling* and *Hide Page Tiling* commands can be set differently in each custom view of your document. For information about custom views, see [*Creating Custom Views of a Document*](#).



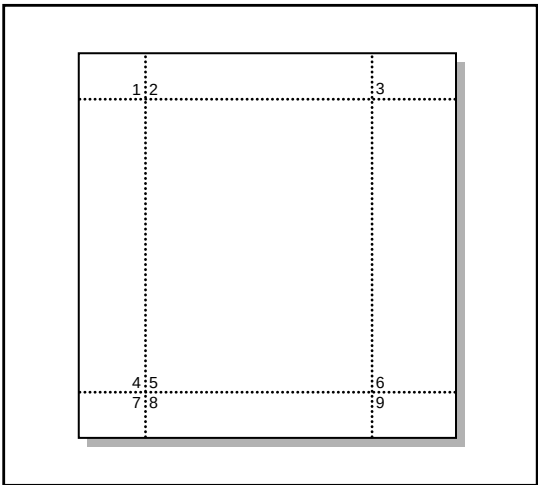
Tile Imageable Areas option

The Tile Imageable Areas option displays the document tiling with dotted lines as boundaries, showing the imageable area of each page side-by-size. When you print multipage documents with the Tile Imageable Areas option selected, the artwork is printed as if the page margins were not present; the entire image is printed on the imageable areas of the page.



Tile Imageable Areas option using a 14-inch by 20-inch artboard

When you use the default paper size of the current printer (or the paper size previously saved with the document), the document is tiled into pages numbered from left to right and from top to bottom, starting with 1.



Tile Imageable Areas, artboard size set larger than page size

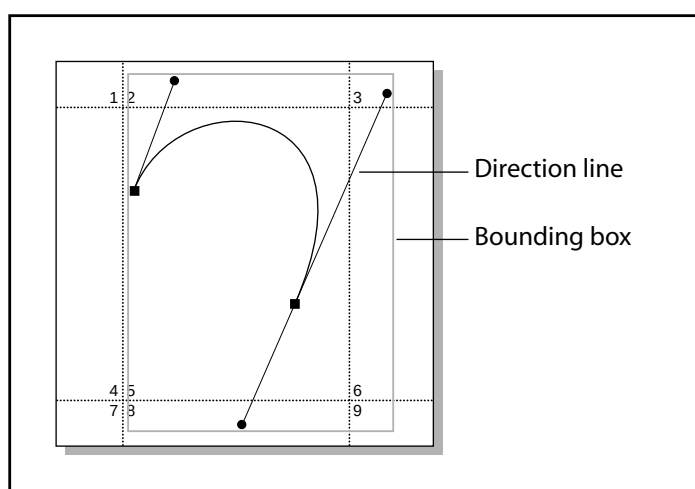


When you choose the Print command, you can print all pages, or specify pages. The page numbers appear for your reference only; the page numbers themselves are never printed.

As you work, it's important to consider how your drawing relates to the boundaries of the page grid and to the total dimensions of the work area. For example, if your drawing spills over onto any other page, such as page 6, part of your drawing will be printed on a separate sheet of paper that corresponds to page 6. If you specified printing only from page 5 to page 5, page 6 won't be printed.

You can easily avoid having your artwork spill over onto another page by adjusting the page positioning on the artboard, as described in the next section. When you set up your page, you can also change the page size so that all of the artwork will fit on one page.

The program may print blank pages if the document is tiled so that the bounding box of the artwork intersects pages that do not contain any artwork. The *bounding box* is an unpainted rectangle that defines the boundaries of your artwork. In the following illustration, the bounding box surrounds the artwork, including its direction points. Where direction points extend into pages that do not contain any artwork, the program will print blank pages.



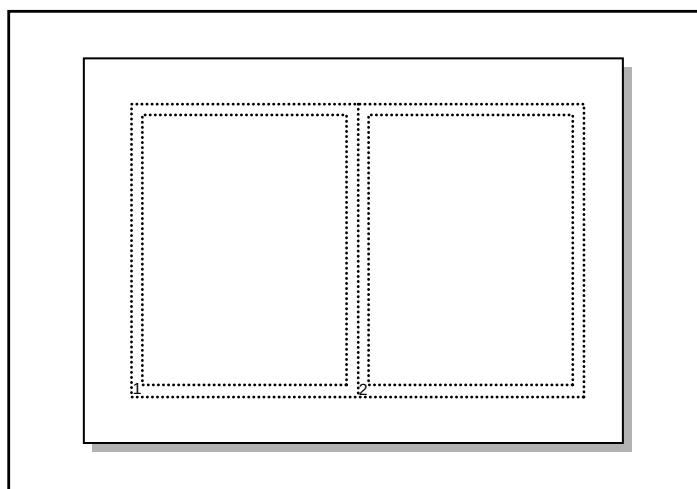
Tile Imageable Areas; the bounding box surrounds the artwork and the direction lines, causing blank pages to be printed



Tile Full Pages option

The Tile Full Pages option lets you view and print multiple pages of a size set in the Page Setup dialog box. To view and print multiple pages, the artboard size set in the Document Setup dialog box must be large enough to fit more than one full page at a time. For example, if the page size set in the Page Setup dialog box is 8-1/2 inches by 11 inches, the artboard size in the Document Setup dialog box must be at least at 17 inches wide (large enough to fit two 8-1/2 inches by 11 inches pages side-by-side.)

The outer gray rectangle represents the page size, and the inner gray rectangle represents the imageable area. When you print multiple pages with the Tile Full Pages option selected, any artwork that extends past the imageable area of a given page will not be printed. Therefore, you should select the Tile Imageable Areas option to print large, multipage artwork.



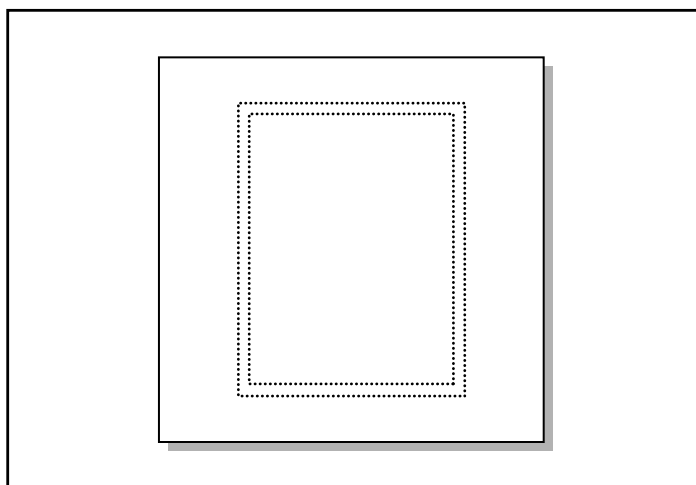
Tile Full Pages option using a 14-inch by 20-inch artboard

Single Full Page option

The Single Full Pages option (the default) lets you view and print only one page at a time. The outer gray rectangle represents the paper size, and the inner gray rectangle represents the imageable area.



The size of the page corresponds to the size you select in the Page Setup dialog box. The orientation of the page defaults to the center of the artboard; you can reposition the page with the page tool.



Single Page option using an 14-inch by 14-inch artboard

To adjust a page using the page tool:

- 1 Select the page tool in the toolbox. The pointer becomes a dotted cross when you move it to the active window.
- 2 Click the page you want to move.
- 3 Begin dragging to place the page. As you drag, the program displays two gray rectangles; the outer rectangle represents the page size, and the inner rectangle represents the imageable area of the page.
- 4 Release the mouse button when the page is where you want it.

***Note:** If you want to move your page past the current artboard boundary, you must change the artboard size in the Document Setup dialog box. Any part of the page that extends past the artboard boundary will not be displayed or printed.*

Scanning Images

If you have a scanner, you can create a black-and-white [template](#) for use in Adobe Illustrator by scanning an existing image. The image you use can be your own rough sketch, a photograph, a map or chart, or any other image, even one of low quality. With a video camera, you can scan three-dimensional objects.

Scan the image, following the instructions that come with your scanner equipment. You must save the image in either MacPaint format or PICT format to use it as a template with Adobe Illustrator.

***Note:** Existing art or images you may want to scan as templates for your new artwork may be protected under copyright law. The unauthorized incorporation of such art or images into your new work could be a violation of the rights of the author. Be sure to obtain any permission required from authors.*

Placing Files

You can place Adobe Illustrator files in other applications, or place EPS files created by other applications in an Adobe Illustrator document.

Placing Adobe Illustrator EPS files in other applications

Using the Format options in the Save As dialog box, you can save your document as an Encapsulated PostScript (EPS) file with an EPSF header, so that the document can be used by software applications that recognize the EPS format. To find out whether your application supports EPS format, consult your application's documentation or contact the software developer.

Applications that support the EPS format display a preview image representative of your Adobe Illustrator artwork on-screen for placement, scaling, and cropping. Placed images in the EPS format also contain PostScript language code, so the image will print correctly when sent to a printing device.

To place Adobe Illustrator artwork in another application:

- 1 Save the Adobe Illustrator document with the None, Color Macintosh, Black & White Macintosh, or IBM PC format option, whichever is appropriate.
- 2 Open the application in which you want to import the Illustrator file, and follow the application's procedure for importing files. See the application's documentation if you need help importing files.

Note: To create a PICT image of selected artwork to be placed on the Clipboard, press Option when you choose the Copy command from the File menu. This PICT image can then be readily imported to applications that are compatible with the PICT format.

Placing EPS files in Adobe Illustrator documents

You can use the Place Art command to place files that have been saved as EPS files in an Adobe Illustrator document, much as you would place or import an artwork image into a page layout program. You can save scanned images as well as images created by another application in the EPS file format and place the images in your artwork.



To preview placed images in your document when in Artwork view, select the Show Placed Images option in the Document Setup dialog box. If the placed image contains the necessary resource for a preview image, a rough preview image will then appear in Artwork view. (Placed images with the necessary resource will always display in Preview view, regardless of the Show Placed Images option setting.)

To place an EPS file:

- 1 Open the Adobe Illustrator document in which you want to place the file.
- 2 Choose Place Art from the File menu. The Place Art dialog box appears.
- 3 Locate and select the file to place, and click Place.

An outlined box appears, with diagonal lines crossing from corner to corner. This box defines the file's dimensions. The box is placed in the center of the active window, in front of all other artwork in your document, and is selected.

You can move, scale, rotate, reflect, or shear the placed image in the same way as you would any other Adobe Illustrator object, but you cannot adjust any of its anchor points, segments, or paths, or use the Object or Type menu commands. The image box always remains a parallelogram, even if you transform it.

To edit a placed image:

- 1 Press Option and double-click the placed image. The application that originally created the placed image will be launched.
- 2 Edit the image. When finished, save the document. Adobe Illustrator will automatically replace the old placed image with the edited version.

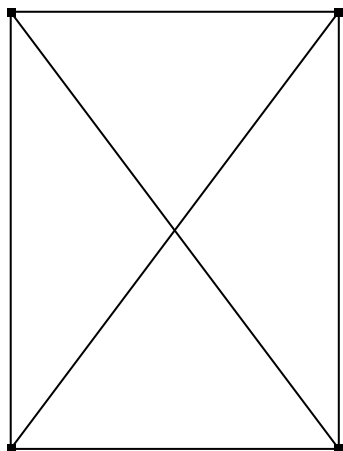
To determine the location of a placed file:

- 1 Using a selection tool, click the placed image.
- 2 Choose Attributes from the Object menu. The Attributes dialog box appears.
- 3 Use the Location of Placed Art pop-up menu to display the location of the placed image.



The Show Placed Images Option

The Show Placed Images option in the Document Setup dialog box lets you preview images that have been placed into your artwork using the Place Art command. Because previewing placed images may slow display and printing, this option is off by default.



Artwork view without the Show Placed Images option selected



Artwork view with the Show Placed Images option selected



Preview view



Applying transformation attributes to new placed images

If your document contains a placed EPS image to which you have applied transformation attributes (such as scaling, rotating, reflecting, or shearing), you can replace the image with another placed image, and automatically apply the transformation attributes to the new placed image. For example, if a placed image has been scaled by 50 percent, you can replace it with another placed image that will automatically be scaled at 50 percent.

To change a placed image and apply transformation attributes:

- 1 Select the placed image that you want to change.
- 2 Choose Change Placed Art from the File menu.
- 3 Select a new EPS image, and click Place.

Saving artwork with placed files

Usually, when you are working with Adobe Illustrator files, any placed image files will be in the same folder as the Adobe Illustrator file in which they are placed. If you do open an Adobe Illustrator document without the placed image, the application will prompt you to find the placed image.

If you plan to use Adobe Illustrator artwork containing placed images with another application, or to give your artwork file to someone else, you should provide a copy of the original document from which the placed file was taken.

To include placed images in a file:

- 1 Open the Adobe Illustrator artwork containing placed images.
- 2 Choose Save As from the File menu, choose EPS from the Format pop-up menu and click Save.
- 3 In the EPS Format menu, select the Include Placed Images option, as well as any preview and compatibility options you want. Click Save.

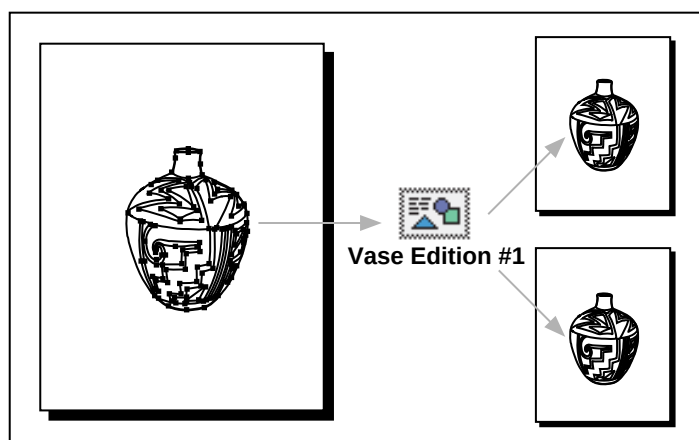
***Note:** It's a good idea to make a backup copy of the placed artwork even if you have saved the image containing the artwork. This ensures that the artwork will not be lost if the application is unable to find the placed image.*

Using the Publish and Subscribe Features

Users of Macintosh System Software 7.0 and above can take advantage of Adobe Illustrator Publish and Subscribe commands to share and update material between documents. In essence, Publish and Subscribe let you copy and update material from one document to other documents. Once you've pasted published material into a document, the material can automatically be updated whenever the original file is modified. (For a detailed description of Publish and Subscribe, see your Macintosh software reference materials.)

To use Publish and Subscribe, you first define the material that you want to be made available to other documents; this material is called a publisher. The material in the publisher is then saved as a separate file, called an edition.

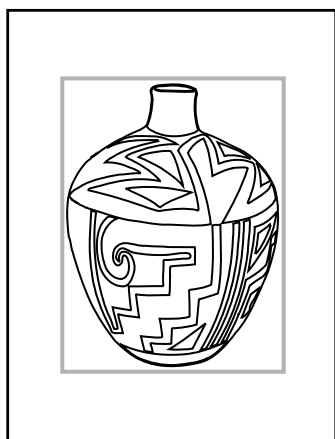
You can then open a document and indicate where you want the edition inserted; the inserted material is called a subscriber. When you later edit the original version of the material (the publisher), your changes can be automatically saved in the edition and inserted in subscribers to the edition.



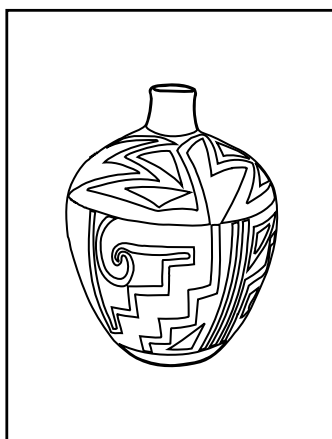
Original material is published. One or more other documents can subscribe to the material. Changing the original material changes the material in each subscribed document.



When you publish a selection of your artwork, the published selection is highlighted with special borders. You can turn these borders on and off with the Hide Borders command in the Publishing submenu of the Edit menu.



**Published selection with
Hide Borders off**



**Published selection with
Hide Borders on**

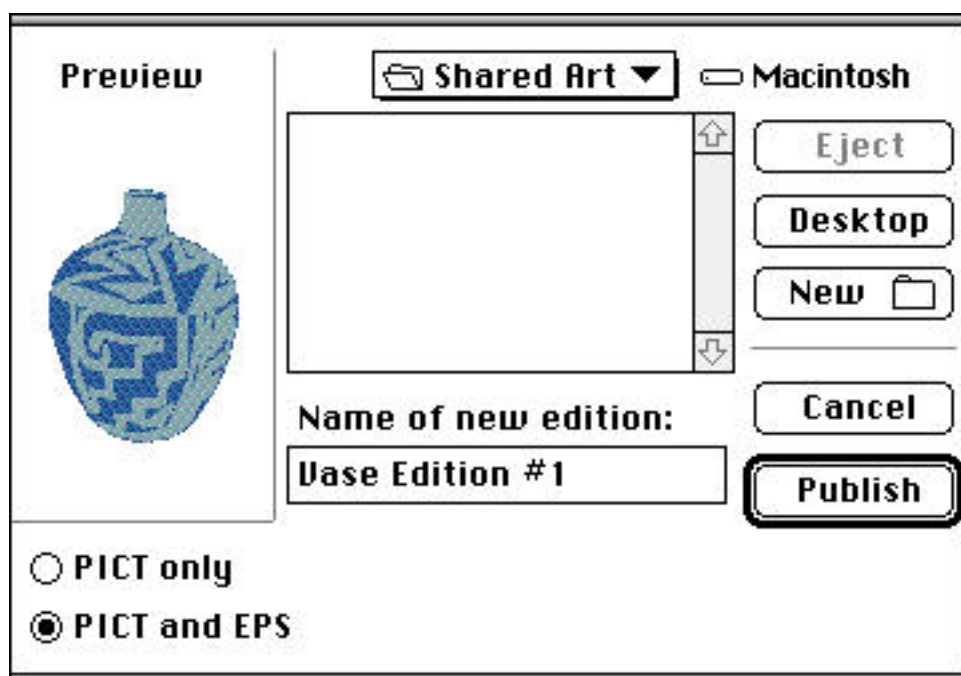
Each time you make changes to the published selection and save the changes, the artwork in the subscribed documents is updated. If you do not want updates to be sent automatically, you can send them manually using the options in the Publisher Options dialog box.

To publish artwork:

- 1 Using a selection tool, select the objects to be published.



2 Choose Publishing/Create Publisher from the Edit menu.
The Create Publisher dialog box appears



3 If necessary, select the file folder or disk drive on which you want to save the published document.

4 Select the file format in which you want to save your artwork, either PICT only, or PICT and EPS.

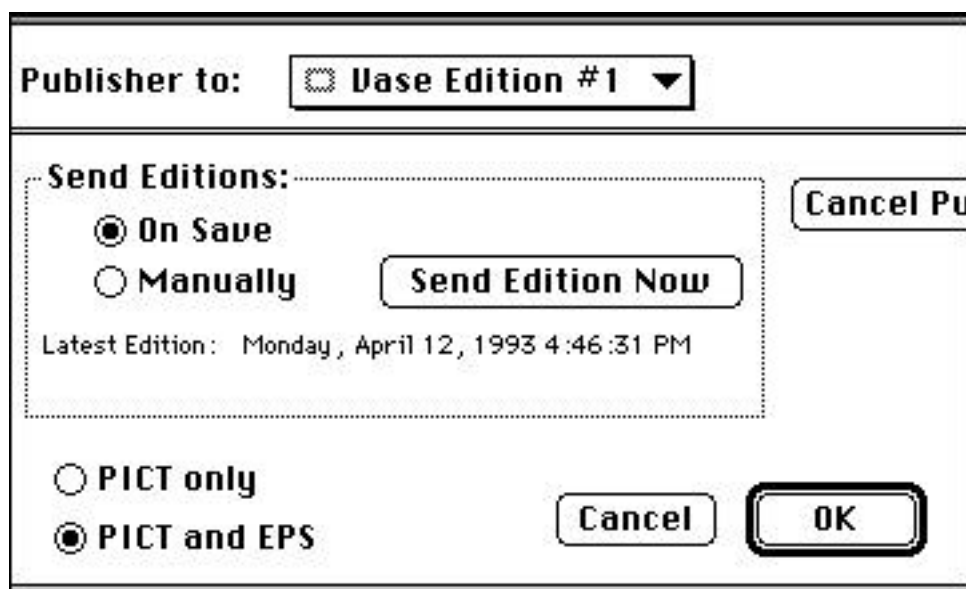
You can publish your artwork as a PICT file containing a PostScript language resource for printing, or as a combination PICT and EPS file. If the file is being subscribed to by an application that is compatible with the EPS format, such as Adobe Illustrator, you should save the file as PICT and EPS. If the subscribing application is not EPS-compatible, you should save the file as PICT only.

5 Type in a name for your artwork in the Name of New Edition box. Click Publish.



To update published artwork:

1 Choose Publishing/Publisher Options from the Edit menu.
The Publisher Options dialog box appears.



2 Choose the Edition you want to update from the Publisher pop-up menu.

3 Choose one of two update options:

- **On Save.** This is the default option. The On Save option updates the published artwork every time a change is saved using the Save or Save As commands.
- **Manual.** This option lets you update the edition only when you press the Update Edition Now button.

4 Select the file format in which to update the edition, either PICT only, or PICT and EPS.

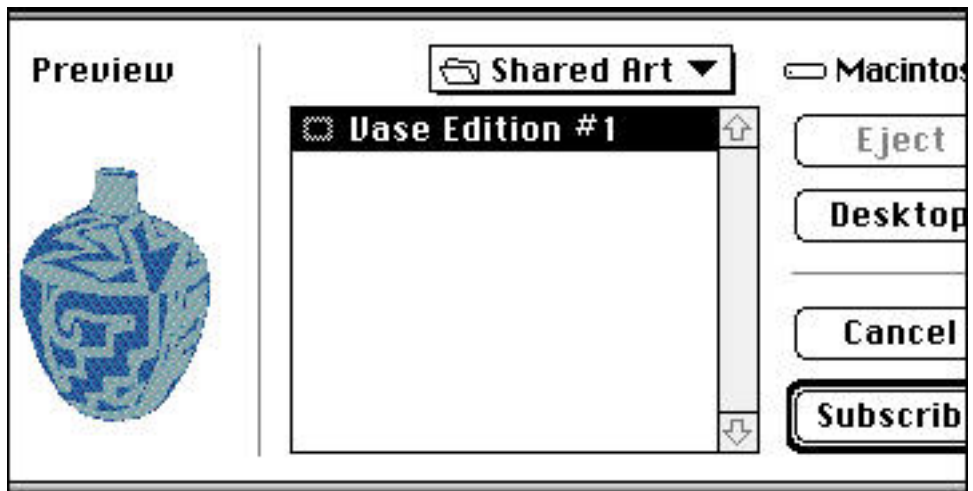
You can update your artwork as a PICT file containing a PostScript language resource for printing, or as a combination PICT and EPS file. If the file is being subscribed by an application that is compatible with the EPS format, such as Adobe Illustrator, you should save the file as PICT and EPS. If the subscribing application is not EPS-compatible, you should save the file as PICT only.

5 Click OK.



To subscribe to published artwork:

1 Choose Publishing/Subscribe To from the Edit menu. The Subscribe dialog box appears.



2 Select the edition to which you want to subscribe. A preview of the artwork is shown in the preview box.

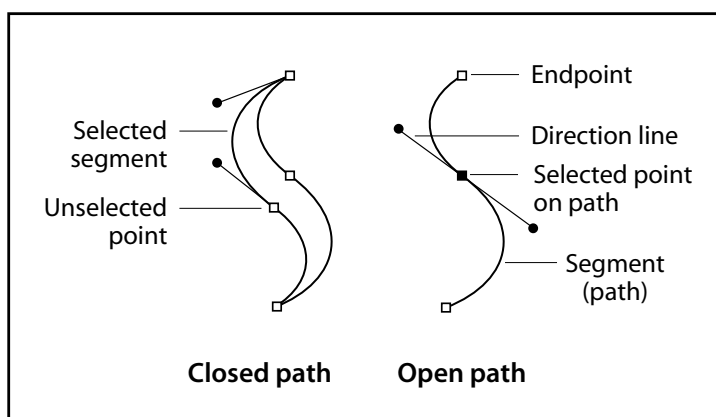
3 Click Subscribe. The subscribed artwork appears in your document as if it were placed with the Place Art command.

Defining Paths

A *path* is any line or shape that you create using the Adobe Illustrator drawing tools. A path can consist of a single anchor point, a single segment, or two or more segments. *Anchor points* define where each segment of a path starts and ends. The first and last anchor points on an open path are called the *endpoints*. If an anchor point is solid, the anchor point itself is selected and can be moved. If an anchor point is hollow, the segment is selected.

A path can be either open or closed. A *closed path* is continuous and has no beginning or end (and therefore, no endpoints); a circle is an example of a closed path. An *open path* has distinct endpoints. If you fill an open path, the program draws an imaginary line between the endpoints and fills the path.

Segment and path types are as follows:



Drawing Rectangles and Ovals

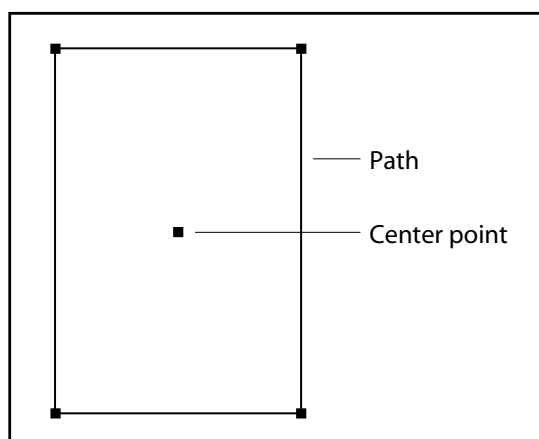
The Adobe Illustrator program provides four rectangle tools and two oval tools:

- The [rectangle and oval tools](#) let you draw rectangles and ovals by dragging from one corner of the rectangle or oval to the opposite corner.
- The [centered-rectangle and centered-oval tools](#) let you draw rectangles and ovals by dragging from the center of the rectangle or oval outward.
- The rounded-rectangle tool lets you draw round-cornered rectangles by dragging from one corner of the rectangle to the opposite corner.
- The [centered-rounded rectangle](#) tool lets you draw round-cornered rectangles by dragging from the center of the rectangle outward.

***Note:** To toggle between the rectangle and centered-rectangle tools, the oval and centered-oval tools, and the rounded rectangle and center-rounded-rectangle tools, double-click the appropriate tool icon, or press Option when any of these tools are selected.*



When you create any object, a center point appears in the center of the object. You can use this point to drag the object, or to align the object with other elements in your artwork. The center point can be made visible or invisible, but cannot be deleted. To make the center point visible or invisible, choose the Show Center Point option in the Attributes dialog box under the Object menu.



The corner style of the rectangle or square you draw is determined by the corner radius value you specify in either the Rectangle or General Preferences dialog box. Changing the corner radius value in either dialog box updates the value in the other dialog box.

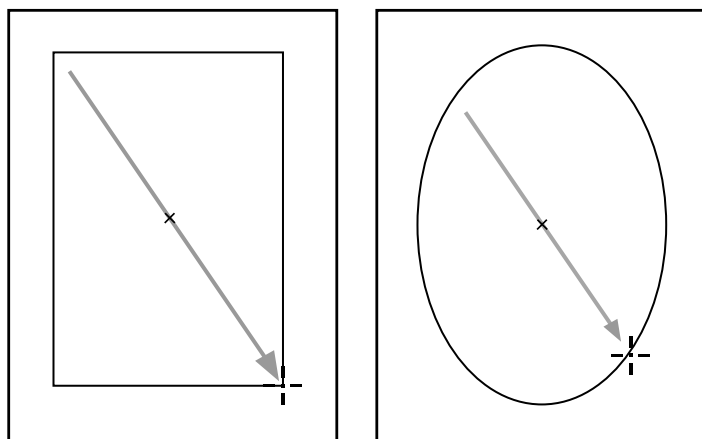
The corner radius value represents the radius of a hypothetical circle drawn in the corner of the rectangle or square. The default corner radius is 12 points. A corner radius of zero creates square corners.

To create a rectangle or oval by dragging from an edge:

- 1 Select the rectangle tool, the rounded-rectangle tool, or the oval tool.



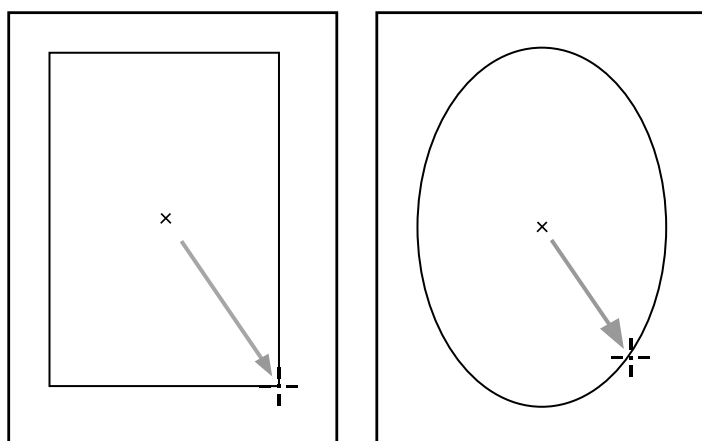
2 Position the cursor at one corner or edge of the shape you want to create, and drag to the opposite corner or edge. To constrain the shape to a square or circle, hold down the Shift key as you drag.



To create a rectangle or oval by dragging from the center:

1 Select one of the centered-rectangle tools or the centered-oval tool by double-clicking the tool icon or pressing Option with the rectangle or oval tool selected.

2 Position the cursor at the center of the shape you want to create and drag diagonally to any corner or edge. To constrain the shape to a square or circle, hold down the Shift key as you drag.



To draw a rectangle or oval by specifying dimensions:

- 1 Select any of the rectangle or oval tools.
- 2 Click where you want to begin creating the shape. The Rectangle or Oval dialog box appears.

By default, the Width and Height text boxes display the dimensions of the last rectangle or oval you drew. The units of measure are determined by the units of measure set in the [Document Setup dialog box](#).

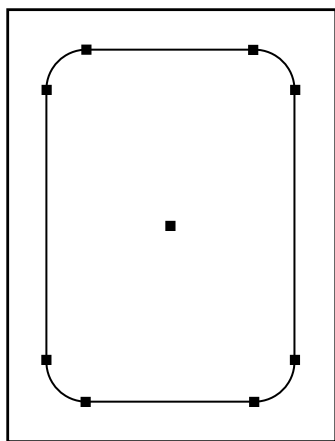
- 3 Enter the width you want the rectangle to be in the Width text box.

To create a square or circle, enter a value in the Width text box, then click the word *Height*; this copies the width value to the Height text box.

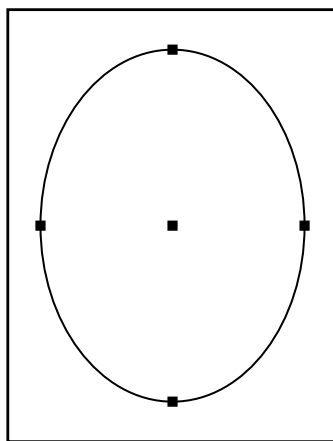
- 4 Enter the height you want the shape to be in the Height text box.

If you are drawing a rounded rectangle, enter the [corner radius value](#) you want the rectangle to have.

- 5 Click OK to draw the rectangle or oval.



Width 62 points, height
88 points, corner radius
10 points



Width 62 points, height
88 points

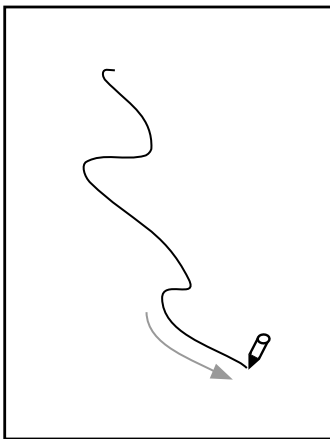
Using the Freehand Tool

The freehand tool lets you work as if you were drawing with a pencil on paper, and is most useful for fast sketching or for when you want your artwork to have a more spontaneous look than you could achieve using the pen tool. You cannot easily create perfectly straight lines with the freehand tool; also, curved lines you create may be somewhat bumpy.

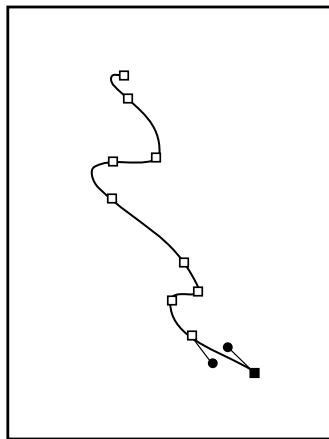
When you use the freehand tool, anchor points are automatically set down for you; you do not determine where they occur, although you can adjust them when the path is complete. The number of anchor points set down is determined by the length and complexity of the path and by the [Freehand Tolerance value](#) set in the General Preferences dialog box.

To draw a freehand path:

- 1 Select the freehand tool. The cursor changes to a pencil when you move it to the active window. (If the [Use Precise Cursors option](#) is selected in the General Preferences dialog box, the cursor appears as a cross hair.)
- 2 Position the cursor where you want the path to begin. Drag the pointer to draw a path.



Drag to draw a freehand line ...



and then release the mouse button.

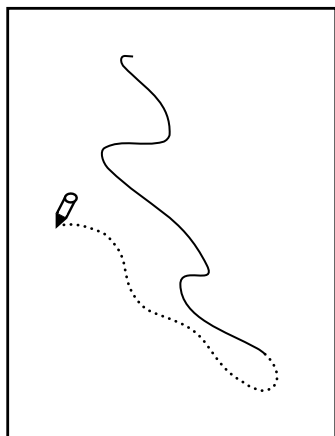
As you drag, a dotted line trails behind the cursor.

When you release the mouse button, [anchor points](#) automatically appear at both ends of the path and at various points along it. The path becomes solid, and it is selected.

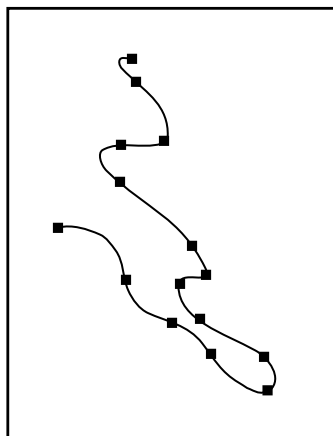


To continue the existing freehand path:

- 1 Position the pencil tip on an endpoint of the path (the end of the pencil turns black when the tip is precisely over the endpoint). Start dragging the mouse.
- 2 Release the mouse button when the line is the way you want it.



Extend a line by clicking the endpoint, dragging ...



and then releasing the mouse button.

To erase part of the path as you draw:

- 1 Hold down the Command key and drag back over the path without releasing the mouse button.
- 2 If you release the mouse button, use the Undo command in the Edit menu, or use the selection tool to select the unwanted segments of the path, and then delete them.

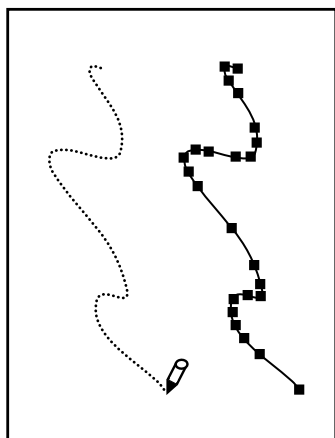
Freehand Tolerance

The freehand tool responds to slight variations in the speed and direction of your hand movements by creating bumps in the path you are drawing. You can control the sensitivity of the freehand tool to your hand movements, and therefore control the smoothness of your lines, by changing the Freehand Tolerance value.

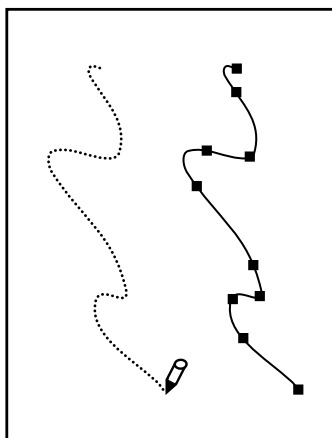
To set the freehand tolerance:

- 1 Choose Preferences/General from the File menu. The General Preferences dialog box appears.
- 2 Enter a value between 0 and 10 in the Freehand Tolerance text box, and click OK.

The freehand tolerance is calculated in number of pixels and represents the maximum distance allowed between the final path drawn and the dotted line formed when you initially draw the line. The default freehand tolerance value is 2. The larger the number of pixels you specify, the more bumps the program will ignore, and the smoother your paths will be.



Freehand tolerance: 0



Freehand tolerance: 10

Using the Auto Trace Tool

The auto trace tool traces [template shapes](#) automatically. This tool is especially suited to tracing simple shapes and lines. If part of a template shape is very complex, you can trace the simpler parts automatically with the auto trace tool, and draw the complex parts with either the freehand tool or the pen tool.

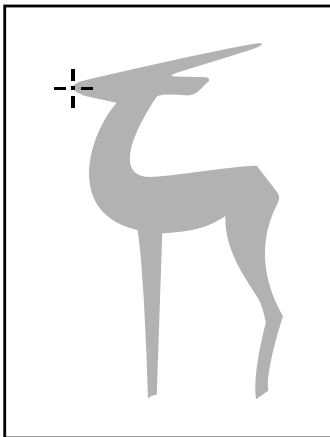
You can control the accuracy with which the auto trace tool traces paths using the [Auto Trace Gap option](#) in the General Preferences dialog box. In addition, the [Freehand Tolerance setting](#) in the General Preferences dialog box affects how the auto trace tool draws paths.

The following procedures apply to lines as well as to shapes. When you use the auto trace tool to trace a line, it travels around the line and comes back to where you clicked, forming a closed path, not an open one. See [Defining Paths](#) for more information on paths.

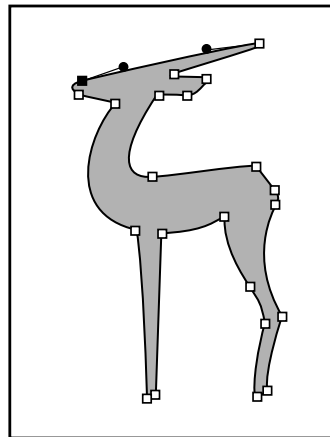
To trace a template shape:

- 1 Open a new artwork document with a template.
- 2 Select the auto trace tool. The pointer changes to a cross hair when you move it to the active window.

Position the cross hair on the template shape that you want to trace, and click. You must position the cross hair within 6 pixels of the edge of the shape. The path is drawn so that it starts where you click and follows the shape, keeping the shape on its right.



Click a template shape with the auto trace tool ...

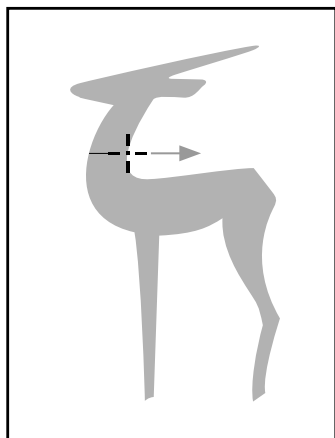


to trace the shape.

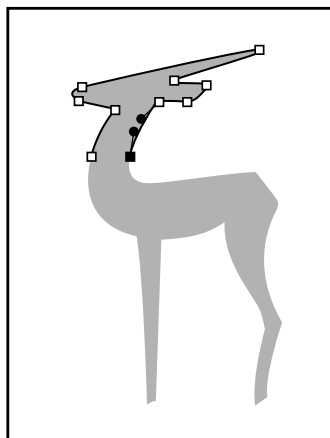


To trace part of a template shape:

- 1** Open a new artwork document with a template.
- 2** Select the auto trace tool.
- 3** Drag the pointer from the place on the bitmapped shape where you want the path to start, to the place where you want the path to end. When tracing only part of a template, you must start and stop dragging within 2 pixels of the edge of the shape. The auto trace tool traces the bitmapped shape within the area you defined.



Drag to define the beginning and end of the path ...



and trace within the defined area.

To connect a new auto trace path to an existing auto trace path, start dragging at the anchor point where you want the paths to connect.

Auto Trace Gap Option

The lines and shapes in bitmapped template images often contain gaps that become visible when you enlarge your view of the document. The Auto Trace Gap distance setting tells the auto trace tool to ignore gaps that are equal to or less than the number of pixels you specify. For example, setting the distance to 1 tells the auto trace tool to ignore gaps of 1 pixel or less.

To set the auto trace gap distance:

- 1 Choose Preferences/General from the File menu. The General Preferences dialog box appears.
- 2 Enter 0, 1, or 2 in the Auto Trace Gap text box. The value is calculated in number of pixels; the default is 0. Click OK.

Using the Pen Tool

The pen tool lets you create straight lines or smooth, flowing curves with greater precision than the freehand tool.

If a path you draw with the pen tool extends outside the active window, the window automatically scrolls to the adjacent part of the working area so that you can finish drawing the path.

Drawing straight lines with the pen tool

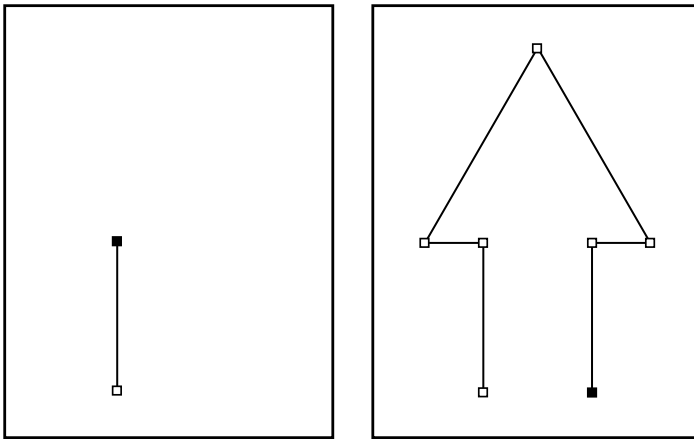
You can constrain the straight lines you draw so that they appear at or in 45-degree multiples relative to the angle of constraint specified in the General Preferences dialog box.

To draw straight lines with the pen tool:

- 1 Select the pen tool.
- 2 Move the tip of the pen point to where you want the straight line path to begin, and click. A solid square appears. This is an [anchor point](#), and it is selected until you define the next point.
- 3 Click again where you want the first segment of the straight line path to end.

To constrain a line, hold down the Shift key while you click the anchor points. See [Rotating the x and y Axes](#) for more information.

- 4 Continue clicking to create additional straight lines.



The last anchor point added is always a solid square, which indicates that it is selected. Previously defined anchor points become hollow squares.



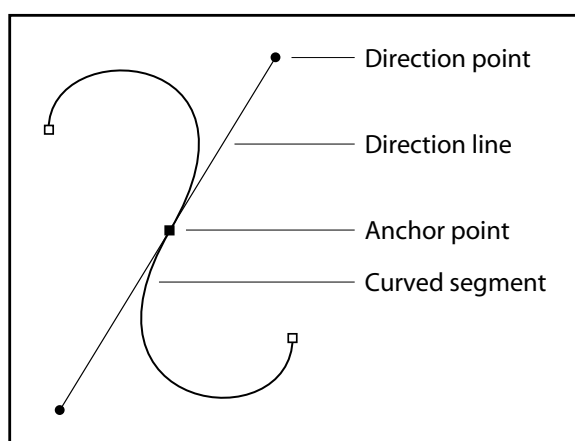
5 End the path by using one of these options:

- To end an open path, either click the pen tool in the toolbox, hold down the Command key and click anywhere away from the path, choose Select None from the Edit menu, or change tools.
- To close the path, click the first anchor point. A closed circle appears next to the pen tip when the pen is at the correct location to close the path.

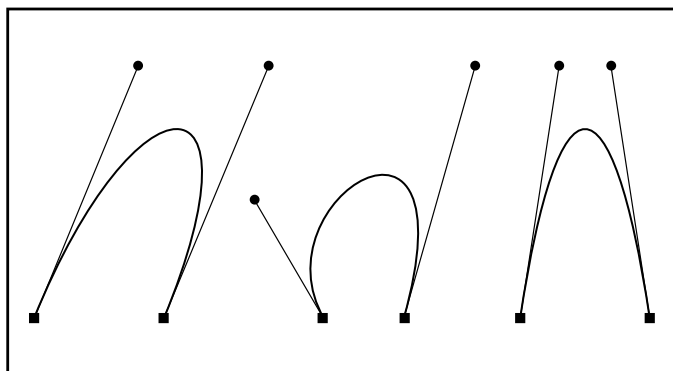
Drawing curves with the pen tool

On curved segments, each selected anchor point displays either one or two *direction points*, at the ends of *direction lines*. Direction points and lines define the shape of a curved path. The direction lines are always tangent to (touching) the curve at the anchor points.

The position of each direction point and direction line determines the size and shape of the curved segment.

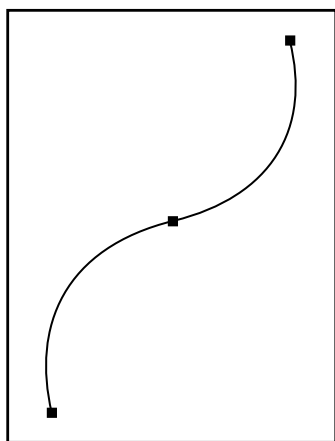


The slope of each direction line determines the slope of the curve. The length of each direction line determines the height or depth of the curve.

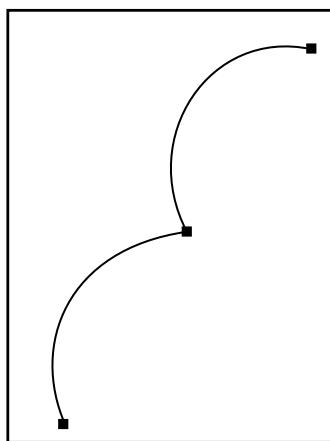


Moving direction lines to change the slope of the curve

Continuous curved paths—that is, paths along a continuous wave shape—are connected by anchor points called *smooth points*. Noncontinuous curved paths are connected by *corner points*.



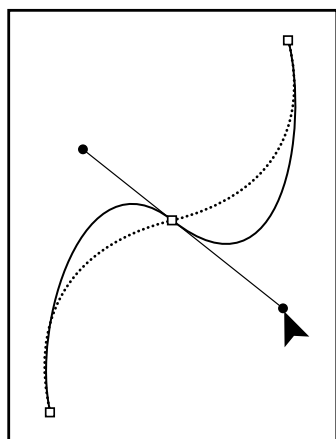
Smooth point (continuous)



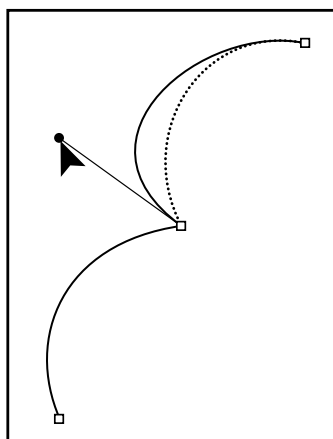
Corner point (non-continuous)



When you move a direction line on a smooth point, the curves on both sides of the point adjust simultaneously. In comparison, when you move a direction line on a corner point, only the curve on the same side of the point as the direction line is adjusted.



Smooth point; slope is adjusted on both sides of direction line



Corner point: slope is adjusted on one side of direction line

You can convert smooth points to corner points, and vice versa, to adjust a path. To switch from one kind of point to another, you use the convert-direction-point tool, which is located at the right of the scissors tool in the toolbox. (See [Adjusting Path Segments](#) for more information on how to work with corner points and smooth points.)

***Shortcut:** To quickly edit a path you have drawn, hold the Command key with the pen tool selected. Edit the path, and then release the Command key to resume drawing with the pen tool.*

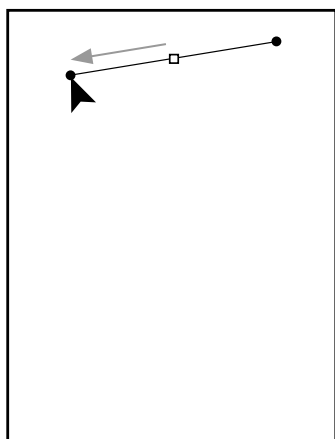
To draw a curved path:

- 1** Select the pen tool.
- 2** Position the pen tip where you want the curve to begin. Hold down the mouse button. The first anchor point appears, and the pen tip changes to an arrowhead.
- 3** Drag in the direction you want the curve segment to be drawn. As you drag, the arrowhead leads one of two direction points.

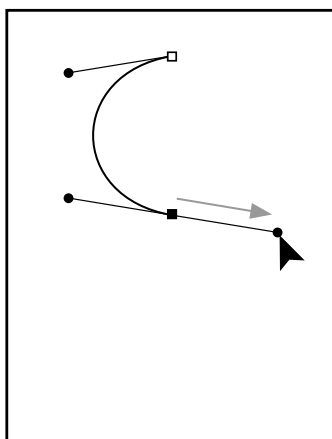


The length and slope of the direction line determines the shape of the curve. You can adjust one or both sides of the direction line later.

4 Position the pointer where you want the curve segment to end, press the mouse button, and drag in the opposite direction to complete the segment.



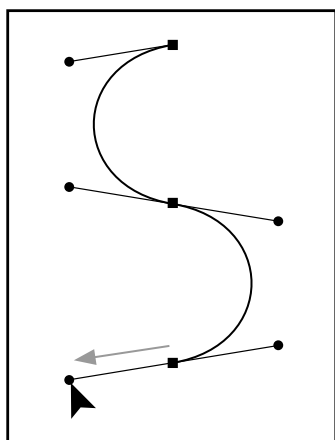
Press mouse button to set first anchor point and drag in direction of curve



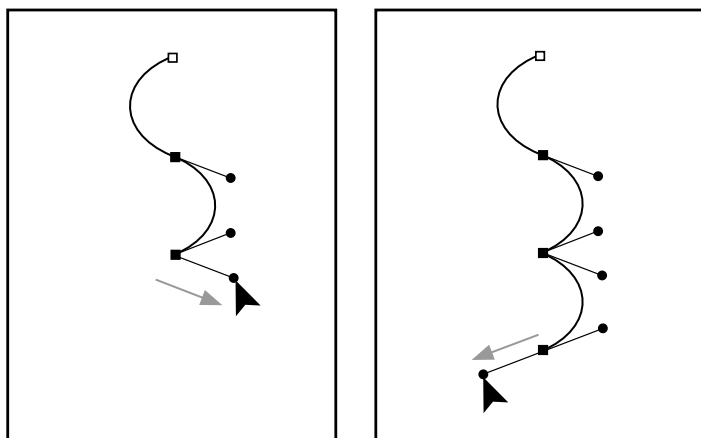
Press mouse button and drag in opposite direction to complete curve

You can also constrain the position of anchor points by holding down the Shift key while you place them. The anchor point is placed at a multiple of 45 degrees from the previous anchor point, relative to the angle of constraint set in the General Preferences dialog box.

5 To draw the next segment of a continuous curve, position the pointer where you want the next segment to end, and drag away from the curve.

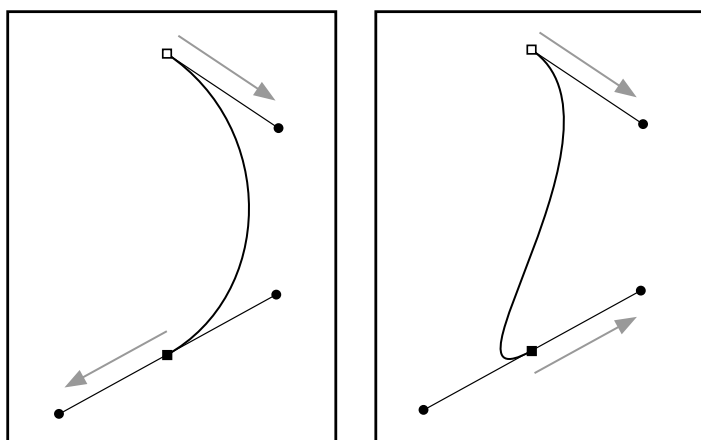


6 To change the direction of the curve and create a noncontinuous curve, position the pointer on the last anchor point, hold down the Option key, and press the mouse button to set a corner point; then drag in the direction of the curve. Release the Option key and drag in the opposite direction to complete the curve segment.

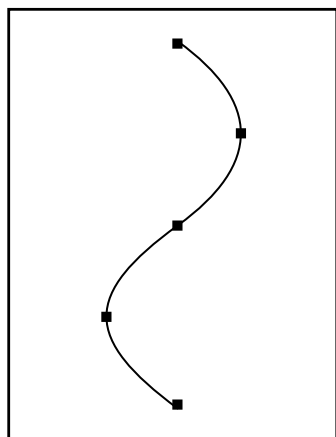


Keep the following guidelines in mind, to quickly and easily draw any kind of curve:

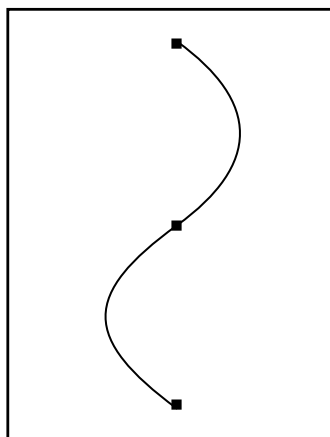
- Always drag the first direction point in the direction of the bump of the curve, and drag the second direction point in the opposite direction as the first to create a smooth curve. Dragging both direction points in the same direction creates a wavy curve.



- When drawing a series of continuous curves, draw one “bump” at a time, placing anchor points at the beginning and end of each bump, not at the top. Use as few anchor points as possible, placing them as far apart as possible. If anchor points turn out to be too far apart, you can add more points later using the add-anchor-point tool. See [Adding and Deleting Anchor Points](#) for more information.



Less efficient



More efficient

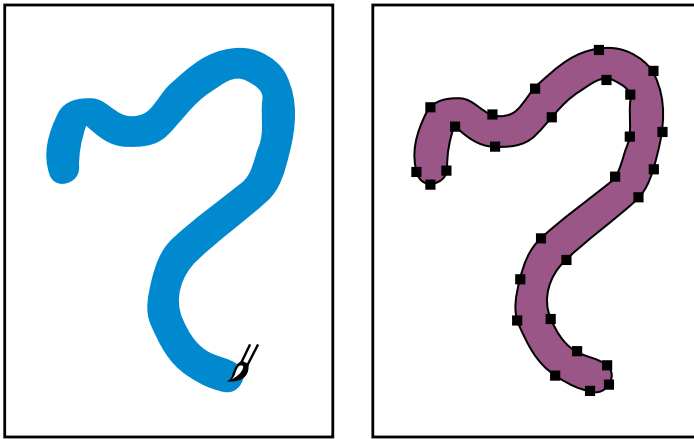
See the *Adobe Illustrator Tutorial* for step-by-step procedures for drawing curves with the pen tool.

Using the Brush Tool

The brush tool lets you draw variable-width lines, simulating a brush stroke. You can constrain the line to a single width; if you have a [pressure-sensitive drawing tablet](#), you can vary the width of the brush stroke by varying pressure on the pen tip. You can also select calligraphic brush strokes to draw script-like letters and lines.

To draw with the brush tool:

- 1 Select the brush tool. The pointer changes to a brush when you move it to the active window.
- 2 Position the tip of the brush where you want the path to begin. Drag the brush to draw the path.



When you release the mouse button, [anchor points](#) appear along the line's perimeter.

Specifying brush widths and styles

You can change the width of your brush strokes and specify the style of brush stroke (such as variable-width lines or calligraphic lines) using the Brush Preferences dialog box. In addition, you can specify the corner style and the cap style (i.e., the shape of the end of the brush stroke).

To open the Brush Preferences dialog box, double-click the brush tool icon in the Toolbox.

***Note:** The [Freehand Tolerance value](#) in the General Preferences dialog box does not affect the smoothness of the brush tool.*



Using a pressure-sensitive drawing tablet to draw variable-width lines

You can vary the line-width with the brush tool using a pressure sensitive drawing tablet. To use the brush tool with a pressure-sensitive tablet, you must select the Variable Width option in the Brush Preferences dialog box.

To use a pressure-sensitive drawing tablet with the brush tool:

- 1 Double-click the brush tool icon. The Brush Preferences dialog box appears.
- 2 Select the Variable Width option to turn on variable-width brush strokes. When this option is selected the brush stroke will vary in width based on the pressure of a pen stroke: a strong pressure on the pen tip results in a thicker line; a light pressure results in a thinner line.



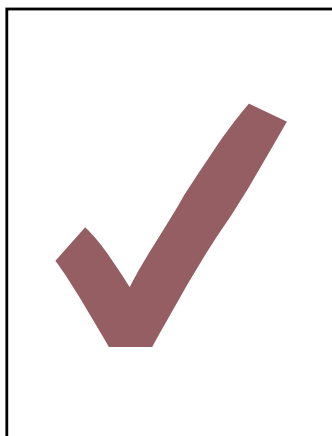
- 3 Enter the minimum and maximum line width values.



4 Select the type of cap style and join style. You can choose a square or round cap style, and a rounded or mitered corner style.



Round cap, round join



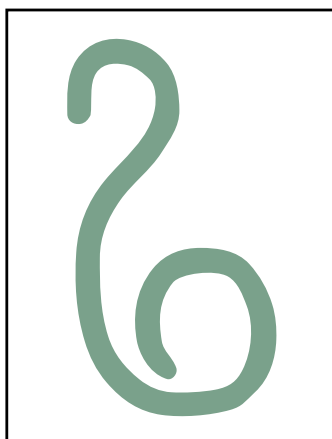
Butt cap, bevel join

Drawing calligraphic brush strokes

To draw script letters and lines with a calligraphic brush stroke, you can select the Calligraphic option in the Brush Preferences dialog box. When you select this option, the line width varies on upstroke and downstroke, just as if you had a calligraphic pen tip rotated at an angle while drawing on a sheet of paper.



**Calligraphic option
turned on**



**Calligraphic option
turned off**

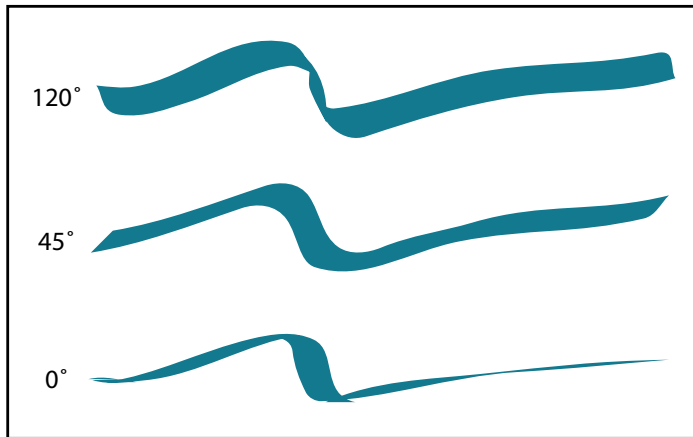
To draw calligraphic brush strokes:

- 1** Double-click the brush tool icon. The Brush Preferences dialog box appears.
- 2** Select the Calligraphic option.



3 Enter a value in the Calligraphic Angle box; the value is equal to the angle of rotation of a calligraphic pen tip in relation to a flat piece of paper. (For example, a value of 45 degrees gives the same effect as rotating a calligraphic pen at a 45-degree angle to a piece of paper.)

4 Click OK.



Using the Selection Tools

Before you can perform any operation on an object, you need to distinguish it from the objects around it. You do that by selecting the object with one of the Adobe Illustrator selection tools.

You select objects with one of three selection tools. To access the last selection tool used while using any other tool, hold down the Command key.



The selection tool lets you select entire objects or an entire path by selecting any point on the path.



The direct-selection tool lets you select individual points or segments on a path.



The group-selection tool lets you select groups of objects by clicking any object in the group. Each additional click adds the next object in the artwork's grouping hierarchy to the selection. (See [Grouping and Ungrouping Objects](#) and [Stacking Objects](#) for more information on grouping.)

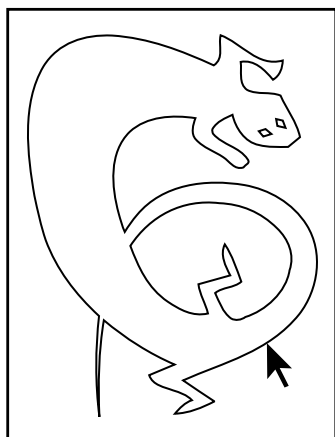
***Note:** If a shape is not selected when you click its filled area, make sure that the [Area Select option](#) in the General Preferences dialog box is selected, and that the object has not been locked. See [Locking and Hiding Objects](#) for more information.*

To make a selection, use one of two methods:

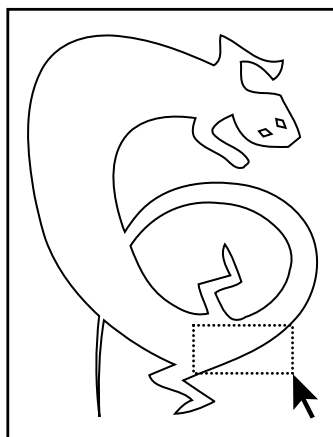
- To select by clicking, click within two pixels of the desired object or segment. Click with the direct-selection tool to select only a segment; click with the selection tool or the group-selection tool to select the whole path. If you are in [Preview view](#) and the Area Select option in the General Preferences dialog box is selected, you can click within a filled object to select it. If an object is not filled, or if you are in [Artwork view](#), you must click an edge of the object to select it.



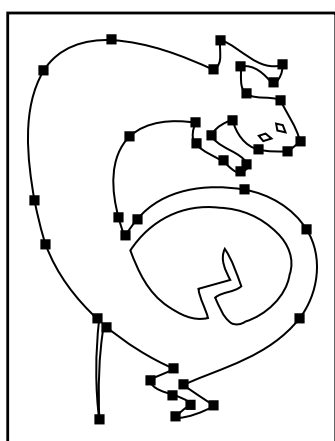
- To select by dragging, hold down the mouse button and drag a dotted rectangle, called a *selection marquee*, around the desired object or segment. If you drag over part of a group using the selection tool, the entire group is selected; if you drag using the direct-selection tool, only the segments dragged over are selected; and if you drag with the group-selection tool, only those objects dragged over are selected.



Click ...



or drag the marquee ...



to select.

When you select a segment, all **anchor points** on the path are displayed. Selected anchor points appear as solid squares; all other anchor points appear as hollow squares.

If you select a curved segment, its **direction points** are displayed as solid circles with direction lines drawn from each direction point to the associated anchor point. If you select a straight line segment, the direction points are not displayed, because they occupy the same position as the anchor points.

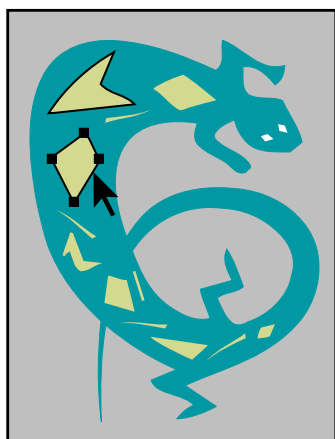


Selecting filled objects

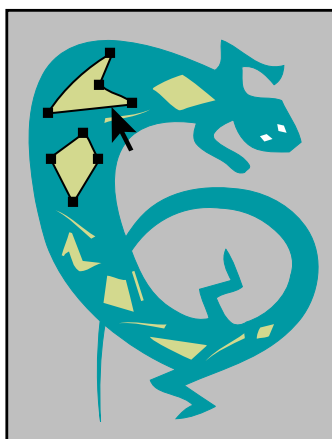
The Area Select option in the General Preferences dialog box determines whether you can select a filled object in Preview view by clicking anywhere within the area, or whether you must click a path segment or anchor point. By default, the Area Select option is on and clicking anywhere inside a filled object in Preview view selects the object. In some cases, you may want to deselect the Area Select option, for example, when you are working with overlapping filled objects. To turn the Area Select option on and off, open the General Preferences dialog box, and click the Area Select check box.

Selecting multiple objects

You can select multiple shapes by dragging the marquee over all of the objects, or by selecting an object and then holding down the Shift key while you select additional objects.



Select an object ...



and then Shift-select additional objects.

When you choose Preview Selection view from the Edit menu, all selected objects are displayed in [Preview view](#); all deselected objects are displayed in [Artwork view](#). To select or deselect additional objects in Preview Selection view, hold down the Shift key and click with any selection tool. Remember that to select an object in Artwork view, you must click directly on the path of the object, even if the object is filled.



To select all objects in a document, choose Select All from the Edit menu. The Select All command selects all objects in a document except objects that have been locked or hidden.

Deselecting objects

You deselect objects when you no longer want to work with them. You can deselect just one object, several objects, or all objects in your artwork.

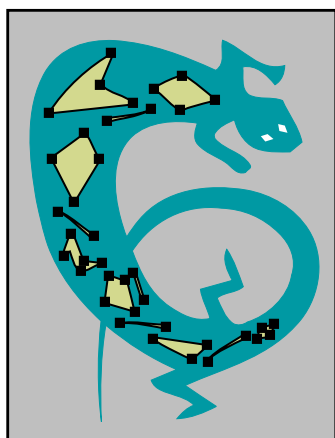
To deselect objects, use one of two methods:

- To deselect everything in the document, click or drag at least two pixels away from any object, or choose Select None from the Edit menu.
- To deselect part of a selection, hold down the Shift key, and click or drag over the path or segment you want to deselect.

Hiding the Anchor Points and Edges of a Selected Object

When you select an object, Adobe Illustrator automatically displays the object's [anchor points](#), and if the object is in [Preview view](#), outlines the path with a selection edge. When you are working with complex paths, or moving selected objects, you might want to hide the anchor points and selection edges if they are obstructing your view. You can hide these selection elements using the Hide Edges command in the View menu.

When you select the Hide Edges command, all selection edges and anchor points are made invisible; however, the selected object can still be moved and manipulated as with any selected object. To make the edges and anchor points visible again, choose Show Edges from the View menu.



Show Edges on



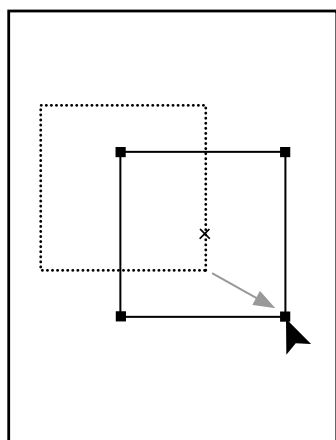
Hide Edges on

Moving, Copying, and Pasting Objects

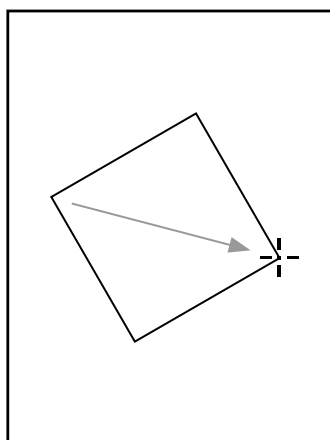
You can move objects in your artwork by dragging them, by using the arrow keys, or by using the Move dialog box. You can also use the Option key or the Move dialog box to move copies of objects rather than the objects themselves. In this case, if the object you are copying is part of a group, the copy becomes part of the same group. If the copy is made from objects in a number of groups or layers, the copied objects are all included in the topmost group or layer. To make a copy outside of the object's group, use the Copy and Paste commands in the Edit menu.

Three options in the General Preferences dialog box affect how an object is moved:

- *Snap to Point*. When you are moving objects by dragging, it is useful to turn on the Snap to Point option in the General Preferences dialog box. This causes an object being dragged to “snap to” an anchor point or a guide object when the pointer is within two pixels of the anchor point or guide object.
- *Constrain Angle*. You can use the Shift key to constrain the movement of one or more objects so that they move in a precise horizontal, vertical, or diagonal direction, relative to the current orientation of the x and y axes. The orientation of the axis is determined by the constrain angle set in the General Preferences dialog box.



Pressing the Shift key while dragging ...



or drawing limits movements to the angle set in the General Preferences dialog box

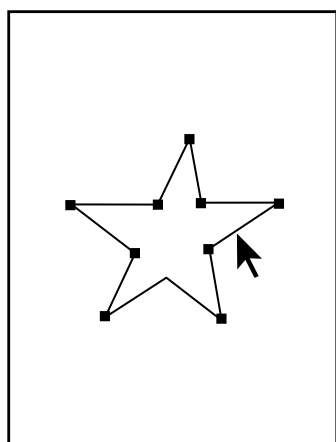


- *Transform Pattern Tiles.* This option causes a pattern to be transformed when you move or transform an object painted with the pattern. Note that moving a patterned object using the Cut and Paste commands does not move or transform the pattern in any way.

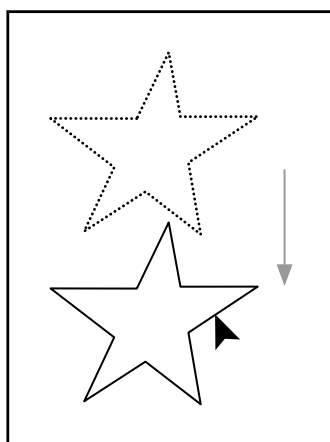
To move an object or a copy of an object by dragging:

- 1 Select the object; then position the pointer on a selected anchor point or path segment.
- 2 Drag the selected object to its new location. To drag a copy of the object, hold down the Option key after you start dragging.

To constrain the movement to a horizontal, vertical, or diagonal direction (relative to the Constrain Angle value in the General Preferences dialog box), hold down the Shift key as you drag the object in the respective direction.



Select ...



and drag to move.

To move an object using the arrow keys:

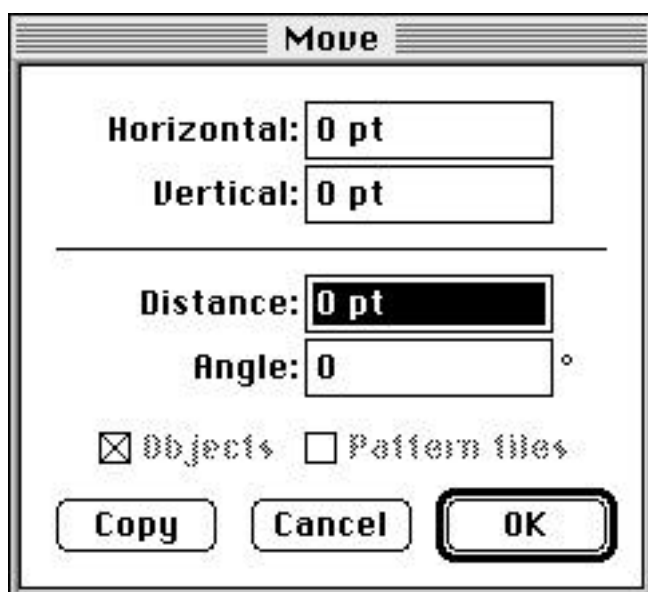
- 1 Select the object.
- 2 Press the arrow key that indicates the direction in which you want the object to move. The distance the object moves each time you press an arrow key depends on the value specified in the [Cursor Key text box](#) of the General Preferences dialog box; the default is one point.



To move or copy an object a specific distance and direction:

- 1 Select the object.
- 2 Choose Move from the Arrange menu, or hold down the Option key and click the selection tool you are currently using in the toolbox.

The Move dialog box appears.



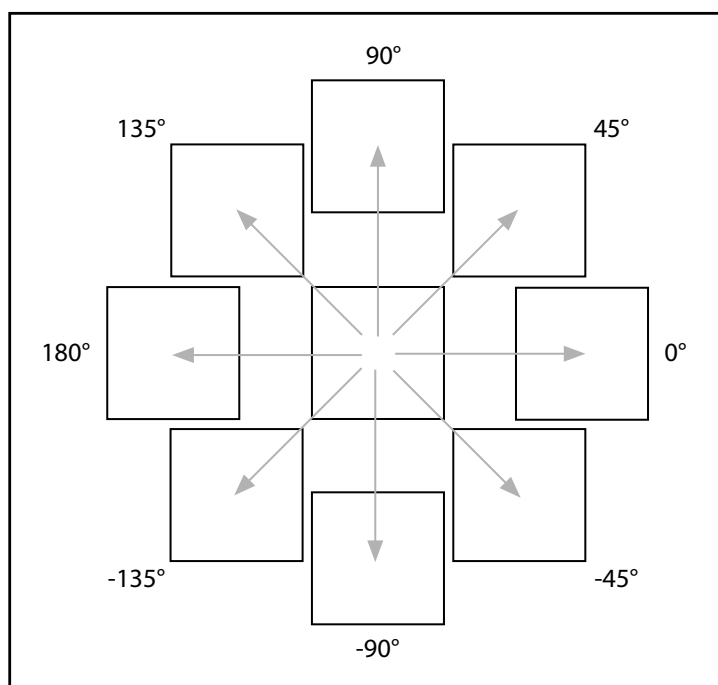
The Move dialog box displays the results of the last move or measure operation using the unit of measure set in the General Preferences dialog box.

- 3 Choose one of two options:

- Enter the horizontal and vertical distances that you want the object to move. Positive values move the object up and to the right; negative values move an object down and to the left.



- Enter the distance and angle for the move. The angle you enter is calculated in degrees from the x axis. Positive angles specify a counterclockwise move; negative angles specify a clockwise move. You can also enter values between 180 and 360 degrees; these values will be automatically converted to their corresponding negative values (for example, a value of 270 degrees will be converted to -90 degrees).



To copy using the Clipboard:

1 Select the objects you want to copy, or use the Select All command from the Edit menu to select all objects.

2 Choose Copy from the Edit menu.

Note: To paste a PICT version of the selected objects onto the Clipboard for placing in other applications, hold down the Option key while choosing the Copy command.

3 Open the document that is to receive the artwork from the Clipboard.

4 Choose Paste from the Edit menu. The copied objects are pasted in the center of the active window.



Exporting selections to other applications using the Clipboard

When you cut or copy a selection on an image, the selection is placed on the Clipboard. When you quit Adobe Illustrator, or switch to another application using the Finder, the image is saved as a PostScript language file. The Clipboard's contents can then be pasted into another Adobe application that supports PostScript on the Clipboard, such as Adobe Photoshop.

Pasting objects using the Paste in Front and Paste in Back commands

You can use the Paste in Front command in the Edit menu to paste the artwork in the same position in the new document as it was in the old. This command also lets you place copies of objects directly on top of other copies.

Pasted objects are placed directly in front of all selected objects in the current layer if the Paste Remembers Layers option is turned off in the General Preferences dialog box; however, the relative painting order among the individual pasted objects remains the same. If the Paste In Back command is used, objects are placed directly in back of all selected objects in the current layer, if the Paste Remembers Layers option is turned off.

If you want objects that you cut and paste to retain their layer position, select the Paste Remembers Layers option in the General Preferences dialog box. (For more information about layers, see [Working with Layers](#) and [Moving Objects between Layers](#).)

Deleting Objects

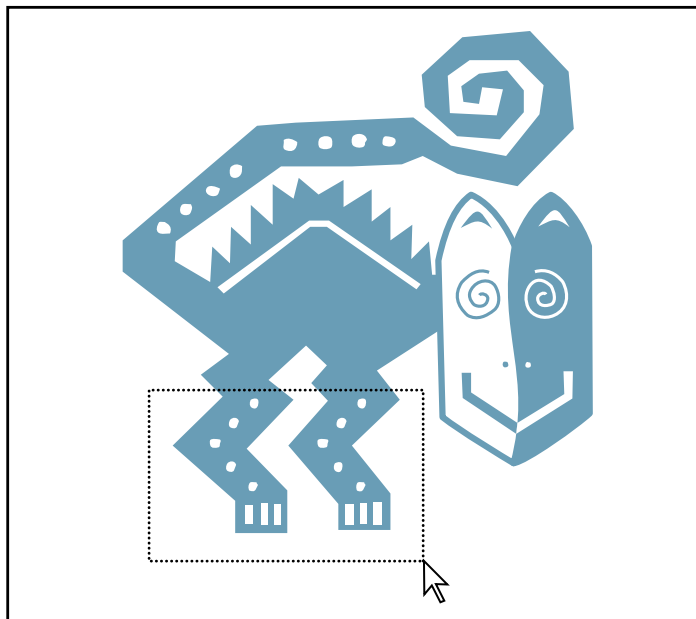
To permanently delete an object, select the object and press the Delete key. You can also use the Cut command to move the object onto the Clipboard. If you want to paste the object back into your artwork, you must choose Paste from the Edit menu before you cut or copy another object.

Adjusting Path Segments

You can modify the shape of a path by moving one or more of its curve segments. You change the curve segment either by moving the segment itself or by moving one or more of its [direction points](#).

To move path segments:

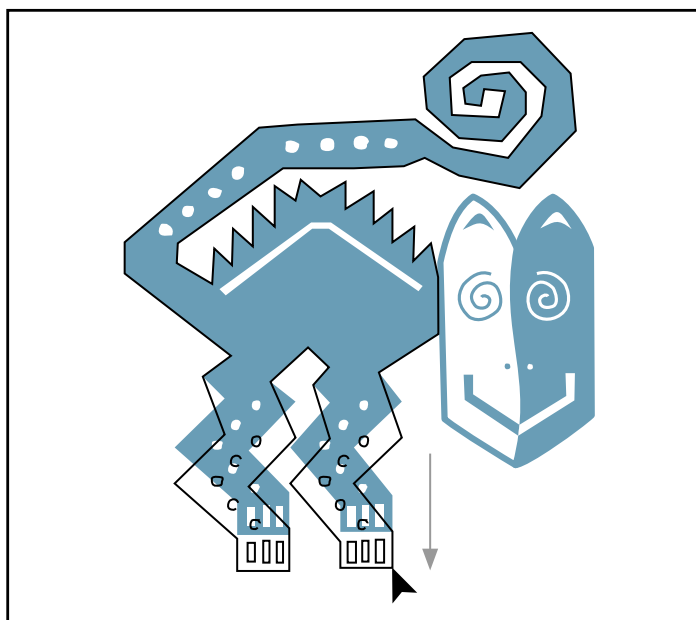
- 1 Use the [direct-selection tool](#) to select the segments you want to move.



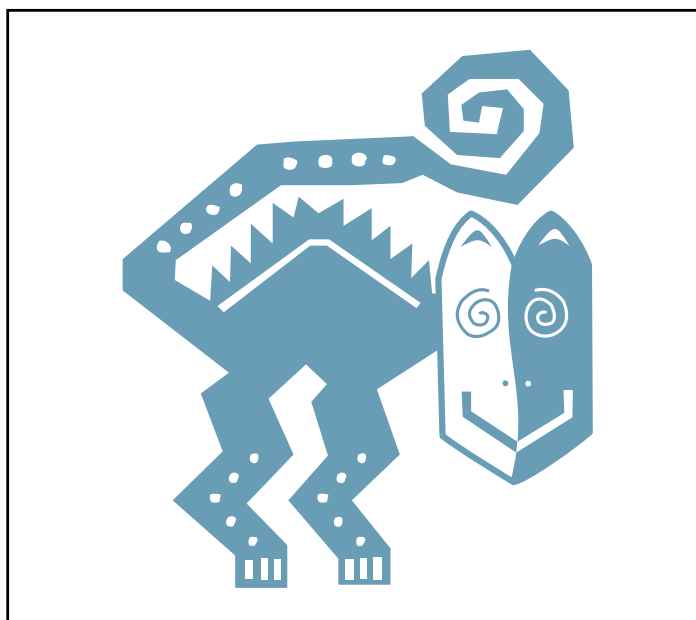
Select path segments with direct-selection tool



2 Drag the selected anchor points or segments to a new position. To constrain the movement of the anchor points so that they move exactly horizontally, vertically, or diagonally, hold down the Shift key while you drag.



Drag to adjust paths

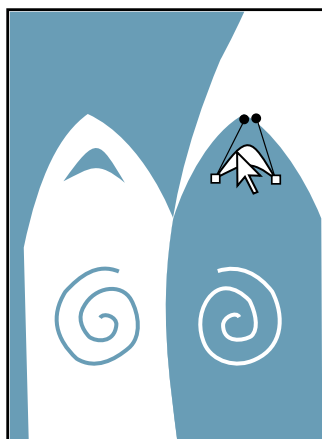


After adjustment

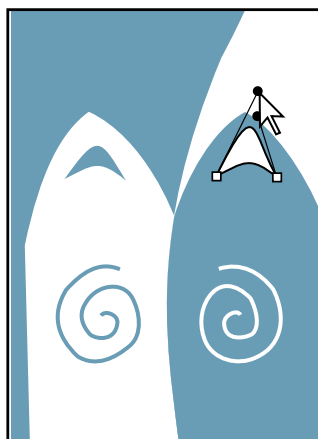


To adjust the shape of the curve:

- 1 Select the curve segment you want to adjust.
- 2 Position the pointer on the one of the direction points and drag to adjust the curve. Either one or two segments will change shape, depending on whether a corner point or a smooth point was established.



Click to select the curve ...



and drag the direction point
to adjust the shape.

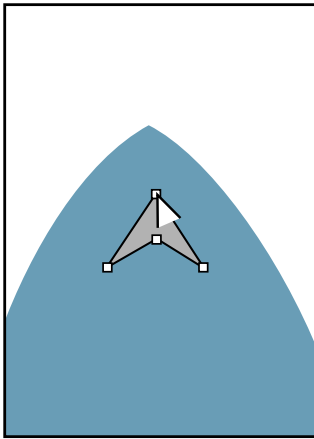
To constrain the movement of the direction point so that it moves at 45-degree multiples relative to the constrain angle set in the General Preferences dialog box, hold down the Shift key as you drag.

Using the Convert-Direction Point Tool

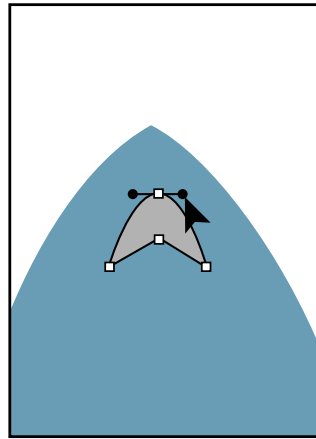
The convert-direction-point tool lets you change a continuous curve to a non-continuous curve and vice versa. For a definition of smooth points and corner points, see [Drawing Curves with the Pen Tool](#).

To convert a corner point to a smooth point:

- 1 Select the path on which you want to convert a point.
- 2 Select the convert-direction-point tool, located to the right of the scissors tool in the toolbox.
- 3 Select the corner point and drag to create direction lines.



Clicking a corner point and dragging ...



results in a smooth point with direction lines.

The corner point changes to a smooth point as you drag the direction line. The straight lines change to curved lines.

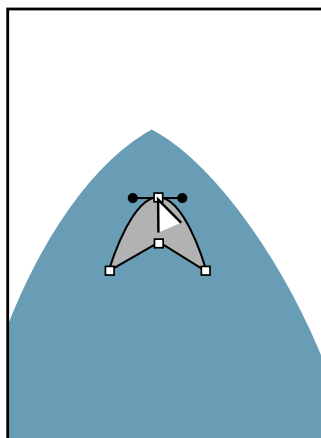
- 4 To readjust the curve, hold down the Command key and drag the direction point you want to adjust.

To convert a smooth point to a corner point:

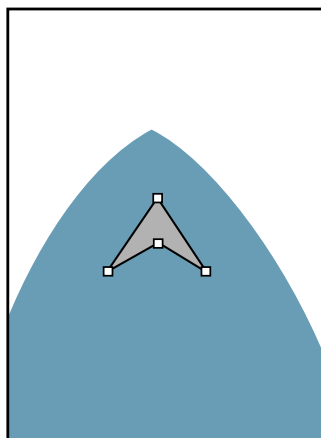
- 1 Select a single smooth point within a path, using the direct-selection tool.
- 2 Select the convert-direction-point tool, located to the right of the scissors tool in the toolbox.



3 Click a smooth point and release the mouse button. The point converts to a corner point. (Notice that the corner point does not display direction lines.)



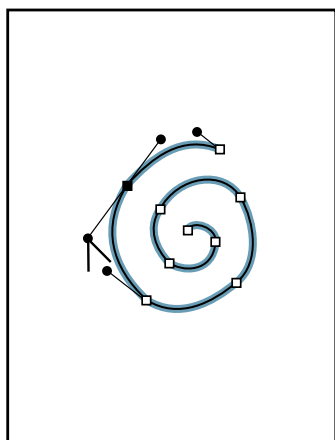
Clicking a smooth point without dragging ...



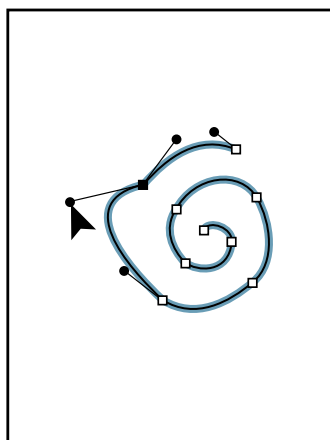
results in a corner point without direction lines.

To adjust part of a segment by converting a smooth point to a corner point:

- 1 Select a single smooth point within a path, using the direct-selection tool.
- 2 Select the convert-direction-point tool, located to the right of the scissors tool in the toolbox.
- 3 Select one of the direction points, and drag to adjust the direction of the curve.



Select a smooth point and use the convert-direction point tool ...



to adjust each side of the curve independently.

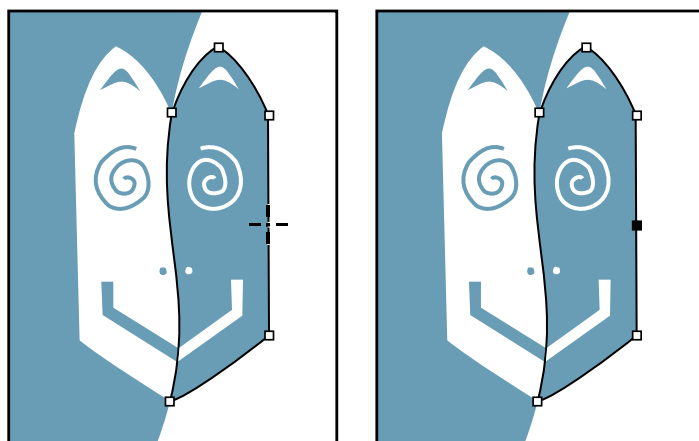
Using the Scissors Tool

You may sometimes want to split paths that you have already created or that were created using the auto trace tool. Using the scissors tool, you can either split an open path into two paths or split a closed path so that it becomes an open path.

The scissors tool can be used to produce a split anywhere on a path, except on an endpoint of an open path. You can split any path except an open path that has type along it or inside it.

To split a path:

- 1 Select the path you want to split so that you can see its current anchor points.
- 2 Select the scissors tool.
- 3 Click the path where you want to split it.



If you split the path in the middle of a segment, two new endpoints appear, one on top of the other. Both endpoints are selected.

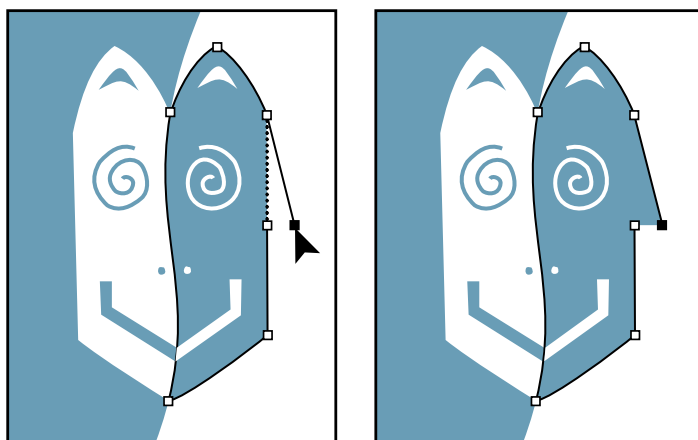
If you split the path at an anchor point, a new anchor point appears in the same place as the original anchor point. Both anchor points are selected.



To adjust part of a segment:

1 If the two endpoints of a path are coincident (that is, one on top of the other), you need to select one endpoint to adjust the path segment. Select the selection tool, click away from the path to deselect it, then click to reselect the topmost endpoint. (If you wish to select the bottom endpoint, drag to select both endpoints using the [direct-selection tool](#) and then Shift-click to deselect the top endpoint.)

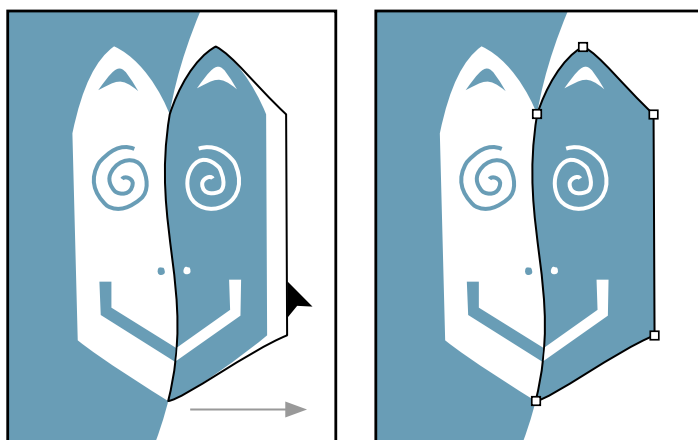
2 Drag the endpoint to its new position.



To adjust an entire segment:

1 Select the direct-selection tool, and click anywhere along the path you want to move. In this example, a single segment has been selected to be moved.

2 Drag the selected path to its new position.



Adding and Deleting Anchor Points

You can add and delete anchor points on any path. Added anchor points can give you more control over the path shape. Similarly, you can delete anchor points to change the shape of a path or to simplify the path. If your path contains numerous anchor points, you should delete any unnecessary ones to make the path smoother and reduce its complexity.

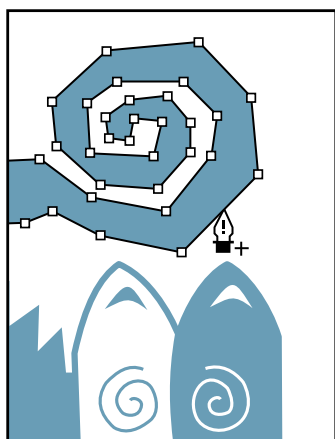
You add and delete anchor points using the tools located to the right of the scissors tool in the toolbox.

To add or delete an anchor point:

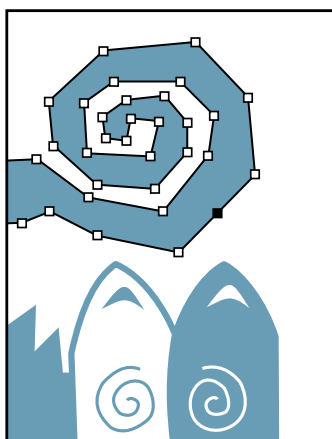
- 1** Select the path to display the anchor points.
- 2** Select the add-anchor-point or delete-anchor-point tool.
- 3** Choose one of two options:
 - To add an anchor point, position the cursor on a path segment, and click the mouse button.



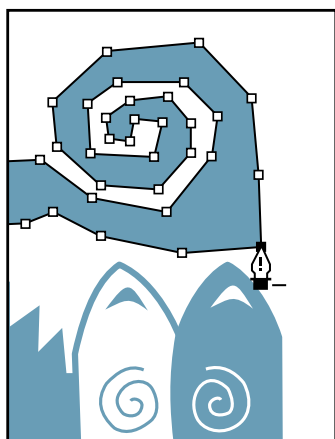
- To delete an anchor point, position the cursor over an anchor point, and click the mouse button.



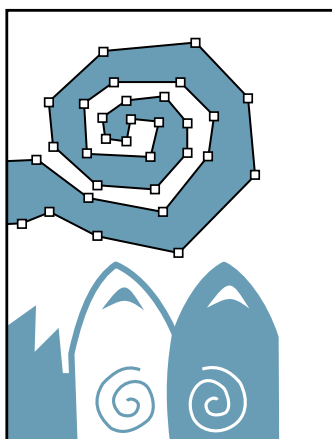
Adding an anchor point



Result



Deleting an anchor point



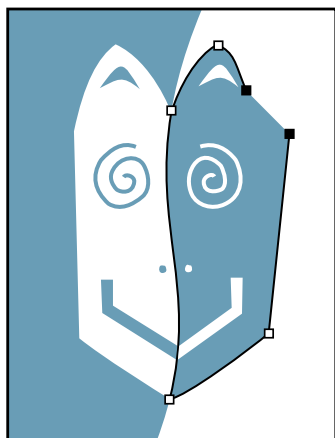
Result

Averaging Anchor Points

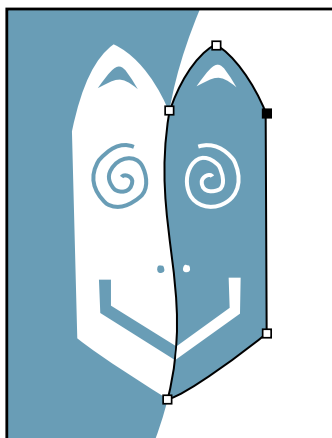
The Average command lets you move two or more anchor points to a position that is the average of their current locations.

To average anchor points:

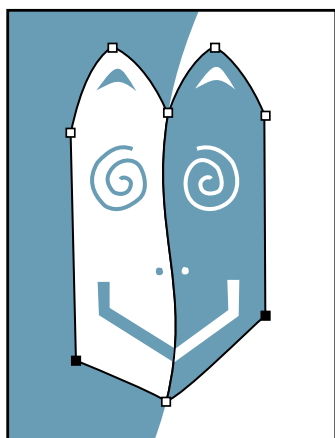
- 1 Use the direct-selection tool to select two or more anchor points.
- 2 Choose Average from the Object menu. The Average dialog box appears.
- 3 Select one of the averaging options: average along both axes (the default); average along the horizontal (x) axis only, or average along the vertical (y) axis only; then click OK.



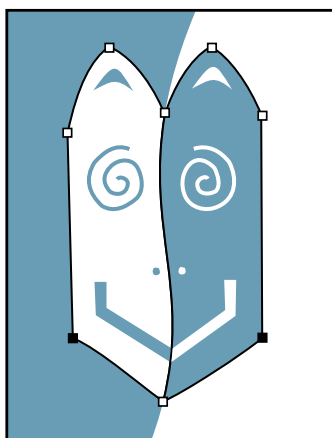
Before averaging



After averaging along both axes

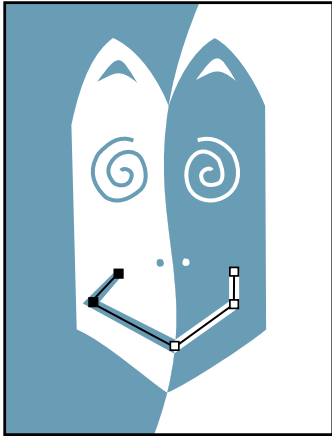


Before averaging along horizontal axis

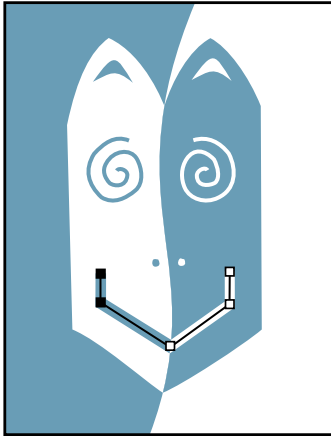


After averaging along horizontal axis





Before averaging along
vertical axis



After averaging along
vertical axis

Joining Endpoints

The Join command lets you connect the endpoints of an open path to create a closed path or join the endpoints of two open paths.

You can join either coincident or noncoincident endpoints using the Join command. *Coincident* endpoints occupy the same place; that is, one is on top of the other. If you join two coincident endpoints, they are replaced with one anchor point. If you join two noncoincident endpoints, a path is drawn between the two points.

To join two endpoints:

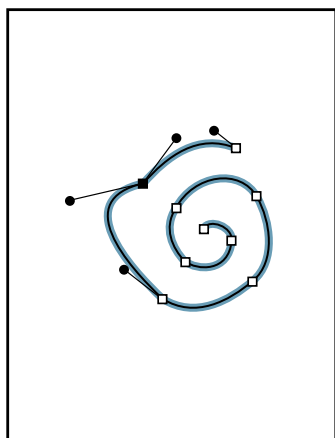
1 Use the [direct-selection tool](#) to select two endpoints. If the endpoints are coincident, you must drag to select them rather than click.

2 Choose Join from the Object menu.

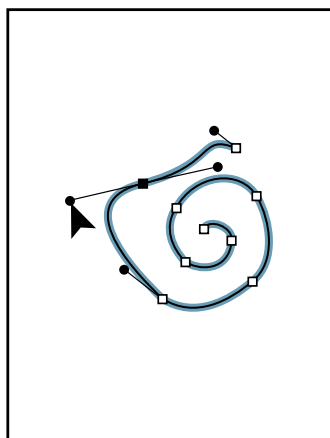
If the endpoints you are joining are coincident, the Join dialog box appears.

3 Click the option that indicates the type of join you want; the options are Corner Point (the default) or Smooth Point. See [Drawing Curves with the Pen Tool](#) for a description of smooth points and corner points.

4 Click OK.



Corner Point option:
adjusting direction lines
affects one side of curve

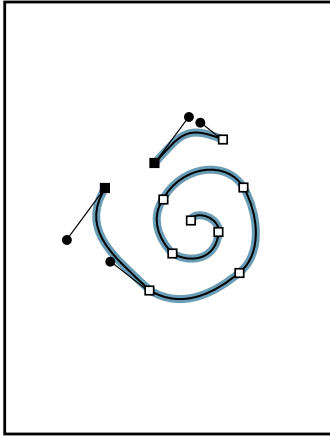


Smooth Point option:
adjusting direction lines
affects both sides of curve

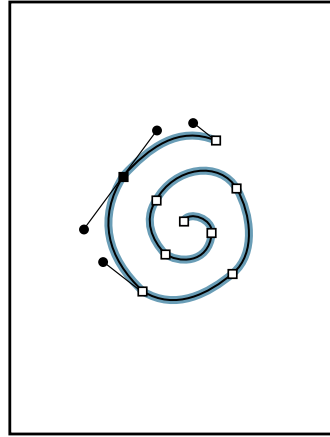


To average and join two paths at the same time:

- 1** Select the two points to be joined.
- 2** Press Command-Option-J. The selected endpoints of both paths are joined at the midpoint of their original positions.



Using the Average and Join commands together



Result

Previewing As You Paint

Adobe Illustrator lets you create artwork in either Artwork or Preview view. By default, artwork opens in Preview view, which lets you view your artwork as it will be printed. You can also work in Artwork view, which displays artwork as outlines and hides the paint attributes. Working in Artwork view can speed up your work when you are editing complex artwork that requires a long time to refresh the screen for preview.

You can also choose to preview just a selection in an artwork document. To preview a selection only, choose Preview Selection from the View menu; you can then select any part of the image to preview it.

How Paths Are Painted

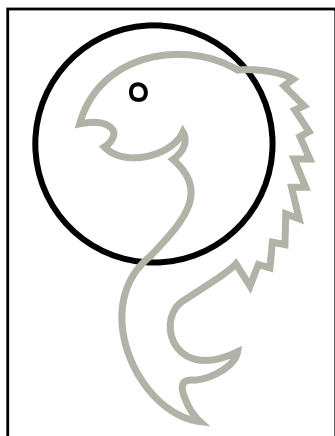
While paths (and objects) are automatically painted with the current paint attributes, you can select an object and change its paint attributes at any time. The new paint attributes are then assigned to all new objects you create until you change the attributes again.

Filling an object paints the area that is enclosed by the path.

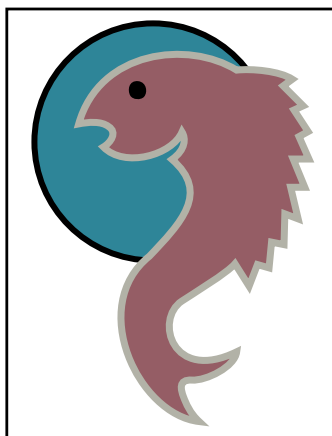
Stroking an object paints a line that is centered on the path outlining the object. Paths may be filled, stroked, or filled and stroked; you can also create unfilled or unstroked paths by using the None option in the [Paint Style palette](#).



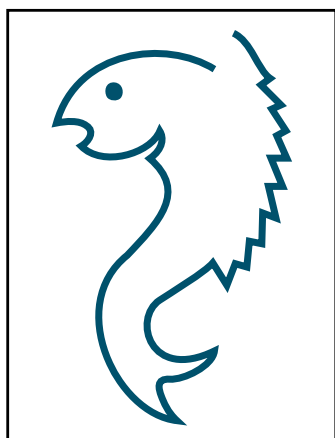
Filling and stroking affect closed and open paths differently, as the following examples illustrate. Open paths are filled as if the endpoints were connected by a straight line.



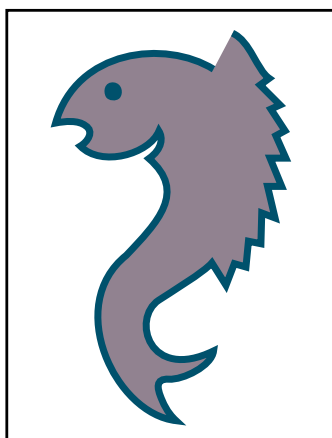
Closed paths with stroke and no fill



Closed paths with stroke and fill



Open path with stroke and no fill



Open path with stroke and fill

Using the Paint Style Palette

You use the Paint Style palette to set paint attributes either for selected paths or for paths you are about to create. All newly created paths are automatically painted with the paint attributes currently displayed in the Paint Style palette.

You can also use the [paint bucket tool](#) to paint objects with the attributes currently selected in the Paint Style palette and the [eyedropper tool](#) to “sample” an object’s paint attributes. Sampling with the eyedropper automatically updates the Paint Style palette with the attributes of that object.

Only entire paths can be painted. Even if you select only part of a path and set paint attributes for it, the entire path will be painted. However, if you use the type tool’s I-beam pointer, you can select different pieces of type within one text object, and change the paint attributes individually.

See the following topics for more information:

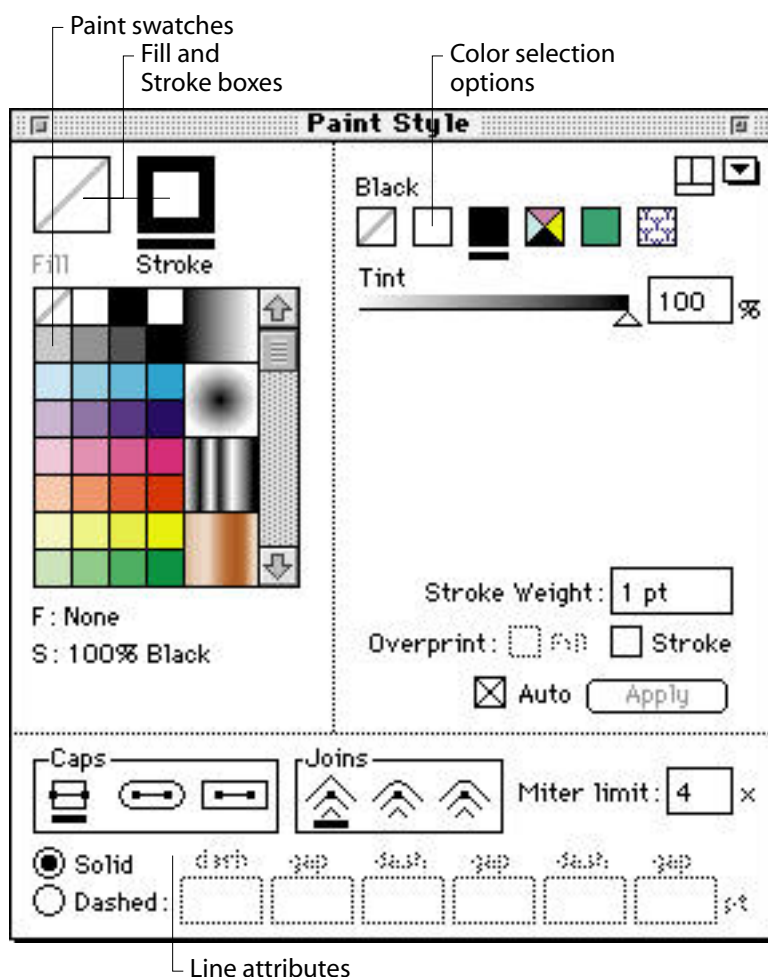
- [Selecting Paint Attributes](#)
- [Adjusting the Palette Display](#)
- [Using the Paint Swatches](#)
- [Filling or Stroking with None](#)
- [Filling or Stroking with White or Black](#)
- [Creating a Process Color Mix](#)
- [Using Custom Colors](#)
- [Filling with Patterns](#)
- [Painting with Gradient Fills](#)
- [Setting Line Attributes](#)
- [Overprinting](#)

Selecting Paint Attributes

The following procedure describes how to select paint attributes using the Paint Style palette. For information on individual attributes and color selection options, see the topics listed in [Using the Paint Style Palette](#).

To set paint attributes:

- 1 Select one or more paths whose paint attributes you want to change, or deselect all paths in your artwork if you want the attributes to apply only to new paths you create.
- 2 Choose Paint Style from the Object menu. (You can also open the Paint Style palette from the Window menu.) The Paint Style palette appears.



If an object is selected, the [fill and stroke](#) colors are displayed in the Fill and Stroke boxes and the names of the fill and stroke are displayed under the paint swatches.

If multiple objects with different attributes are selected, a question mark appears in the Fill and Stroke boxes and the attributes are defined as “Mixed.” All common attributes, including line attributes and individual values of C, M, Y, and K, are displayed and can be adjusted. This feature allows you to adjust common attributes of different objects without altering the objects’ differing paint attributes.

Note: Changing a fill or stroke attribute defined as “Mixed” will repaint all selected paths.

3 Select the Auto check box if you want the palette settings to be automatically applied to all selected objects in the artwork. Deselect this option if you want to apply the palette settings manually.

4 Select the Fill box to set the fill attributes, or select the Stroke box to set the stroke attributes.

5 Choose a fill or stroke color using one of the following procedures:

- Choose a color selection option—[None](#), [White](#), [Black](#), [Process](#), [Custom](#), [Pattern](#), or [Gradient](#)—from the top right panel of the Paint Style palette.
- Click one of the palette paint swatches to fill or stroke with the color displayed in that swatch.

6 Select [line attributes](#).

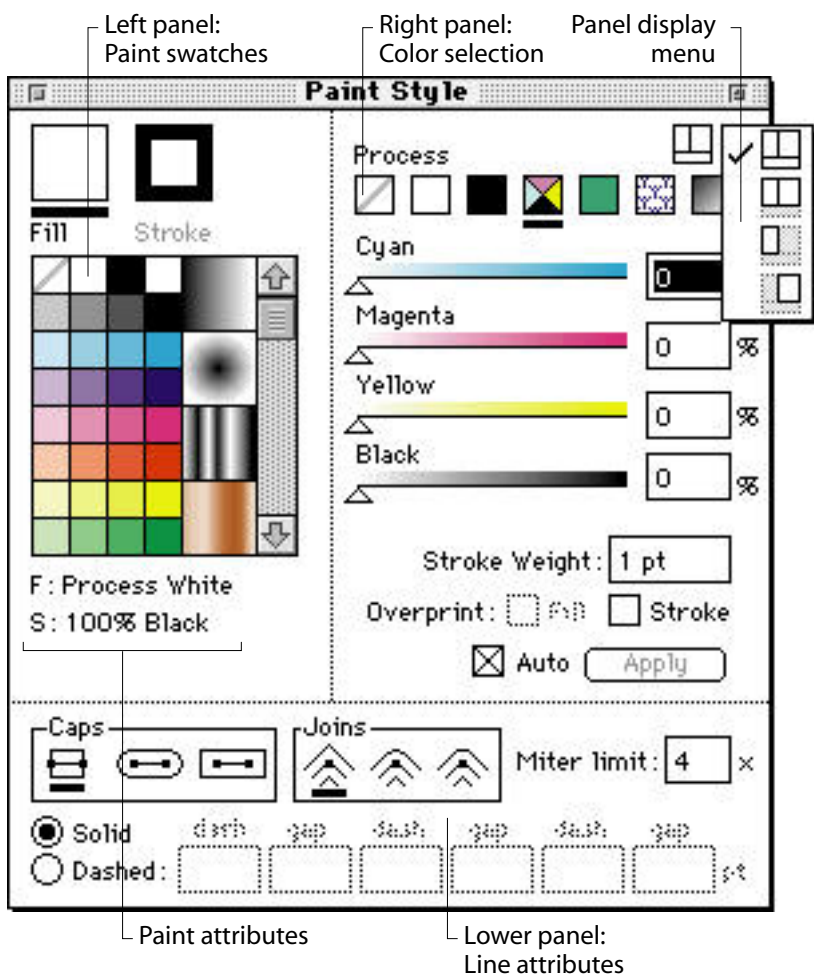
If you selected the Auto check box, the paint attributes are automatically applied.

7 If the Auto check box is not selected, apply the paint attributes using one of the following methods:

- Click Apply, or press Return.
- Double-click a swatch to apply the color to a selected object.
- Double-click the Fill or Stroke box in the palette (regardless of which box is selected).

Adjusting the Palette Display

The Paint Style palette consists of three panels: the left panel, containing the paint swatches; the right panel, containing the color selection options; and the lower panel, containing the line attribute controls (this last panel is closed by default). Use the pop-up menu in the upper right corner of the palette to change which panels are displayed, or click the desired panel in the palette icon to the left of the pop-up menu. You can also use the Zoom box in the upper right corner of the palette to toggle between the two most recent palette displays.



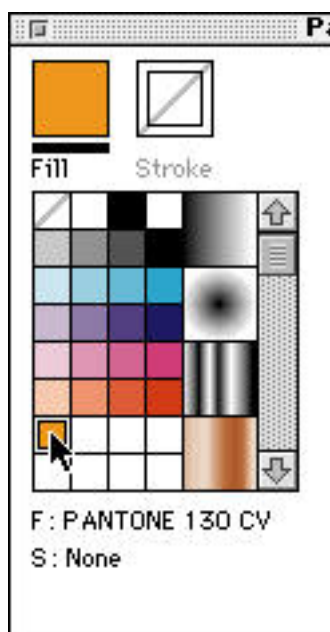
Using the Paint Swatches

You can use the scrolling paint swatches on the left of the Paint Style palette to store up to 225 colors in the palette. The paint swatches you define are saved with the document. This feature lets you create customized sets of paints for different documents. For example, you could create a set of paints that contains mostly shades of green and yellow for one document and create another set of paints that contains complex gradient fills and patterns for another document.

Paint Style swatches can store custom and process colors, gradient fills, and patterns. Clicking a paint swatch automatically displays that color's name below the swatches. You cannot use the swatches to store stroke or line attributes or other paint attributes such as the angle of a gradient fill.

To define a set of paint swatches:

- 1 Choose a color, [gradient fill](#), or [pattern](#).
- 2 Drag the new color, gradient fill, or pattern from the Fill or Stroke box to any paint swatch. (You can also Option-click a paint swatch to apply the current color to that swatch.) Note that the top four swatches—None, White, Black, and Process White—cannot be replaced.



3 Continue choosing colors and Option-clicking swatches until the palette is as you want it. To copy a swatch to a new location, hold down the Option key and drag the swatch.

4 When you have finished, save the document to save the new paint swatches in the palette.

To clear paint swatches:

Hold down the Command key, and click the swatch. To clear a group of swatches, hold down the Command key and drag over the swatches.

You cannot use the Undo command to reverse this procedure.

Filling or Stroking with None

If you do not want a path to be filled or stroked, select the None option (the leftmost color selection option) from the palette. This option makes the fill or stroke transparent. By default, objects are given a stroke of None.

Filling or Stroking with White or Black

To fill or stroke with white or black, select the White or Black option, respectively. You can also adjust the percentage, or *tint*, of black by typing a number in the text box or by adjusting the Tint slider until the shade is as you want it. Using the White or Black option produces the same results as choosing a CMYK mix of 0 percent or 100 percent, respectively.

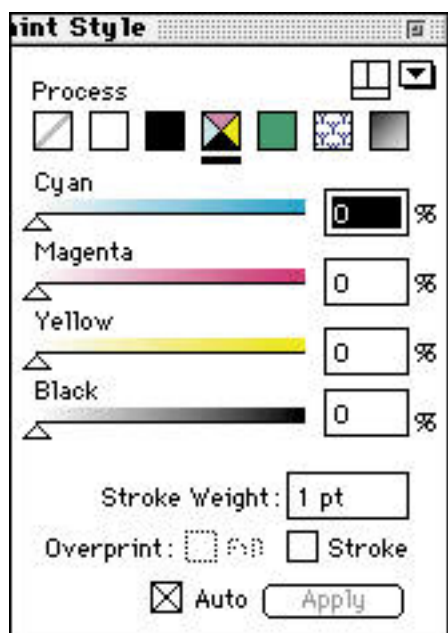
Creating a Process Color Mix

You assign colors that will be printed with process inks by indicating a percentage for cyan, magenta, yellow, and black. You can either type the percentages in the Paint Style palette, or adjust the C, M, Y, and K sliders until the color you want appears in the Fill or Stroke box in the palette.

***Note:** The Adobe Illustrator program creates an approximate screen representation for process and spot colors. Because on-screen colors don't always match your printed output, it is recommended that you make four-color proofs for any colors that you create and work closely with your print shop to reproduce the color. Also make sure that your monitor is calibrated.*

To select a process color in the Paint Style palette:

- 1 Select the Fill or Stroke box to indicate which attribute you want to change.
- 2 Select the Process color option at the top of the palette. Four sliders and text boxes appear, one for each of the four process colors.



3 Choose one of the following methods to adjust the process values:

- Enter a value from 0 to 100 percent in each of the four process color boxes, using the Tab key to move from one text box to the next.
- Drag the triangles below the sliders to adjust each process color value.
- Click anywhere along a slider to adjust the triangle: Option-clicking to the right or left of a triangle moves the triangle in one percent increments; Shift-Option-clicking moves the triangle in five percent increments.

As you adjust each color value, the colors along the other sliders change to reflect the adjustment you are making. For example, as you move the black slider to the right, black is added to the cyan, magenta, and yellow along the other three sliders. The Fill or Stroke box (whichever is selected) displays the composite process color.

To adjust the color saturation:

Hold down the Shift key and drag any slider triangle to adjust all triangles simultaneously.

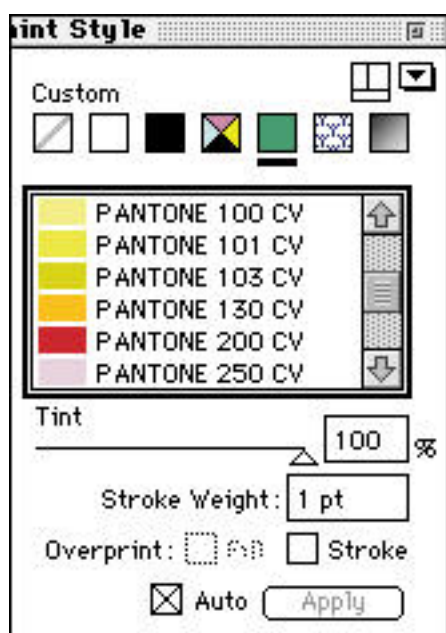
This procedure lets you adjust the overall color tint without affecting the proportions of the individual CMYK components.

Using Custom Colors

You use the Custom color selection option to fill and stroke objects with custom colors. A custom color may be a process color mix you've named and saved as a custom color or a pre-defined color from another color matching system. Custom colors you create and load in the palette are saved with the current document.

To select a custom color:

- 1 Select the Fill or Stroke box to indicate which attribute you want to change.
- 2 Select the Custom color selection option at the top of the palette. A list of the available custom colors appears.



- 3 Select the color you want from the list. You can also type into the list to select a custom color; for example, to select PANTONE 200, type 200.
- 4 If you want a screened percentage of that color, enter a percentage in the Tint text box or adjust the slider until the color in the Fill or Stroke box appears as you want it.



As with the other sliders in the Paint Style palette, Option-clicking to the right or left of the triangle moves the triangle in one percent increments; Shift-Option-clicking moves the triangle in five percent increments.

For more information on choosing custom colors, see the following topics:

- [Defining Your Own Custom Colors](#)
- [Selecting Colors Using Other Color Systems](#)

Defining Your Own Custom Colors

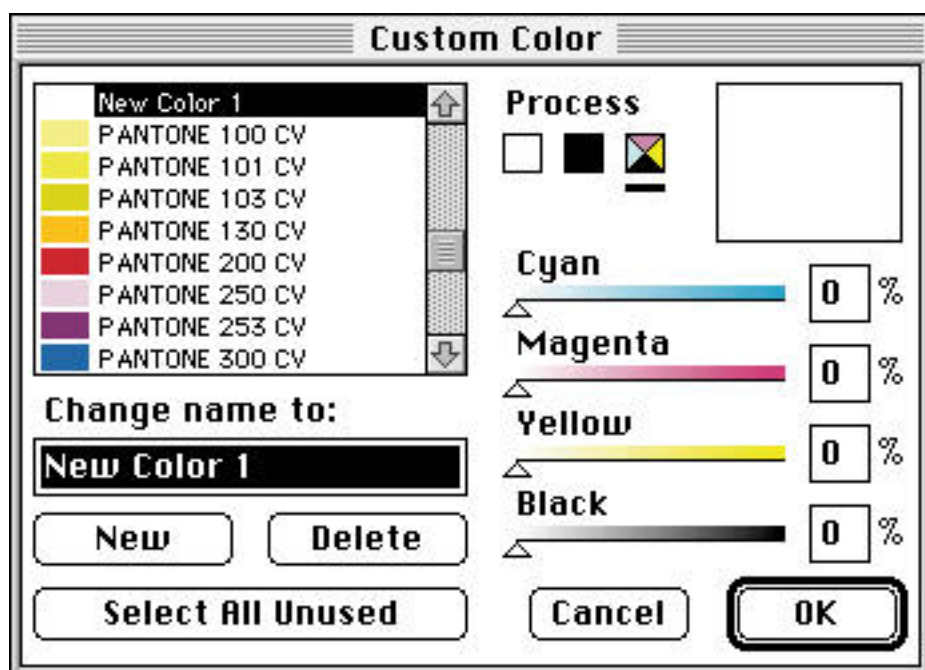
You can define your own custom colors using white, black, or percentages of CMYK. Creating your own custom colors lets you select process colors in the Paint Style palette by name, import process colors from one document to another, and make global color changes to artwork.

Like paint swatches, custom colors used in the artwork (or copied to the paint swatches) are saved with the current artwork file. You can use the [Import Styles command](#) to load custom colors from another file or to create a startup file that automatically loads the custom colors you want when you open the program.

To define your own custom colors:

1 Choose Custom Color from the Object menu or double-click any of the custom colors listed in the Paint Style palette. The Custom Color dialog box appears.

2 Click New. The name New Color, followed by a number, appears in the list.



3 Enter the name you want to assign to the color in the Change Name To text box.



It's a good idea to assign each custom color a distinctive name so that it doesn't conflict with a custom color in another open file. If another custom color of the same name exists in an open file, it will automatically be replaced by the new custom color.

4 Select the White or Black option and choose a tint of white or black, or [select a process color](#).

The custom color you have created appears in the Paint Style palette, listed alphabetically with the other custom colors.

***Note:** When separated in the Adobe Separator program, each custom color is assigned a separate piece of film unless you choose the Convert to Process feature in Adobe Separator. See [Converting Custom Colors to Process Color When Printing](#) for more information.*

To make global color changes using a custom color:

1 Choose Custom Color from the Object menu or double-click any of the custom colors listed in the Paint Style palette. The Custom Color palette appears.

2 Select the color you want to change. (You can combine steps 1 and 2 by double-clicking the name of the color you want to change in the Paint Style palette.)

3 Change the color to black, white, or a process color using the dialog box controls. Do not change the color's name.

4 When you are satisfied with the new color, click OK. The new color replaces all objects painted with the custom color's former definition.

5 Save the file to save the new color definition.

To delete custom colors:

1 Close any documents from which you do not want to delete custom colors.

2 Choose Custom Color from the Object menu or double-click any of the custom colors listed in the Paint Style palette. The Custom Color palette appears.



3 Choose one of the following two methods:

- To delete one color, select the color and click Delete.
- To delete all custom colors not used in any open document, click Select All Unused and then click Delete.

Any objects painted with the deleted color will be filled with black.

This procedure deletes the specified colors from all open documents, so make sure that only documents from which you want the colors deleted are open. This procedure does not delete colors from your startup file.

Selecting Colors Using Other Color Systems

Adobe Illustrator lets you select colors using other color systems—including the [PANTONE® Process Color System](#), [Toyo Ink Electronic Color Finder 1050](#), the [FOCOLTONE® COLOUR SYSTEM](#), and the [TRUMATCH™ color swatching system](#).

To load predefined custom colors into your palette, you choose [Import Styles](#) from the File menu and then open the file you want from the Color Systems folder. The colors then appear in the Paint Style palette and the Custom Color palette and can be edited and deleted like any other custom color.

When printing color separations using the Adobe Separator program, you can convert a custom color back into its process color components. See [Converting Custom Colors to Process Colors When Printing](#) for more information.

You can also use the Paint Style palette to display the CMYK equivalent of a custom color.

To get the process color equivalent of a custom color:

- 1 Select the custom color in the Paint Style palette.
- 2 Select the Process color selection option from the top of the Paint Style palette. The CMYK values for the custom color are displayed in the palette.

Using the PANTONE MATCHING SYSTEM

To use the PANTONE printing ink colors, first determine the ink color you want, using either a PANTONE Color Formula Guide 747XR or an ink chart obtained from your printer. PANTONE books are available from print shops and graphic arts supply houses.

In addition, you can also simulate the PANTONE colors with the process colors. The PANTONE Process Color System includes more than 3000 CMYK combinations that can be used to generate PANTONE color equivalents. To view simulated PANTONE colors, use the PANTONE Process Color Simulator 747XR, which lists the percentages of cyan, magenta, yellow, and black needed to simulate a given PANTONE color. The PANTONE Process Color Simulator 747XR is available at most graphic arts supply stores or directly from Pantone, Inc.

Using the Toyo Color Finder 1050

The Toyo Ink Electronic Color Finder™ 1050, created by Toyo Ink Mfg. Co., Ltd. provides more than 2000 colors, based on the most common printing inks in Japan. You can choose a color from one of two files. The Toyo 88 file contains 1050 colors from the Toyo 88 Color Finder 1050. The file Toyo 91 file contains 624 colors from the Toyo 91 Process Color Finder.

Before you try to assign a color to a document, you should determine the ink color you want by referring to the corresponding Toyo Color Finder 1050 Book. The book is available from printers and graphic arts supply stores.

Note: Some colors in the list may reproduce differently from the corresponding colors in the Toyo Ink color sample book. Those colors are marked with an asterisk (). Two asterisks indicate an even greater difference between the reproduced results and the matching colors in the color book. The color mismatch may also occur depending on the printing conditions. If you want to obtain the same result as in the color book, use spot color ink for colors marked with one or two asterisks.*

Using the FOCOLTONE COLOUR SYSTEM

The FOCOLTONE COLOUR SYSTEM provides 763 CMYK colors. FOCOLTONE colors help avoid prepress trapping and register problems by showing the overprints that make up the colors. All of the colors convert to spot colors with a single mix of CMYK inks.

You can choose a FOCOLTONE color using one of two files: one containing the 763 colors arranged by their four-digit identification number; the other containing the color swatches as they appear in the *FOCOLTONE Colour Swatch Book*.

You can obtain a copy of the swatch book with specifications for process and spot colors, overprint charts, and a chip book for marking up layouts from FOCOLTONE at the following address:

FOCOLTONE Ltd.
Springwater House
Taft's Well
Cardiff CF4 7QR
United Kingdom
(0222) 810940

Using the TRUMATCH Color Swatching System

The TRUMATCH color swatching system provides predictable CMYK color matching with more than 2000 achievable, computer-created colors.

TRUMATCH colors cover the visible spectrum of the CMYK gamut in even steps. The TRUMATCH COLORFINDER displays up to 40 tints and shades of each hue, each originally created in four-color process, and each reproducible in four colors on electronic imagesetters. In addition, four-color grays using different hues are included. For more information on the TRUMATCH system, contact TRUMATCH at the following address:

TRUMATCH, Inc.
331 Madison Avenue
New York, NY 10017
(212) 351-2360

Filling with Patterns

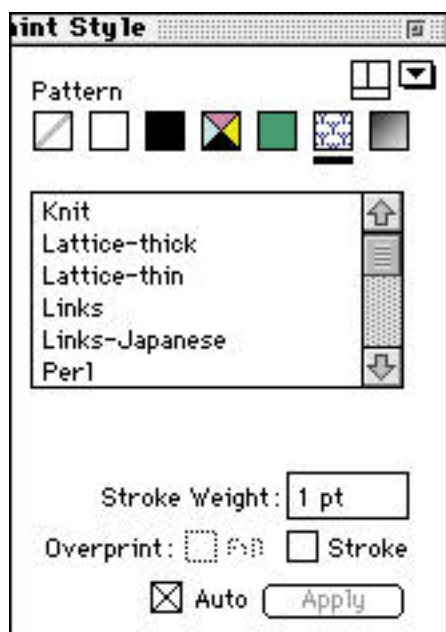
You can paint paths, including type, with any existing pattern. You can [create your own patterns](#) or you can use the patterns and textures included with the Adobe Illustrator program.

In addition to the default patterns included in the Paint Style palette, Adobe Illustrator includes a large selection of predefined patterns that you can load using the [Import Styles command](#) in the File menu.

When painting objects with patterns, keep in mind that patterns can significantly slow performance. Painting [compound paths](#) with patterns, or using several patterns in your artwork may slow printing or cause your document not to print at all. In addition, anything [stroked](#) with patterns other than very simple paths will not print.

To paint with a pattern:

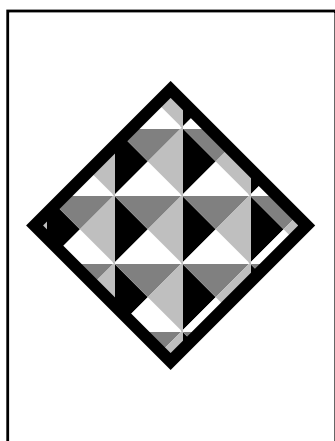
- 1 Select the path you want to fill.
- 2 In the Paint Style palette, click the Fill or Stroke box; then click the Pattern option at the top of the palette. A list of the available patterns appears.



The pattern list contains a selection of the patterns included with the Adobe Illustrator program as well as all patterns you've created in any open documents.

3 Select the name of the pattern you want to use.

4 If the Auto check box in the Paint Style palette is not selected, click Apply or press Return to paint the selected object with the pattern.



Preview of pattern-filled object

Painting with Gradient Fills

You can fill paths with graduated blends between colors, called *gradient fills*. A gradient fill may be a blend between a single starting and ending color or it may consist of multiple intermediate blends between a number of colors.

You cannot stroke objects with gradient fills. To fill type with gradient fills, first convert the type to outlines using the [Create Outlines command](#) in the Type menu.

Once [graph objects](#) are painted with gradient fills, changing graph styles will cause unexpected results. To prevent this, use the direct-selection tool to select each object and paint those objects with black; then reapply the original gradient fills.

Adobe Photoshop 2.5, Adobe Dimensions 1.0, and earlier versions of Adobe Illustrator cannot read Illustrator 5.0 and 5.5's multicolored gradient fills. If you want to bring gradient fills into Photoshop or into an older version of Illustrator, save the file in Adobe Illustrator 3.0 format. Because saving files in older file formats converts the new gradient fills to artwork (similar to blends created in Adobe Illustrator 3.0) and results in the loss of other Adobe Illustrator 5.5 features, be sure to first save the original file in Adobe Illustrator 5 format under a different name.

***Note:** Older Level 1 imagesetters may have difficulty printing gradient fills. For information on printing gradient fills with these imagesetters, see [Printing Gradient Fills](#).*

To paint with a gradient fill:

- 1 Select the path you want to fill.



2 In the Paint Style palette, click the Fill box; then click the Gradient option at the top of the palette. A list of the available gradient fills appears. For instructions on how to create your own gradient fills, see [Creating Gradient Fills](#).



Note: You can also load predefined gradient fills supplied with the program using the [Import Styles command](#).

3 Select the name of the gradient fill or click the gradient fill swatch that you want to use.

For a linear gradient fill, either enter an angle for the fill in the Angle text box beneath the list of gradient fills, or use the [gradient fill tool](#) to change the angle of a gradient fill.

4 If the Auto check box is not selected in the Paint Style palette, click Apply or press Return to paint the selected object with the gradient fill.

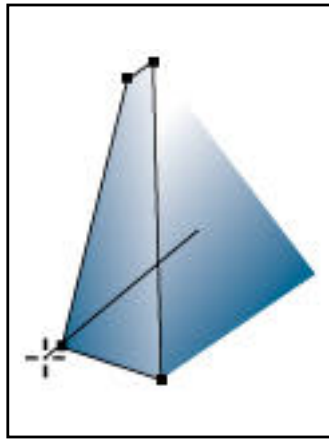
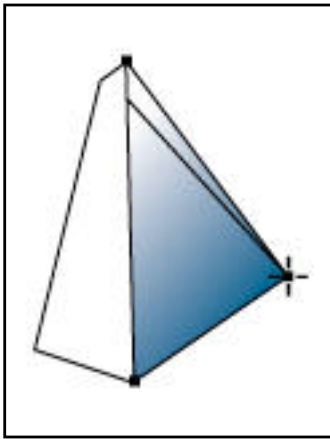
To apply the selected gradient fill to other objects, use the [paint bucket tool](#).

Using the Gradient Fill Tool

The gradient fill tool in the toolbox lets you modify gradient fills by “repainting” the fill along an imaginary line you drag. This tool lets you change the direction of a gradient fill, change the starting and ending point of a gradient fill, and apply a gradient fill across multiple objects. (When you work with radial gradient fills, the starting point of the fill determines the highlight area, and the ending point determines the shadow area.)

To use the gradient fill tool:

- 1 Select the objects whose gradient fill you want to modify.
- 2 Select the gradient fill tool.
- 3 Position the pointer where you want to define the starting point of the gradient fill, and drag across the object in the direction you want the gradient fill to be painted. To constrain the line to a multiple of a 45-degree angle, hold down the Shift key as you drag. Release the mouse button where you want to define the ending point of the gradient fill.



To apply a gradient fill across multiple objects:

- 1 Create the objects you want to fill. (*Do not convert the path to a compound path.*)
- 2 Fill each object with the gradient fill using the Paint Style palette or the paint bucket tool.
- 3 Use the selection tool to select all objects.



4 Click the gradient fill tool, and drag from where you want the fill to begin to where you want the fill to end.



Creating Gradient Fills

You use the Gradient palette to create your own gradient fills or to modify existing gradient fills. You can create a linear or radial gradient fill. With both types of gradient fill, you choose the starting and ending color of the fill. With a radial gradient fill, the starting point of the fill defines the filled object's highlight area, and the ending point defines the shadow area. You can also add intermediate colors to a gradient fill to create a fill defined by multiple blends between colors.

When separated, a gradient fill between two custom colors creates custom color steps; a gradient fill that uses any non custom color creates process color steps. To create a gradient fill that will separate on one piece of film between a custom color and white, create a fill between the custom color and a zero percent tint of the color.

***Note:** If you create a gradient fill between two custom colors, be sure to assign different screen angles to the colors in Adobe Separator. See [Producing Color Separations](#) for information on using Adobe Separator.*

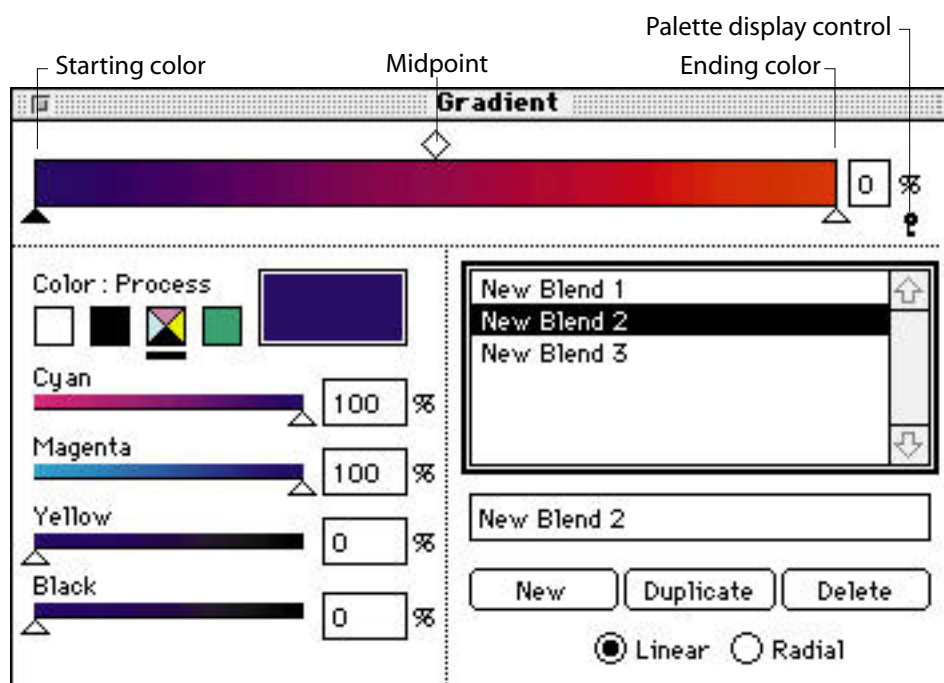
You cannot separate gradient fills as a combination of custom (spot) and process color plates. (A gradient in the former case would change from the custom color to black or white.) To successfully output a gradient fill containing both spot and process colors from Adobe Separator or another separation program, convert all spot colors to process equivalents.

Like custom colors, gradient fills you create are saved with the document. You can use the [Import Styles command](#) to load gradient fills from one document into another or to create a startup file that automatically loads the gradient fills you want when you open the program.



To create a gradient fill:

1 Select Gradient from the Object menu. (You can also open the Gradient palette by choosing Show Gradient from the Window menu or by double-clicking a gradient fill name in the Paint Style palette.) The Gradient palette appears, displaying a list of the available gradient fills.



2 Choose one of two options:

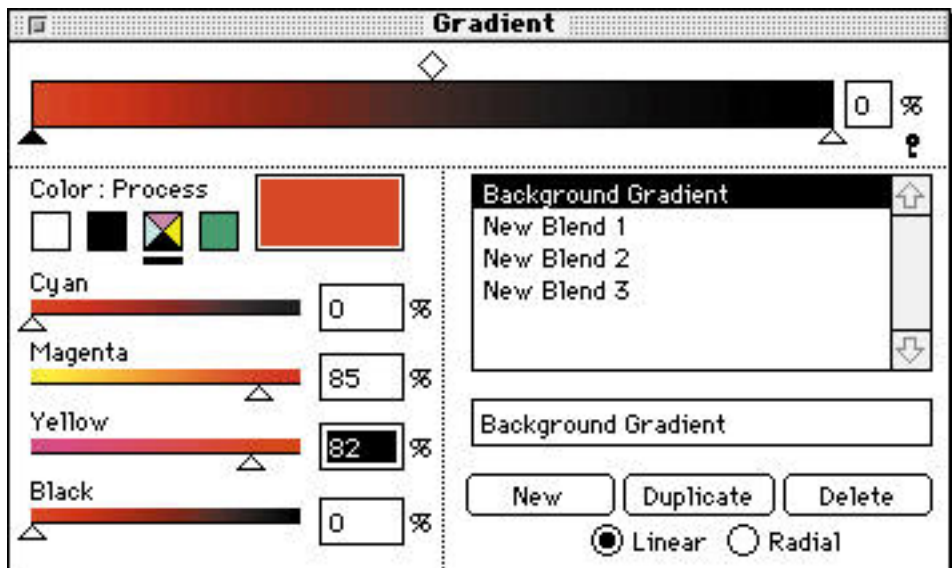
- To create a new gradient fill, click New. The name *New Gradient*, followed by a number, appears in the list. By default, a new gradient fill is a linear blend from white to black, and the midpoint of the blend—the point at which each color is 50 percent —is halfway between the two colors.
- To base your new gradient fill on an existing fill, select the existing gradient fill from the palette list, and click Duplicate.

3 To change the name of the gradient fill, type the name you want in the text box beneath the list, and press Return.

It's a good idea to assign each gradient fill a distinctive name so that it doesn't conflict with a gradient fill in another open file. If another gradient fill of the same name exists in an open file, it will automatically be replaced by the new gradient fill.

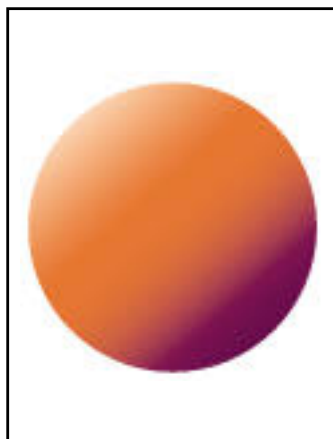


4 To define the starting color of the gradient fill, click the left triangle below the gradient bar to select the triangle; then choose a percentage of white or black, a process color, or a custom color.

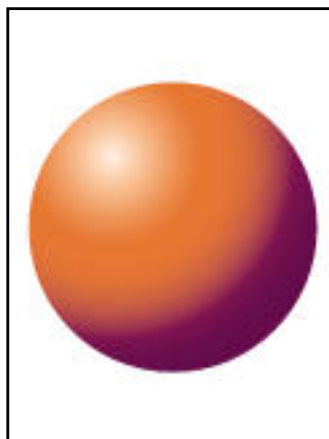


5 To define the ending color of the gradient fill, click the right triangle below the gradient bar to select the triangle; then choose the color you want.

6 Click the Linear or Radial option to indicate the type of gradient fill you want.



Linear gradient fill

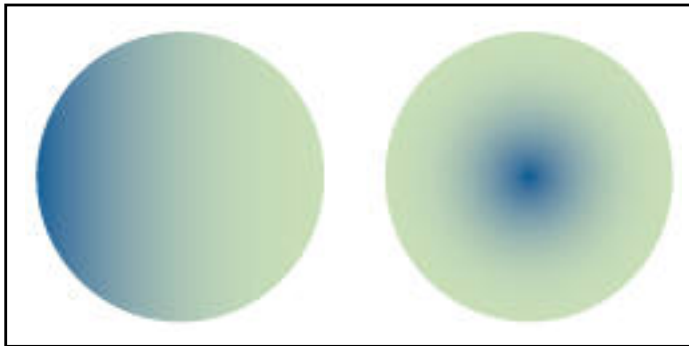
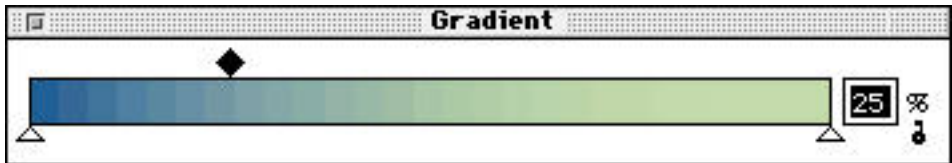


Radial gradient fill

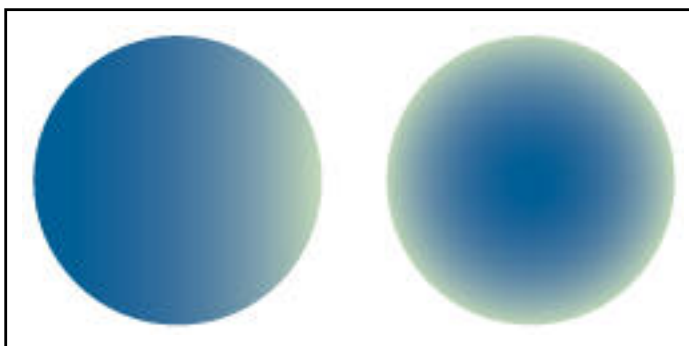
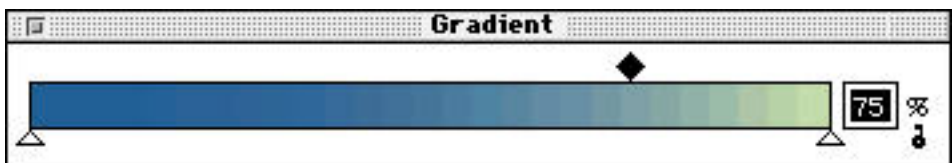


7 To adjust the palette display, click the [palette display control](#) below the gradient fill bar at the top right of the palette. You can display the full palette or only the top panel of the palette as shown in the illustrations following step 8.

8 To adjust the starting or ending point of the gradient fill, drag the triangles below the bar; to adjust the midpoint of the fill (the point at which the colors are at 50 percent), drag the diamond above the bar.



Midpoint at 25% point of gradient fill



Midpoint at 75% point of gradient fill

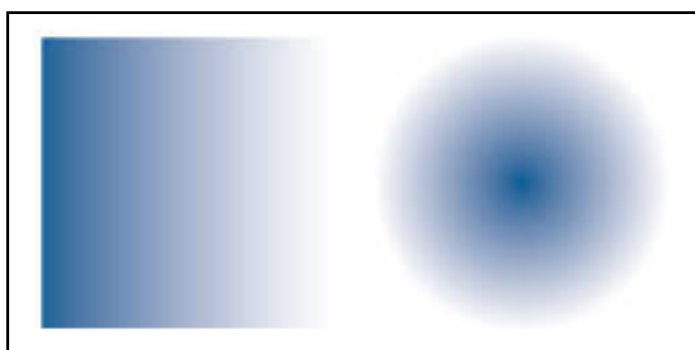
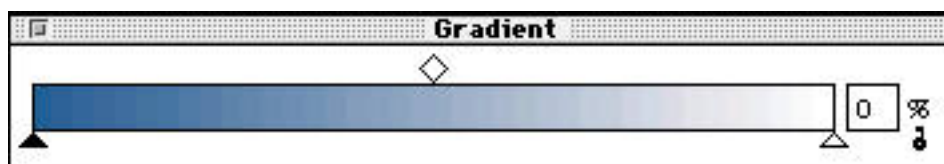
To delete a gradient fill:

In the Gradient Fill palette, select the gradient fills that you want to delete, and click Delete.

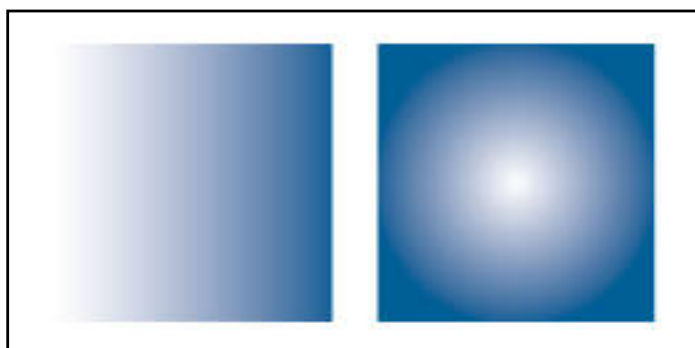
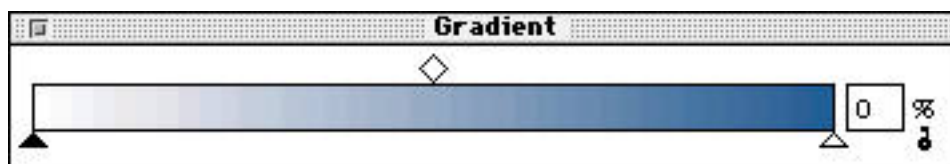


Any objects painted with a deleted gradient fill are filled with black.

To transpose the starting and ending colors of a gradient fill:
Drag the starting color triangle below the gradient bar to the ending color triangle, or vice versa. You can use this procedure with any two starting and ending points in multiple-color gradient fills.



Linear and radial gradient fills: starting color, blue; ending color, white

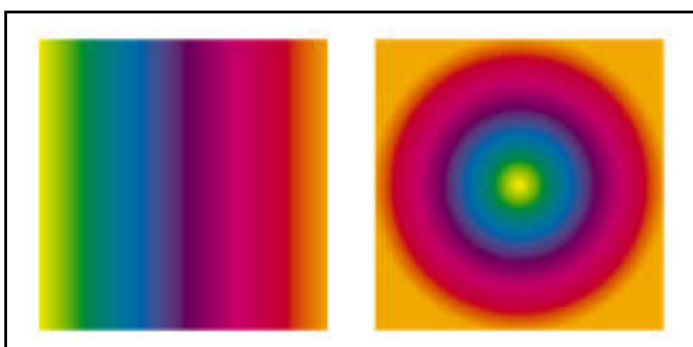
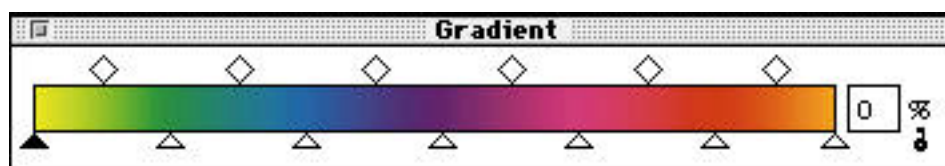


After transposing colors

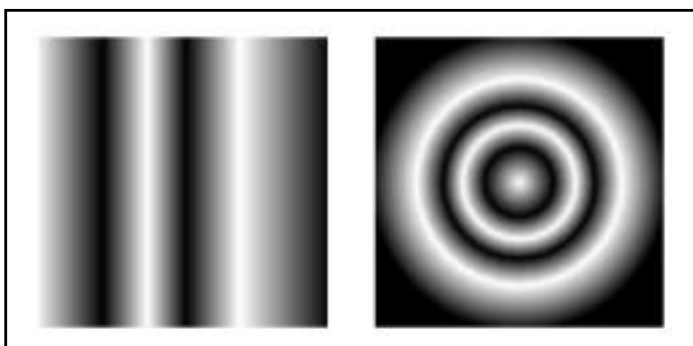
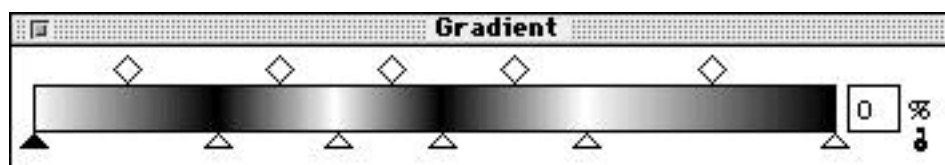


To add intermediate colors to a gradient fill:

Click anywhere below the gradient bar to define another triangle. You can then select a color and adjust the triangle just as you would any other starting or ending color. To delete an intermediate color, simply drag the triangle from the gradient bar.



Multicolor linear and radial gradient fills resulting in a color spectrum effect



Linear and radial gradient fills using white and black, only resulting in a metallic effect

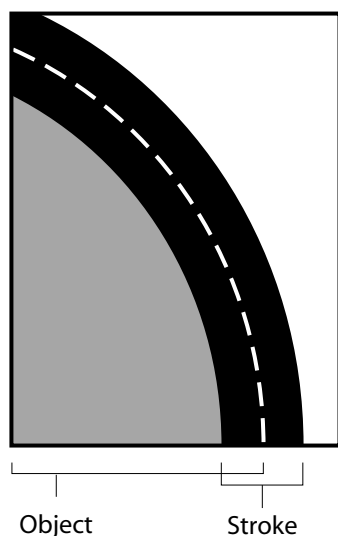
Setting Line Attributes

Line attributes are available only when you stroke a path. These attributes control whether a path is solid or dashed, the dash pattern if it is dashed, the line weight, the miter limit, and the style of line joins and line caps.

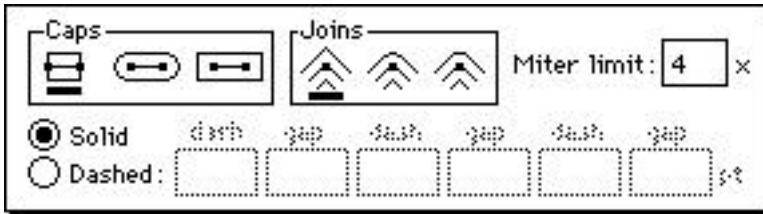
To set line attribute options:

- 1 In the Paint Style palette, select the Stroke box; then choose the color you want for the stroke.
- 2 To specify a line weight, enter the line weight you want in the Weight text box.

The line weight determines the thickness of the stroke, in points. The Adobe Illustrator program strokes a path by centering the stroke on the path; this means that half of the stroke appears on one side of the path, and the other half of the stroke appears on the other side of the path. If you enter a weight of 0, the program displays and prints a one pixel wide hairline. Hairlines thinner than 0.25 point may not reproduce correctly in final printing.

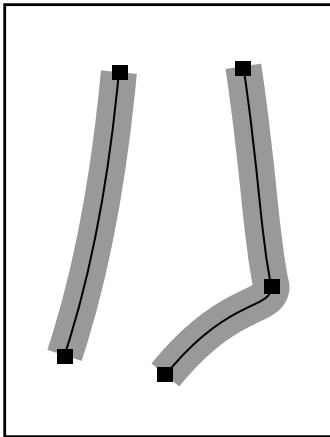


3 Choose the full palette option (the first option) from the pop-up menu in the upper right corner of the palette. The line attribute panel appears at the bottom of the palette.

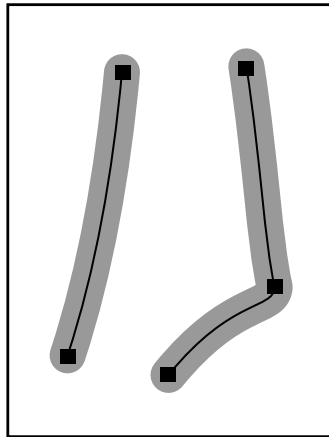


4 Select a line cap style as follows:

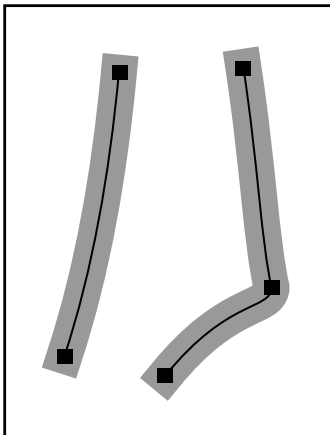
- Select Butt cap for lines or dashes with squared ends.
- Select Round cap for lines or dashes with semicircular ends.
- Select Projecting cap for lines or dashes with squared ends that extend half the line width beyond the end of the line.



Butt cap



Round cap

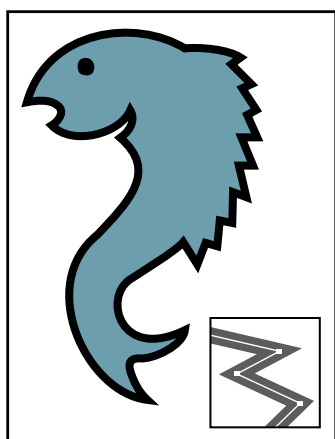


Projecting cap

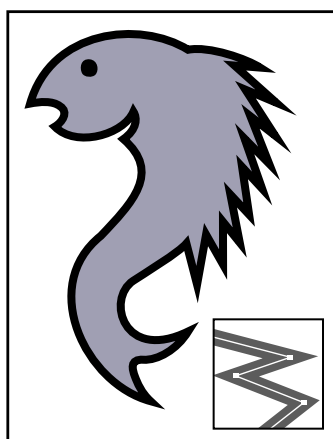


5 Select a line join style as follows:

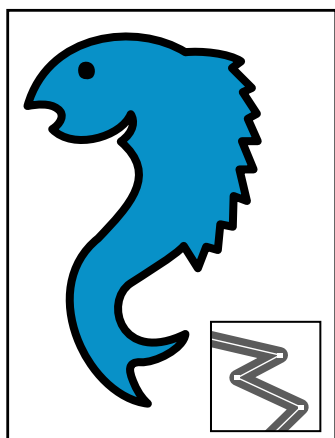
- Select Miter join for paths with pointed corners; then enter a Miter Limit between 1 and 500. The miter limit controls when the program switches from a mitered (pointed) join to a beveled (squared-off) join. The default miter limit is 4, which means that when the length of the point reaches four times the line weight, the program switches from a miter join to a bevel join. A miter limit of 1 causes a bevel join to be used.
- Select the Round join option for paths with semicircular corners.
- Select the Bevel join option for paths with squared corners.



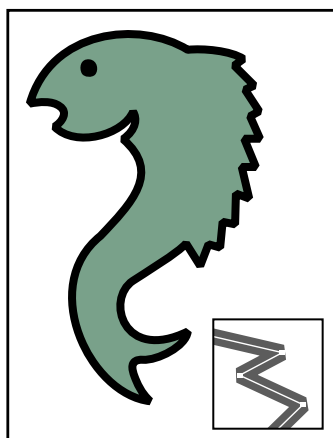
Miter join; limit: 4



Miter join; limit: 15



Round join



Bevel join

6 To create a dashed line, click Dashed and specify a dash pattern by entering the lengths of dashes and the gaps between them in the Dash Pattern text boxes.



To create a dotted line, set the dash values low and the gap values high; for example, use a 0-point dash and a 4-point gap.

☐ Solid

Dash	Gap	Dash	Gap	Dash	Gap
0.2	6	10	6		

 pt

☐ Solid

Dash	Gap	Dash	Gap	Dash	Gap
0	1				

 pt

Dashed lines with rounded caps

☐ Solid	Dash	Gap	Dash	Gap	Dash	Gap	
☒ Dashed	6	3	2	1	2	3	pt

☐ Solid	Dash	Gap	Dash	Gap	Dash	Gap	
☒ Dashed	9	2	1	2			pt

Dashed lines with butt caps

Overprinting

Normally, when an object is placed on top of another object in an Adobe Illustrator document and separated using the Adobe Separator program, the area that falls beneath the top object is completely covered, or “knocked out.” Sometimes, however, you may want to create printed artwork in which the colors in shapes mix with the colors in others. You do this by selecting the Overprint option in the Paint Style palette. The Overprint option prevents the automatic knockout from occurring, and lets you create transparent effects in separated artwork. In addition, the Overprint option can be used to add [trap for printing](#).

Overprinting is apparent only on the final separation film and final printed image, and is intended solely for use with the Adobe Separator program or other color separation programs. You cannot preview the Overprint feature on a monitor or on a color printer; objects appear the same whether or not Overprint is selected. For more information on overprinting, see [Producing Color Separations](#). For printed examples of overprinting, see Chapters 4 and 12 in your *Adobe Illustrator User Guide*.

Using the Eyedropper and Paint Bucket Tools

You can use the eyedropper tool to copy the attributes from an object to the [Paint Style palette](#), and the paint bucket tool to apply the current paint attributes to an object. Together these tools let you copy the paint attributes from an object in your artwork to other objects in the same or in different documents. You can use these tools with the Paint Style palette open or closed.

By default, the eyedropper and paint bucket tools affect all paint attributes of an object. To change the attributes affected by these tools, see the procedure at the end of this section.

To use the eyedropper tool:

- 1 Select the eyedropper tool.
- 2 Choose one of two options:
 - Click the object whose attributes you want to sample. (The object can be locked or in an inactive artwork document.)
 - Double-click the object to apply the paint attributes to all selected objects.

If you are working in [Artwork view](#), or if the object is stroked and not painted, be sure to click the object's outline.

Remember that clicking an object using the eyedropper tool updates the Paint Style palette whether or not the palette is open. This fact means that all new objects you create will also be painted with the attributes of that object until you modify the Paint Style palette or click another object with the eyedropper tool.

To use the paint bucket tool:

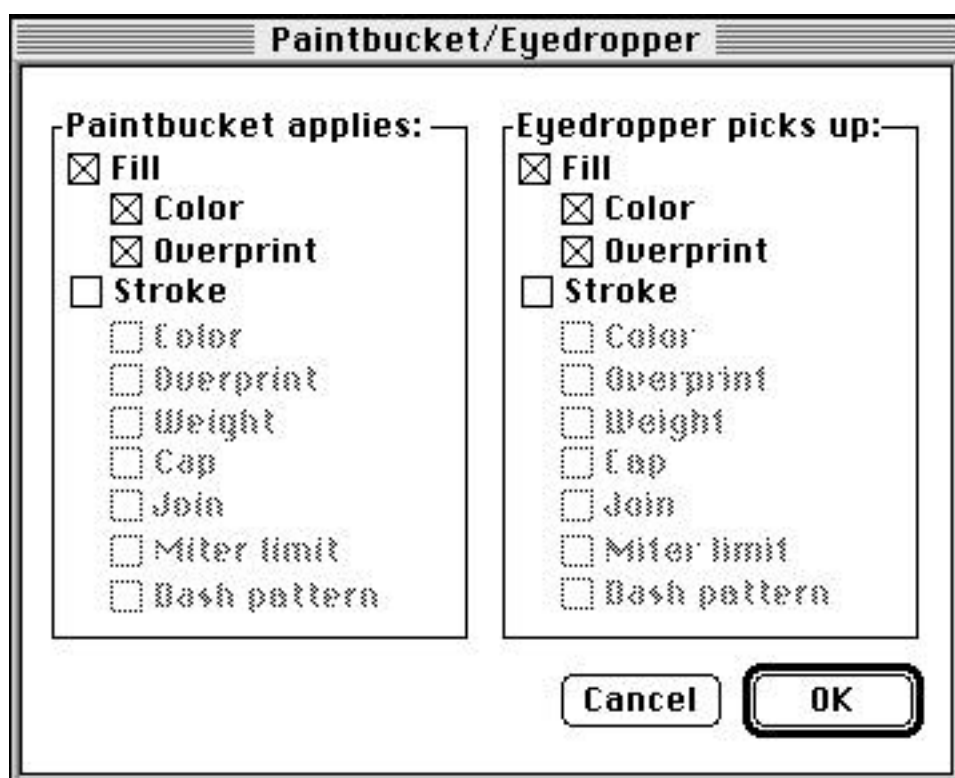
- 1 Select the paint bucket tool.
- 2 Click any object to select the object and paint it with the attributes currently in the Paint Style palette.

If you are working in Artwork view, or if the object is stroked and not painted, be sure to click the object's outline.



To change the paint attributes affected by the paint bucket or eyedropper tool:

1 Double-click the paint bucket or eyedropper tool in the toolbox. The Paint Bucket/Eyedropper Options palette appears.



2 Select the attributes you want to copy with the eyedropper and apply with the paint bucket; then click OK. For a description of these attributes, see [How Paths Are Painted](#), [Overprinting](#), and [Setting Line Attributes](#).

Using the Measure Tool

The measure tool calculates the distance between any two points in the work area. When you measure from one point to another, the distance measured is displayed in the Info palette. To display the Info palette, choose the Show Info command from the Window menu. The Info palette display shows the horizontal and vertical distance traveled from the x and y axes, the absolute horizontal and vertical distance measured, and the angle measured.

Horizontal distance from x axis	Absolute horizontal distance measured	Angle measured
X: 440.5 pt Y: 436 pt	W: 36 pt H: 30.5 pt	D: 47.18 pt △ 40.272°
Vertical distance from y axis	Absolute vertical distance measured	Angle diagonal distance measured

Info palette

When you measure a distance with the measure tool, the measurements from the Info palette also appear in the Move dialog box. This allows you to easily move an object the distance you have just measured. You should move the object immediately after measuring; once you perform any operation that moves or copies a selection, the measurement values are no longer available for moving an object. (For information about moving objects, see [Moving, Copying, and Pasting Objects](#).)

Also note that if the [Snap to Point option](#) is turned on in the General Preferences dialog box, the measure tool snaps to anchor points and guide objects.

To measure the distance between two points:

- 1 Select the measure tool.



2 Click the two points between which you want to measure, or click the first point and drag to the second point. To constrain the measurement to an angle that is a multiple of 45 degrees, hold down the Shift key as you click the second point. (The Shift key has no effect if the second point is snapped to an anchor point.)

The Info palette appears.

All measurements except the angle are calculated in the unit of measure currently set in the General Preferences dialog box or in the Document Setup dialog box.

Rotating the x and y Axes

When you open a new document, the x and y axes are parallel to the horizontal and vertical sides of the window. You can leave the axes as they are, or you can rotate them by specifying an angle of constraint in the General Preferences dialog box.

After you rotate the axes, any objects or operations to which you apply constraint are constrained at 45-degree multiples relative to the new angle. In addition, text objects, gradient vectors you draw with the gradient tool, and any objects you draw with the rectangle, oval, or graph tools are aligned with the current axes. Rotating the axes does not affect already created objects.

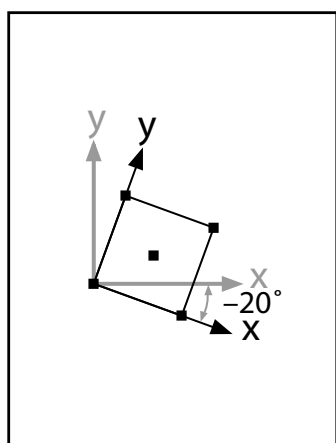
The rotation of the axes also affects scaling, reflecting, shearing, and moving objects with the arrow keys. In addition, the angle reported in the Info palette is relative to the rotation of the axes.

The rotation of the axes is saved in the [Preferences file](#); it therefore affects new artwork in all documents until you change its value.

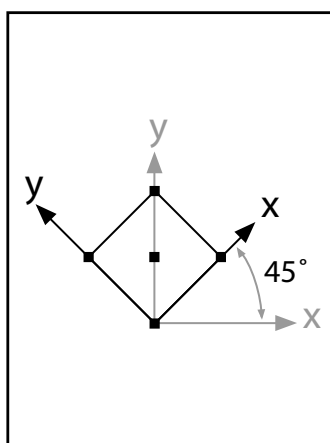
To rotate the axes:

- 1 Choose Preferences/General from the File menu. The General Preferences dialog box appears.
- 2 Enter the angle at which you want the axes rotated in the Constrain Angle text box. Click OK.

If you enter a positive number, the axes are rotated counter-clockwise. If you enter a negative number, the axes are rotated clockwise.



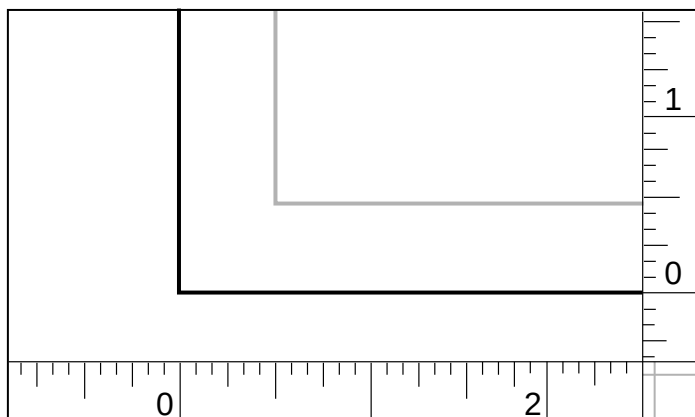
Constrain angle: -20°



Constrain angle: 45°

Using the Rulers

The Adobe Illustrator program has two rulers, one along the bottom and one along the right side of the window.



When you open a document, the rulers are not visible, but you can display them at any time. You use the rulers to more accurately place and measure objects in your artwork. As you scroll and zoom around the document, the rulers adjust accordingly.

To show and hide the rulers:

Choose Show Rulers from the View menu to display the rulers. When the rulers are displayed, the command changes to Hide Rulers; choose this command when you want to hide the rulers on-screen.

Setting the unit of measure

The default unit of measure is points and picas. You can change the unit of measure to inches or centimeters in the General Preferences dialog box or the Document Setup dialog box. One inch equals 72 points, 6 picas, or 2.54 centimeters.

When the unit of measurement is changed in the General Preferences dialog box, it affects new artwork in all documents until you change it. When the unit of measure is changed in the Document Setup dialog box, it is changed only for the current document.



The large tick marks on the rulers indicate the units of measure (such as inches) and the small tick marks indicate increments of the units of measure (such as 1/8 inch). When you magnify or reduce the document with the zoom tools, the increments of the unit of measure reflect the change in magnification.

The unit of measure that you set for the rulers also applies in the dialog boxes that appear when you measure objects, move or transform objects, or create ovals or rectangles. It does not apply to any of the options in the Character, Paragraph, and Paint Style palettes, which always measure size, leading, vertical shift, line width, and line dash in points. See [Setting Type Attributes](#) for more information on units of measure for type.

To set the unit of measure:

- 1 With the rulers visible or invisible, choose General Preferences or Document Setup from the File menu.
- 2 In the Ruler Units options, click to specify the unit of measure you want to use. You have three choices: Points/Picas, Inches, or Centimeters.
- 3 Click OK. The ruler changes to the unit of measure that you specified, and the other values in the General Preferences dialog box or the Document Setup dialog box are measured in the new units.

Changing the ruler origin

The ruler origin is the point where 0 appears on each ruler. The position of the ruler origin affects the tiling of patterns, as well as the bounding box information for the Adobe Separator program. (For more information about the bounding box, see [Setting Crop Marks Using Adobe Separator](#).)

You can set the origin for the rulers at any time. The ruler origin is saved with the document and not in the Adobe Illustrator Preferences file, so it does not affect future documents.

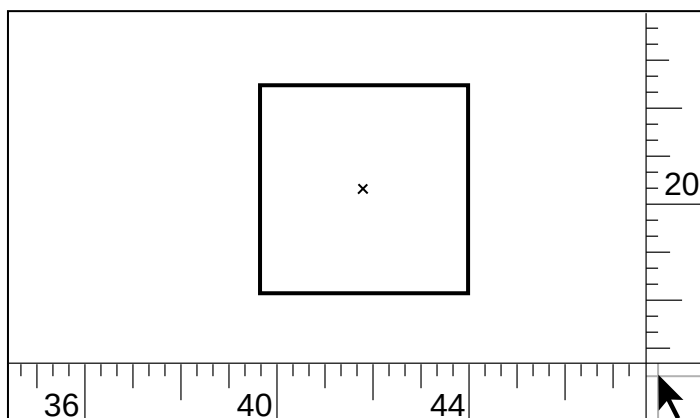
When you open a document, the position of the ruler origin depends on the [View option](#) you have selected in the Document Setup dialog box. Generally, if you have selected either the Single Full Page or the Tile Full Pages option, the default ruler



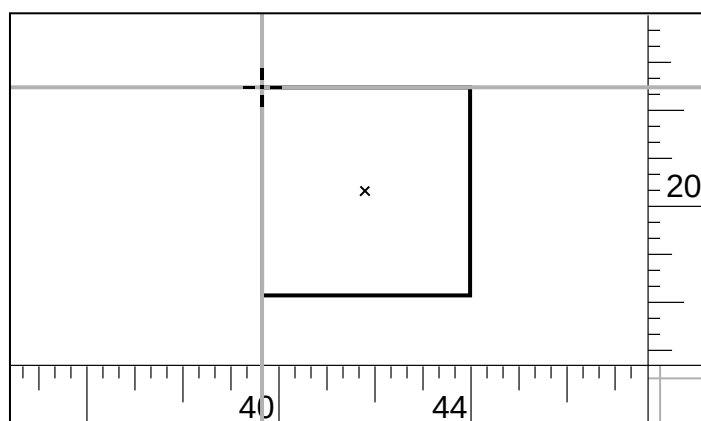
origin will be at the lower left corner of page one. However, if you have changed the ruler setting, the new setting becomes the default setting for the document whenever the document is opened. New documents always use the default ruler setting in the [Adobe Illustrator Startup file](#).

To change the ruler origin:

1 Move the pointer to the lower right corner of the rulers where the rulers intersect.



2 Drag to where you want the new ruler origin. As you drag, cross hairs in the window and in the rulers indicate the changing ruler origin.



3 Release the mouse button when the cross hairs in the rulers are where you want the 0 point to appear.

Using Guide Objects

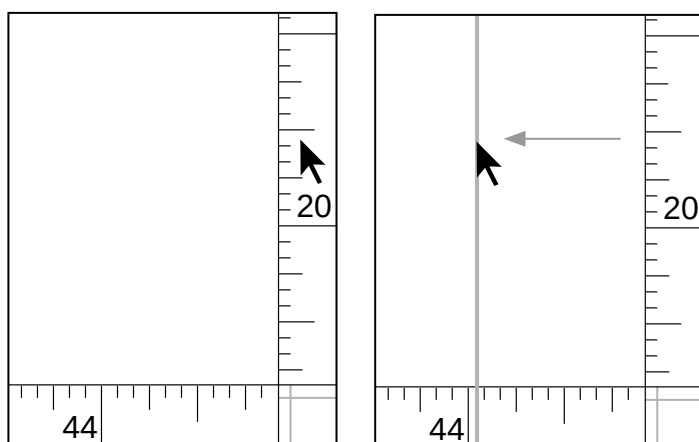
Guide objects are path objects or ruler guides that you use to help you align graphics and text. You can turn any object into a guide object temporarily, using the Guide submenu in the Object menu. When you turn a graphic object into a guide object, its outline becomes a dashed line. This can help you plan and create your artwork around an object or several objects.

Normally, guides are locked in place to orient your artwork. However, you might want to [unlock a guide](#) to select, move, delete, or modify it.

Turning on the [Snap to Point option](#) in the General Preferences dialog box constrains the position of an object to a guide object or to an intersection of guide objects whenever the pointer is within two pixels of the guide object.

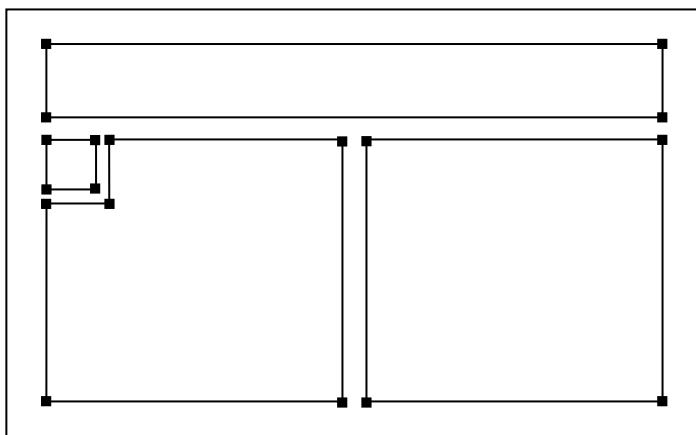
To create a ruler guide:

- 1 If the rulers are not displayed, choose Show Rulers from the View menu.
- 2 Position the pointer inside the right ruler for a vertical guide, or inside the bottom ruler for a horizontal guide. If you hold down the Option key, the ruler guide switches from horizontal to vertical, or vice versa.
- 3 Hold down the mouse button and drag the dotted ruler guide into position.



To convert a graphic object into a guide object:

- 1 Select a path, a group of paths, or any combination of paths and groups.
- 2 Choose Guides/Make from the Object menu. The selected object or objects become guide objects, as indicated by their dotted lines.



Graphic objects



Guide objects in Preview view

To unlock a guide and release a guide object:

- 1 Deselect Guides/Lock from the Object menu. (When the guides are locked, a checkmark precedes the Lock Guide command. When the guides are unlocked, the checkmark is not displayed.)
- 2 Select the guide you want to move or delete with a selection tool.



3 Delete the guide by pressing the Delete key or using the Cut command, or move it by dragging or copying.

If you turn part of a group into a guide object, you can move the guide around by itself; however, if you move the group in any way, the guide moves with the group (see [Grouping and Ungrouping Objects](#) for information about groups). If you transform the group, the guide is transformed along with the group. You do not, however, have to make a guide object part of a group to move it.

***Note:** The Lock Guides option locks all guides in the document. To lock an individual guide, select it when the Lock Guides option is turned off, and choose the Lock command from the Arrange menu.*

Setting the Snap to Point Option

The Snap to Point option allows you to constrain the position of objects to an [anchor point](#), a [guide object](#), or an intersection of guide objects whenever the pointer is within two pixels of the anchor point, guide object, or intersection.

The Snap to Point option works differently for guides than it does for graphic objects. When you are snapping to a curve on a graphic object, the object you are dragging snaps to the nearest anchor point on the curve. When you are snapping to a curve on a guide object, however, you can snap to any part of the guide object, not just to its anchor points.

The Snap to Point setting is saved in the [Adobe Illustrator Preferences file](#), so the setting affects all documents opened in the future until you change it.

To set the Snap to Point option:

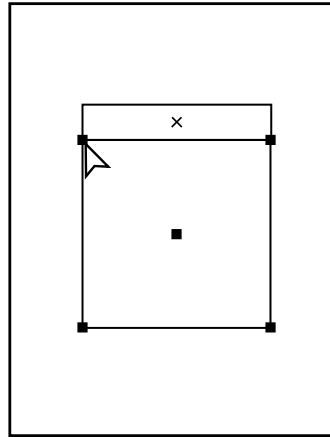
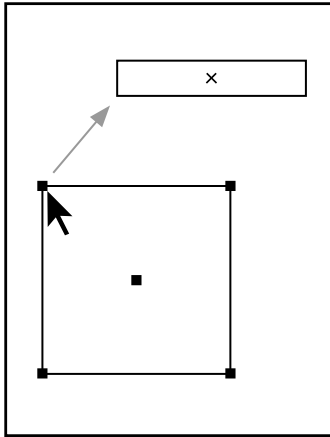
- 1 Choose Preferences/General from the File menu. The General Preferences dialog box appears.
- 2 Click the Snap to Point option to turn it on or off. The default is on.
- 3 Click OK.

To snap to a point or to a guide object:

- 1 Select the object you want to move.
- 2 Position the pointer on the location to which you want the object to snap. For example, if you want an anchor point to snap, position the pointer on the anchor point; if you want a segment to snap, position the pointer on the segment.



3 Drag the object toward the target point or guide object until the arrow pointer appears hollow. The hollow pointer indicates that you are snapping one point to another, or snapping the segment to a guide if you positioned the pointer in the middle of a segment.



Grouping and Ungrouping Objects

You can combine several objects into a group so that the objects are treated as a unit. This allows you to move or transform a number of objects without affecting their individual positions or attributes. For example, you might group the objects in a logo design, so that you can move and scale the logo as one unit.

To group and ungroup objects:

- 1 Select the objects to be grouped.
- 2 Choose Group from the Arrange menu. The objects are grouped and can be selected individually only with the direct-selection tool.

To undo the effects of the Group command, select the group, and choose Ungroup from the Arrange menu.

Guidelines for grouping objects

The following rules apply to groups:

- Selecting part of a path and grouping it will group the entire path.
- Groups can be nested—that is, they can be grouped with other objects or groups to form larger groups.
- Certain structured objects, including masked objects, text objects, text wraps, and graphs, behave like groups and cannot be ungrouped. These objects can be selected using the selection or the group-selection tool.
- Grouped objects must be stacked together on the same layer of the artwork; therefore, grouping may change both the [layering of objects](#) and their [stacking order](#) on a given layer.

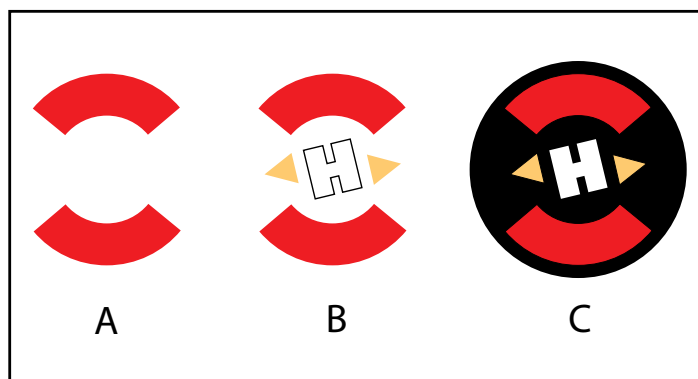
Selecting grouped objects

Once objects have been grouped, selecting any part of the group with the selection tool selects the entire group. If you are unsure whether an object is part of a group, select it with this tool.



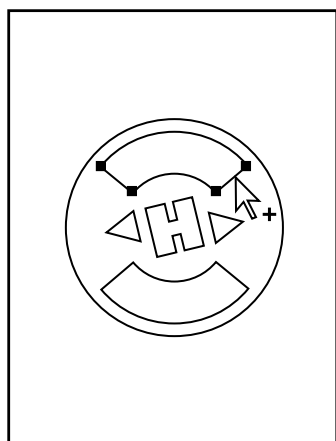
The [direct-selection tool](#) lets you select a single path or object that is part of one or several groups. If you have groups of objects within other groups, you can select the next group up in the grouping hierarchy using the [group-selection tool](#). Each successive click adds another subset of grouped objects to the selection.

The following example shows three groups: group A; group B, which includes group A; and group C, which includes groups A and B.

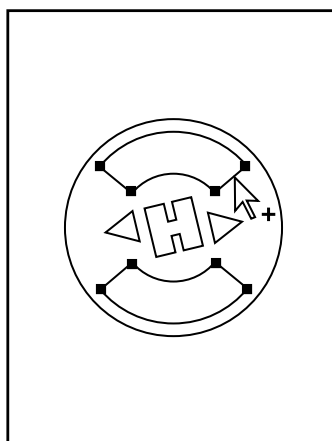


To select grouped objects with the group-selection tool:

- 1 Select the group-selection tool.
- 2 Position the pointer on the path you want to select, and click the mouse button.



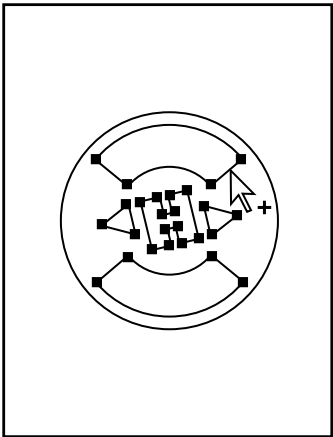
First click selects one object



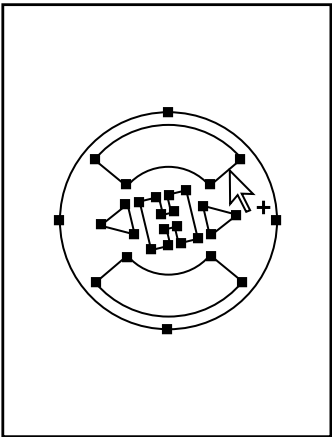
Second click selects group A



3 Click the same place again to select successive paths until you have selected everything you want to include in your selection.



Third click selects next group (group B)



Fourth click selects next group (group C)

Locking and Hiding Objects

You can use the Lock and Hide commands in the Arrange menu to isolate parts of your artwork on which you do not want to work. Once an object has been locked or hidden, it cannot be selected or modified in any way. These features are useful when you are working on objects that overlap. In addition, the Hide command makes objects temporarily invisible, and so may speed performance when you work on large or complex artwork.

You can lock or hide only entire paths. Selecting part of a path ([anchor points](#) or segments) and locking or hiding it affects the entire path. Similarly, you cannot lock or hide individual objects within [groups](#); however, you can lock or hide the entire group.

To lock or hide artwork:

- 1 Select the object or objects you want to lock or hide.
- 2 Choose Lock or Hide from the Arrange menu.

To lock all unselected objects, hold down the Shift key and choose Lock from the Arrange menu; to hide all unselected objects, hold down the Option key and choose Hide from the Arrange menu.

To unlock or show all objects:

From the Arrange menu, choose Unlock All or Show All. All previously locked objects are unlocked and are selected. Any previously selected objects are deselected.

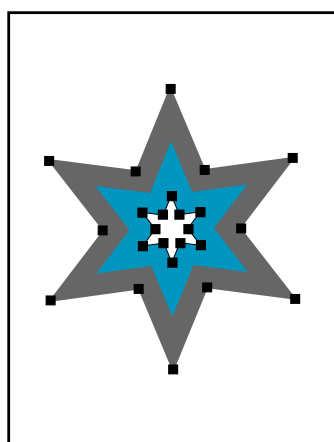
***Note:** The Unlock All and Show All commands apply to all objects. To unlock or show locked or hidden objects within a selected group only, hold down the Option key and choose Unlock All or Show All from the Arrange menu.*

Stacking Objects

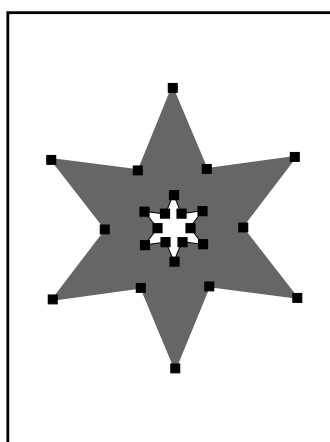
The Adobe Illustrator program stacks successively drawn objects, beginning with the first object. How objects are stacked determines how they are displayed when they overlap. In addition, stacking is important when you make [masks](#).

You can change the stacking order, also called the *painting order*, of objects in your artwork at any time. You can also control how overlapping objects are displayed by creating multiple layers in your artwork. See [Working with Layers](#) for more information on layers.

Note that [grouping](#) objects may affect the way the objects are stacked in relation to other, non-grouped objects in the artwork. Grouped objects must be stacked together with the frontmost object in the group. Therefore, if you group two objects that are separated by a nongrouped object in the stacking order, the underlying object will be moved in front of the non-grouped object.



Three objects: front and back objects selected



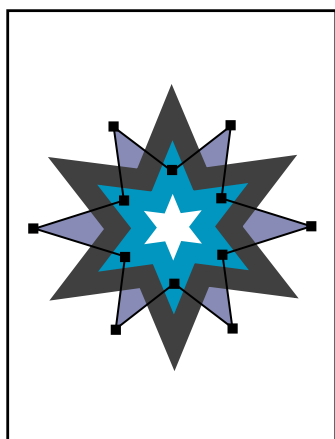
After grouping front and back objects

To move an object in front of or in back of other objects in the stacking order:

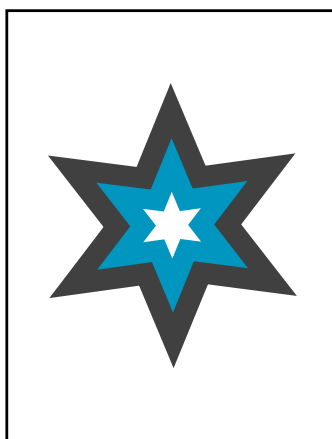
- 1 Select the object you want to move. In the example shown here, the purple star is the backmost object.



2 Choose Cut from the Edit menu. The selected object is temporarily deleted, and is placed on the Clipboard.



Purple star selected ...

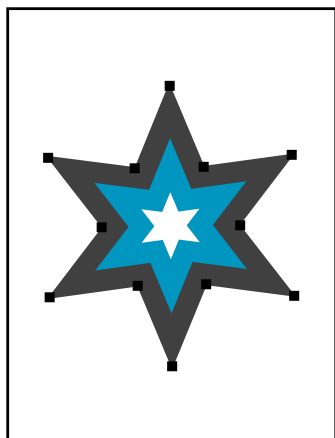


and then cut.

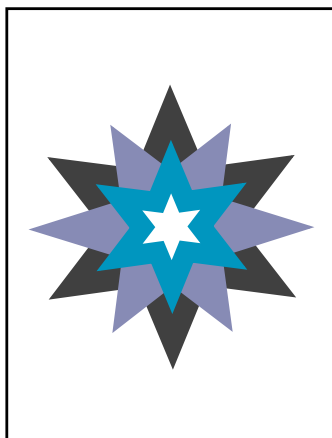
3 Select the object or objects in front of which (or in back of which) you want the cut object to appear (in this example, the gray star is selected).

4 Choose Paste in Front or Paste in Back from the Edit menu.

The cut object is pasted in front of (or in back of) the object you selected. If no object was selected the object is pasted in front of the topmost object.



Gray star selected



Purple star pasted in front



If you paste more than one object, all pasted objects appear in front of or in back of the artwork; however, the relative painting order among the individual pasted objects remains the same. If you are working with multiple layers in your document that you have defined with the [Layers palette](#), the layers may affect how objects are pasted. See [Moving Objects between Layers](#) for more information.

To make an object the frontmost or backmost object on its level:

- 1 Select the object you want to move.
- 2 From the Arrange menu, choose Bring To Front or Send To Back.

Note that if the object is part of any type of structured group—including groups, masked artwork, compound paths, text wrap-arounds, and so on—the object is moved to the front or back of the group, rather than the front or back of the entire layer.

Working with Layers

Every Adobe Illustrator document contains one or more layers. Creating multiple layers in your artwork lets you easily control how artwork is printed, displayed, and edited. In essence, layering provides a single powerful tool for grouping and arranging objects in your artwork. Individual layers can be locked, hidden, printed, and reordered as distinct units. For a detailed example of how layers can be used in your artwork, see Lesson 4 in the *Adobe Illustrator Tutorial*.

The concept of layering differs from stacking in that any number of objects may exist on a single layer; within each layer objects are stacked according to their [painting order](#). Note also that grouped objects must be on the same layer; therefore, if you group objects on different layers, all objects are placed on the frontmost layer of the group directly behind the frontmost object.

For information on using layers, see the following topics:

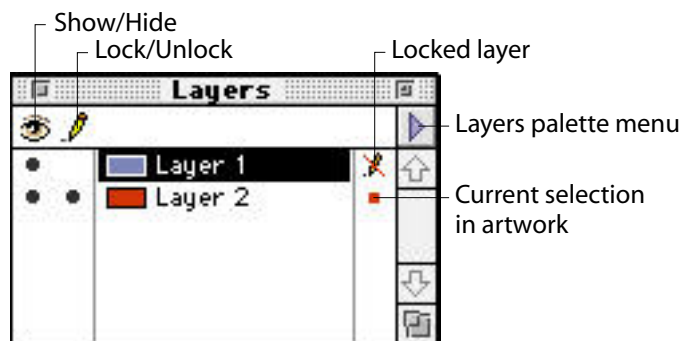
- [Using the Layers Palette](#)
- [Creating and Deleting Layers](#)
- [Hiding Layers](#)
- [Locking Layers](#)
- [Displaying Layers in Artwork View](#)
- [Printing Layers and Displaying Placed Images](#)
- [Moving Objects between Layers](#)

Using the Layers Palette

You use the Layers palette to create and delete [layers](#), to hide and lock them, and to choose options for determining how layers are displayed. The layer currently selected in the Layers palette determines the layer on which all new artwork objects are placed.

To display the Layers palette:

Choose Show Layers from the Window menu.



The Layers palette lists the layers in a document, starting with the frontmost layer. If any object on a layer is selected in the artwork, a colored dot appears to the right of the layer name in the palette.

For information on Layers palette options, see the following topics:

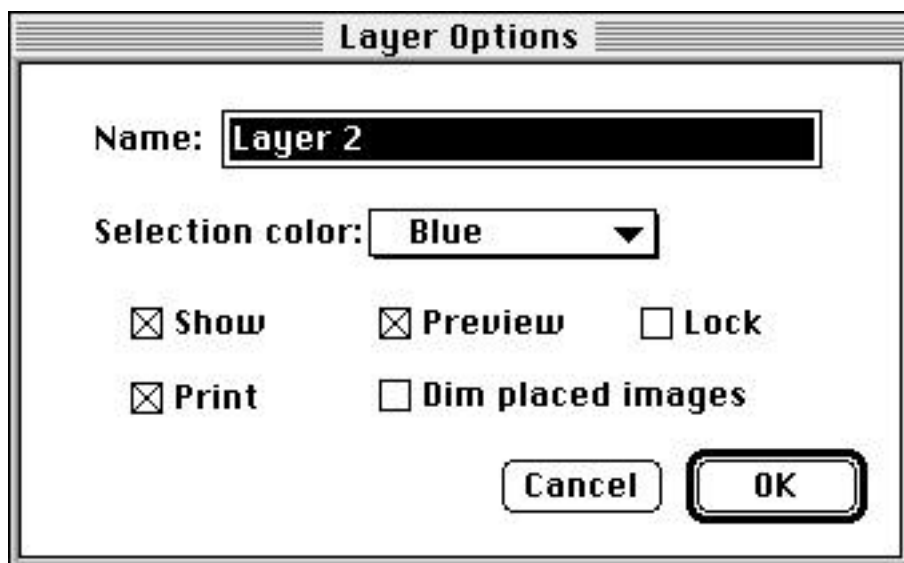
- [Creating and Deleting Layers](#)
- [Hiding Layers](#)
- [Locking Layers](#)
- [Displaying Layers in Artwork Mode](#)
- [Printing Layers and Displaying Placed Images](#)

Creating and Deleting Layers

Every new Adobe Illustrator document contains one layer, named by default “Layer 1.” You can create any number of layers in your document; the number of layers a document can have is limited only by your computer’s memory.

To create a new layer:

1 Choose New Layer from the Layers palette pop-up menu. The Layer Options dialog box appears.



2 Type a name for the layer in the Name field. By default, layers are named according to the order in which they were created, with Layer 1 being the backmost layer.

3 Select the color that you want to indicate selections on that layer. Selecting different selection colors for each layer makes it easy to distinguish layers in your artwork as you work. The default color is light blue.

4 Select [other layer options](#) as desired.

To delete a layer:

1 Select the layer name in the Layers palette.

2 Choose Delete Layer from the Layers palette pop-up menu. All objects on that layer are deleted.

Layers Palette Options

You use the [Layers palette](#) to lock and hide layers, to display layers in artwork view, to make layers nonprintable, and to dim placed images on layers.

Hiding Layers

To hide a layer, click the dot beneath the eye icon to the left of the layer name. This turns off the Show option in the Layer Options dialog box. Click again to turn the option back on and redisplay the layer. Hiding a layer has an effect similar to that of choosing the Hide command from the Arrange menu: hidden layers cannot be viewed or edited.

To hide all layers but those selected in the palette, select the layer or layers you want to view, and choose Hide Others from the palette pop-up menu.

Locking layers

To lock a layer, click the dot beneath the pencil icon to the left of the layer name. This turns off the Lock option in the Layer Options dialog box. Click again to turn the option back on and unlock the layer. Locking a layer has an effect similar to that of choosing the Lock command from the Arrange menu: locked layers cannot be selected or edited in any way.

To lock all layers but those selected in the palette, select the layer or layers you want to edit, and choose Lock Others from the palette pop-up menu.

Displaying layers in Artwork view

To display a layer in [Artwork view](#), Option-click the dot beneath the eye icon to the left of the layer name. This turns off the Preview option in the Layer Options dialog box. Option-click again to turn the option back on and redisplay the layer in Preview view. Displaying a layer in Artwork view has an effect similar to that of choosing the Artwork command from the View menu: all artwork on the layer is displayed as outlines and cannot be previewed.



To display all layers in Artwork view with the exception of those selected in the palette, select the layer or layers you want to preview and choose Artwork Others from the palette pop-up menu.

Printing layers and displaying placed images

You can also use the Print option and the Dim Placed Images option in the Layers Options dialog box to make a layer temporarily nonprintable and to make placed images appear dimmed on a given layer.

Using the Print option is useful for printing only the segments of your artwork that you need to proof. For example, you could put all text in a document on a single layer and then print only that layer for proofing.

The Dim Placed Images option screens back (that is, decreases the visual intensity) of placed images, to make it easier to edit objects on top of the placed image. You might use this option, for example, to help you trace part of a placed image for use as a mask.

To change layer options:

- 1** In the Layers palette, choose the layer or layers for which you want to change options.
- 2** Choose Layer Options from the palette pop-up menu, or double-click a layer name to display the Layers Options dialog box.
- 3** Select the layers options you want; then click OK.

Moving Objects between Layers

Any new path created in a document is automatically placed on the layer currently selected in the Layers palette. This is also true when the Layers palette is not displayed; whatever layer was last selected in the palette determines the layer of all new paths until another layer is selected.

You move paths from one layer to another; you can also reorder the layers in your artwork to change the display of overlapping artwork.

By default, the Paste commands can be used to copy objects between layers. If objects are cut or copied from different layers, they are pasted together onto a new layer according to the following rules:

- The Paste command pastes objects on the front of the layer of the topmost object you have selected.
- The [Paste in Front](#) and [Paste in Back](#) commands paste objects directly in front of or behind the topmost selected object. If the topmost selected object is in a [group](#), the pasted selection becomes part of the group.

You can retain the layering order of pasted objects in your artwork by choosing the Paste Remembers Layers option in the General Preferences dialog box. When this option is selected, the Paste commands do not affect layering, but affect only the [stacking order](#) of objects.

To move an object to a different layer using the Cut command:

- 1 Make sure that the Paste Remember Layers option in the General Preferences dialog box is deselected.
- 2 Select the object that you want to move, and choose Cut from the Edit menu.
- 3 Select any object on the layer to which you want to move the cut object, or select the layer name in the Layers palette.
- 4 Use one of the Paste commands in the Edit menu to paste the object onto the selected layer. You can then move the object and use the commands in the Arrange menu to change the stacking order of the object on its new layer.



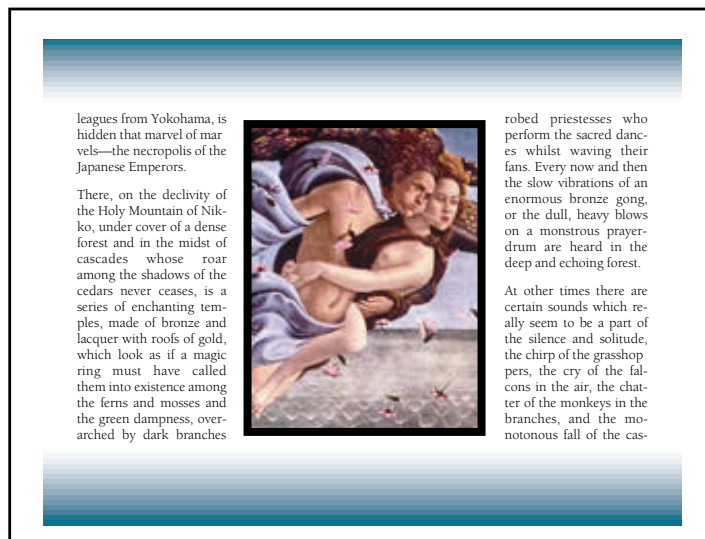
To move an object to a different layer using the Layers palette:

1 Select the object you want to move. A colored dot appears to the right of that layer in the Layers palette, indicating the current selection.

2 Drag the colored dot to the layer to which you want to move the object.

To change the order of layers:

In the Layers palette, drag the layer you want to move to its new location.



Background layer topmost layer . . .



and then dragged to backmost layer.

Using Compound Paths

A *compound path* is a group of two or more paths that are painted so that overlapping paths can appear transparent. You control whether overlapping paths appear transparent or filled by using the Reverse Path Direction option in the Attributes dialog box.

Compound paths act like grouped objects. Therefore, if you want to select part of a compound path, you must use the direct-selection tool.

Once you define an object as a compound path, all objects in the compound path take on the paint attributes of the backmost object in the stacking order. Releasing the compound path does not reapply the objects' previous paint attributes.

Creating compound paths

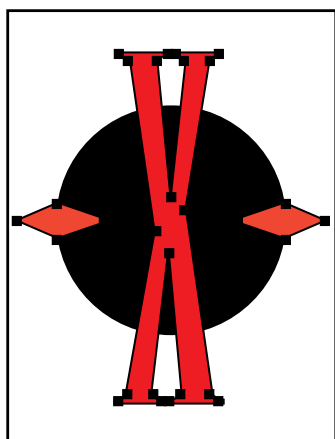
When you are learning to create compound paths, you may find it helpful to work in Preview view or to open two windows so that you can preview your artwork in one window as you work in Artwork view in the other window. This helps you understand how compound paths work.

To create a compound path:

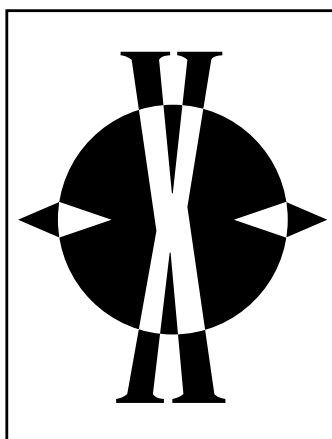
- 1 Make sure that the objects you want to see through are in front of the background object in the painting order.
- 2 Select all of the objects that you want to include in the compound path.



3 Choose Compound Paths/Make from the Object menu. A hole is created in the overlapping objects.



Selected objects



**Make Compound
command applied**

To release compound paths:

- 1** Select the compound path you want to release.
- 2** Choose Compound Paths/Release from the Object menu. The compound path is released.

Reversing paths within compound paths

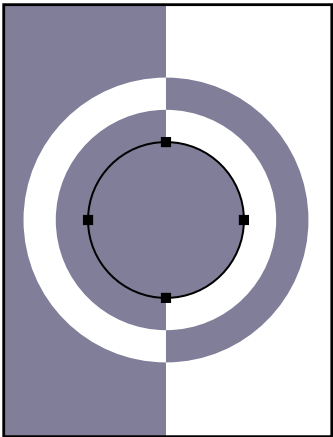
When you create a compound path, you can adjust the way it creates holes in your artwork by using the Reversed Path Direction option in the Attributes dialog box. Keep in mind, however, that turning the Reversed Path Direction option on, for example, does not necessarily make the object appear either filled or transparent. How the option affects each path is based on how the Adobe Illustrator program fills paths.

To reverse paths within compound paths:

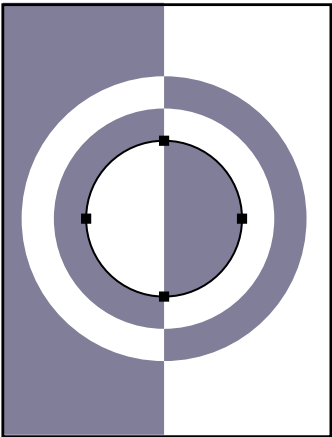
- 1** Use the direct-selection tool to select only the part of the compound path that you want to reverse. Do not select the entire compound path.
- 2** Choose Attributes from the Object menu.



3 Select or deselect the Reversed Path Direction option. Click OK.



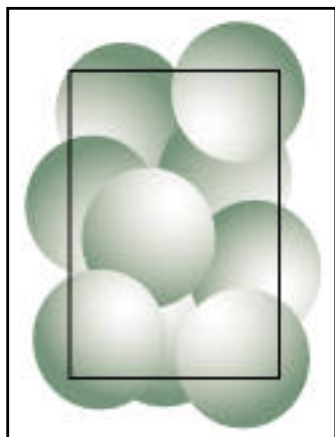
Compound path: small circle selected



Reversed option changed on small circle

Masking

Masking is a way of covering part of an image so that only a portion of the image appears through a shape or shapes you create. In Adobe Illustrator, you mask objects by placing the mask, or *masking object*, on top of the objects you want to mask and then selecting all the objects and choosing the Make Mask command.



Masking: masking object placed on top of image



Result: image is only displayed through mask

For more information on masks, see the following topics:

- [Creating Masks](#)
- [Adding and Removing Objects in Masked Artwork](#)

Creating Masks

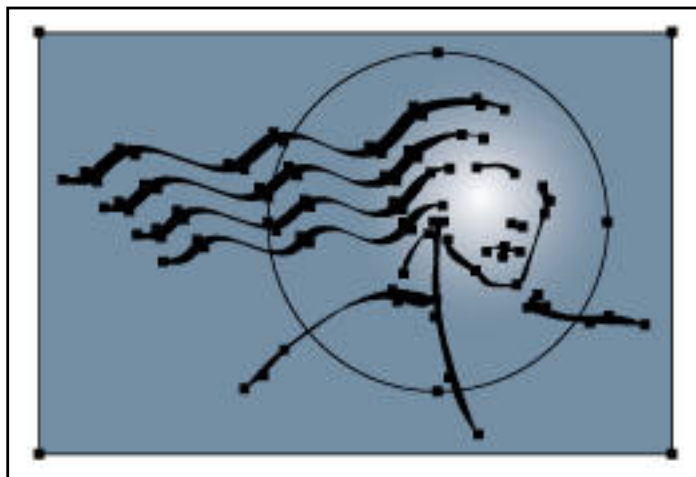
A masking object can consist of a single path or a [compound path](#). However, you may experience problems printing complex compound paths defined as masks.

Like compound paths, masked artwork acts like a grouped object. Therefore, if you want to select part of masked artwork, you must use the [direct-selection tool](#).

Note: You can quickly find out if an object is a mask by selecting the object and choosing Attributes from the Object menu. The Attributes dialog box lists the masking status of the selected object.

To mask objects:

- 1 Draw or select the object you want to use as a mask.
- 2 Make sure that the object is on top of the objects you want to mask. If you are working with multiple layers in your artwork, also make sure that the masking path is on the frontmost layer of the objects you want to mask. (See [Stacking Objects](#) and [Working with Layers](#) for more information.)
- 3 Select the mask and the objects you want to be masked.



4 Choose Masks/Make from the Object menu. Note that the mask loses its paint attributes and is assigned a fill and stroke value of None.



To stroke or paint the mask:

- 1** Make sure that all other elements in the mask are deselected.
- 2** Paste a copy of the masking object into the artwork.
- 3** Paint the stroke or fill of the copy.

***Note:** If you use complex shapes as masks, or if you use several masks in a file, you may have problems printing the file. If you experience printing problems, simplify or eliminate masks.*

To undo the effects of a mask:

- 1** Select the objects you no longer want to use as a mask.
- 2** Choose Masks/Release from the Object menu. Note that because the mask was assigned a fill and stroke value of None it is not visible unless you select it or assign it new paint attributes.

Adding and Removing Objects in Masked Artwork

Once you have created a mask, the mask and the masked objects can be selected and modified like any other object. To edit individual objects within masked artwork, use the selection tool to select the objects. To find out what objects are affected by a mask, use the [group-selection tool](#) to click once on the mask to select it and then again to select the masked objects.

You can also add and remove objects from masked artwork without recreating the mask by using the Paste in Back and Paste in Front commands in the Arrange menu.

To add an object to masked artwork:

- 1 Select the object you want to add to the mask, and drag it in front of the mask
- 2 Cut or copy the selected object.
- 3 Use the direct-selection tool to select the object within the masked artwork behind or in front of which you want to paste.
- 4 Choose Paste in Front or Paste in Back from the Edit menu. The object is pasted in front of or behind the selected object and becomes part of the masked artwork.

To remove an object from masked artwork:

- 1 Use the direct-selection tool to select the object you want to remove; then choose Cut from the Edit menu.
- 2 Use the selection tool to select either the masked artwork or an object outside of the masked artwork.
- 3 Choose Paste in Front or Paste in Back from the Edit menu. The object is pasted in front of or behind the selected object or group and is no longer part of the masked artwork.

***Note:** When masking objects on different [layers](#), keep in mind that objects on intermediate layers become part of the masked artwork. Objects on layers behind the masked artwork are not masked.*

Creating Type

When you add type to artwork, you create a *text object*. A text object can consist of a letter, a word, or several paragraphs. Text objects are treated as graphic objects. This means that all of the actions that you perform on graphic objects—including moving, copying, deleting, transforming, grouping, and painting—can be performed on text objects. For example, you can select a text object and change the paint characteristics of the type using the Paint Style palette.

The Adobe Illustrator toolbox contains three type tools: the type tool, the area-type tool, and the path-type tool. The type tool appears in the default toolbox; the other two tools can be selected by positioning the pointer on the type tool in the toolbox and dragging to the right.

You can use the default type tool to perform all functions of all three tools; when you select the area-type or path-type tools, however, you must click a path to begin entering type.



The type tool allows you to create type at a point you specify in an artwork document, or to create a rectangular area within which you enter type. You can also use the type tool to create type in or along a path.



The area-type tool converts a graphic area into a type area. The area-type tool lets you create type in an area defined by any path.



The path-type tool converts a path into a text path. The path-type tool lets you place type along a path. The path can be open or closed.

Using the Type Tool to Create Type

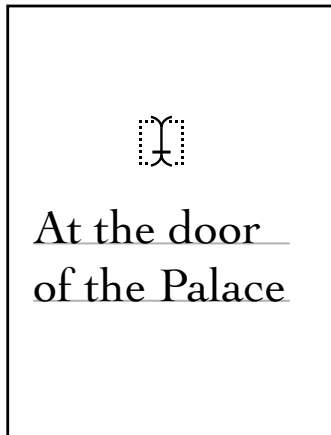
You can create type at any point in an artwork document or define a rectangular area into which you enter type using the type tool. You can also import type from another application.

You can create four kinds of type using the type tool. The pointer changes depending on where you position it and on the type you are about to create.

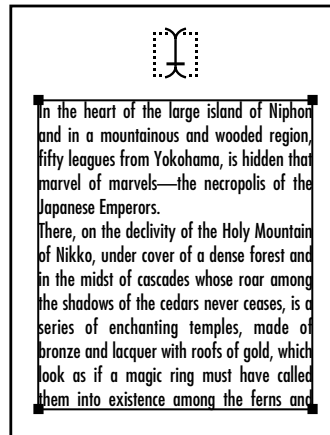
- You create *point type*, which is type that is not bounded by a path or on a path, using the default pointer. The default pointer (an I-beam within a dotted box) appears unless you move the pointer over a path or over existing type.
- You create type in a column or rectangle, called *rectangle type*, using the default pointer; you can link rectangles of type. Once you have created the rectangle, you can also change its shape or size.
- You create *area type*, or type within a path, with the area-type pointer. This pointer appears when you place the pointer near a closed path. Area type includes type you enter in irregularly shaped areas, or type that you wrap around a graphic object. As with text rectangles, areas of type can be linked.



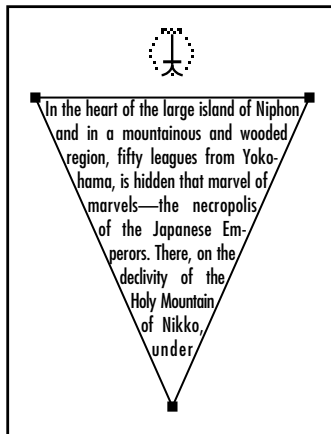
- You create type along an open or closed path, or *path type*, with the path-type pointer. This pointer appears if you place the pointer near an open path.



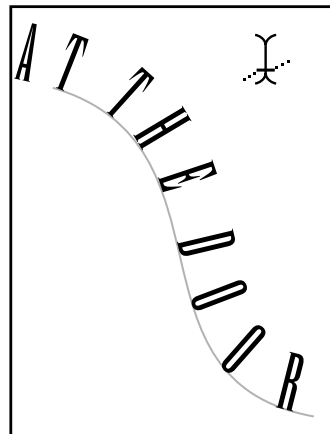
Point type and pointer



Text rectangle and pointer



Area type and pointer



Path type and pointer

Entering Point Type

You can use the type tool to enter type at a specific point in an artwork document. You create point type by positioning the pointer where you want the type to begin and clicking the mouse button. When you click the mouse button, a blinking insertion point appears.

To use the type tool to enter type at a specific point:

1 Select the type tool. The pointer changes to an I-beam within a dotted box.

The small horizontal line near the bottom of the I-beam marks the position of the type *baseline*. The baseline is the line on which the type rests.

2 Position the crosshair of the I-beam pointer where you want the type to begin, and click the mouse button.

3 Enter the type you want. Use a carriage return to begin a new line of type.

The default font is 12-point Helvetica. For information on changing fonts, see [Setting Type Attributes](#).

Entering Type in a Rectangle

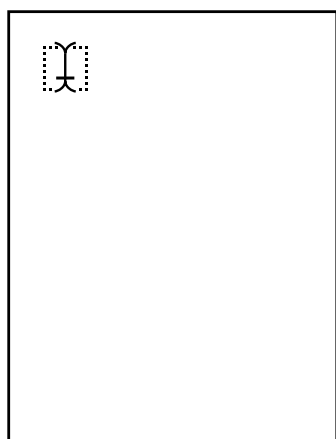
You can use the type tool to define a *text rectangle* or column, into which you enter type. You create a text rectangle either by dragging or by entering exact dimensions in the Rectangle dialog box and then clicking the rectangle with the area-type tool to convert it into a text area. You can change the shape and size of a text rectangle (for example, into an irregular four-sided shape) by clicking and dragging any of the four sides or corners.

The text rectangle you create is unpainted (neither filled nor stroked). While you can see it in Artwork view, it will not be visible in Preview view or when you print it, unless you have filled or stroked the rectangle using the [Paint Style palette](#).

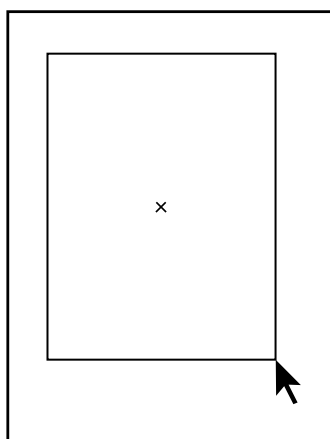
When you create a text rectangle, you can use the Fit Headline command to fit type the width of the rectangle. For more information, see [Fitting Headline Type](#).

To create a text rectangle using the type tool:

- 1 Select the type tool. The pointer changes to an I-beam within a dotted box.
- 2 Position the pointer at one corner of the rectangle, or column, you want to create. Press the mouse button, and drag diagonally to the opposite corner.



Position the cursor ...



and drag to define a
text rectangle.

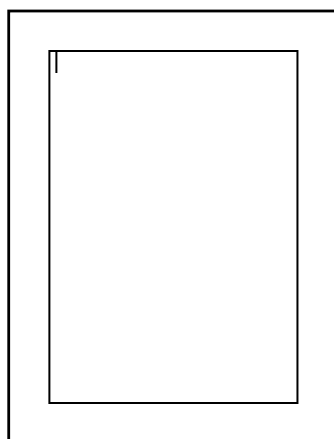
When you release the mouse button, the pointer reverts to an I-beam (in [Artwork view](#), a rectangle appears with an insertion point at the top left).



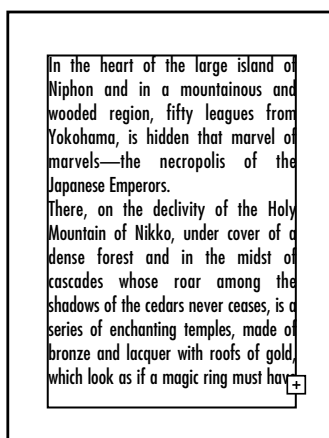
3 Enter the type. Notice that the type is word-wrapped to fit inside the defined area. Use a carriage return only when you want to begin a new paragraph.

In Artwork view, if you enter more type than will fit within the rectangle, a small box containing a plus sign (+) appears near the bottom of the rectangle; the plus sign is positioned at the end of the baseline of the last visible line of type.

You can adjust the size of the rectangle to accommodate the type using the [direct-selection tool](#). You can also create a copy of the rectangle to cause extra type to flow into the new rectangle.



Entering type



A plus sign in Artwork view indicates an overflow of type

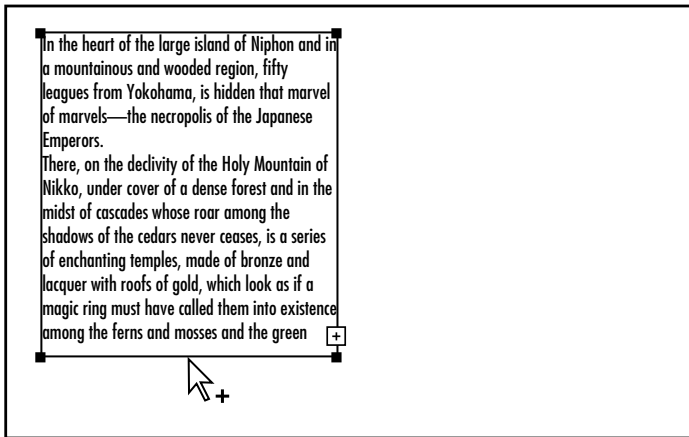
To change the size or shape of a text rectangle:

- 1** Select the direct-selection tool.
- 2** If the type is selected, click outside the rectangle to deselect it.
- 3** Position the pointer on the edge of the text rectangle you want to adjust. Do not select any of the type baselines.
- 4** Click to select the text rectangle, and drag to adjust the rectangle's size or shape. To constrain the new shape to that of a rectangle, hold down the Shift key while dragging.



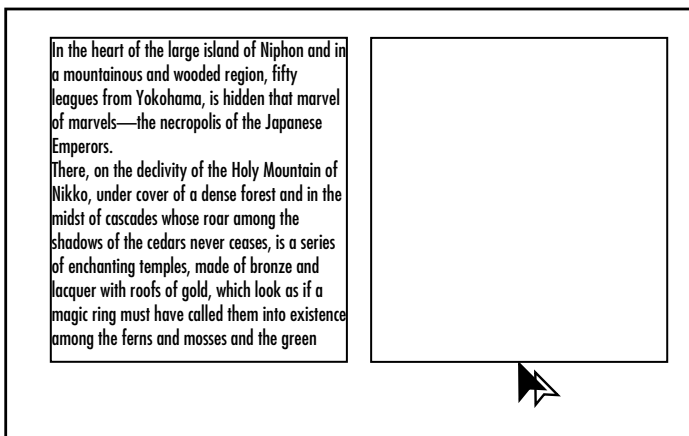
To create a copy of the text rectangle for overflow type:

- 1 Click outside the text rectangle to deselect the type.
- 2 Select the group-selection tool and position the pointer on the text rectangle.



Text rectangle selected with group-selection tool

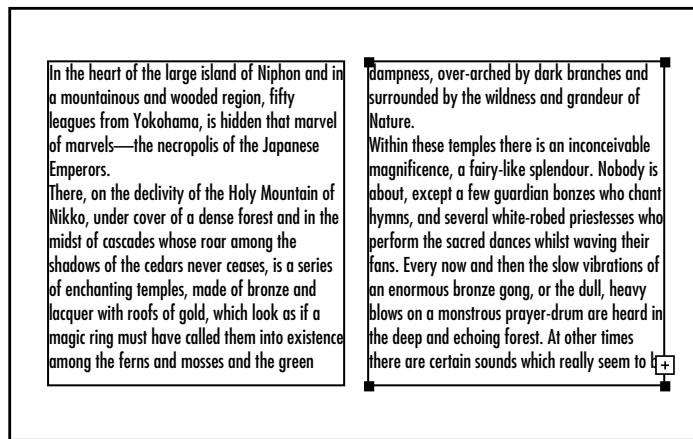
- 3 Begin dragging the copy to where you want to position it. Hold down the Option key to make a copy of the rectangle. Hold down the Shift key to constrain the move.



Option-Shift-drag to make a copy and constrain move



4 When the new rectangle is in position, release the mouse button and then the Option and Shift keys. It is important to release the mouse button before you release the Shift and Option keys.



Text flowed into new, linked column

The type flows from the first rectangle to the second, and the two text rectangles are automatically linked. For more information on linking text objects, see [Linking Text Objects](#).

Entering Type in a Nonrectangular Area

You can use any path as an area within which to enter type. If the path is an open path, the program draws an imaginary line between the endpoints of the path to define the object for the type, just as it does to paint open paths.

When you turn a path into a text path, the path becomes unstroked and unfilled, even if the path was originally stroked or filled. After you enter type, the text object is selected, and any changes to the paint settings will affect only the type, not the path. You can paint the path after you enter type by selecting the path with the [direct-selection tool](#) and using the Paint Style palette.

Note: Text paths are created as unpainted objects. Until you paint the text paths, you can place them over other objects without obscuring the underlying shapes.

If you want to create only area type, or if you want to create area type on an open path, you can use the area-type tool exclusively. If, however, you want to create several kinds of type, you should use the type tool. When you move the type tool over different kinds of paths, the type tool appropriate to the specific path appears (area-type tool or path-type tool).

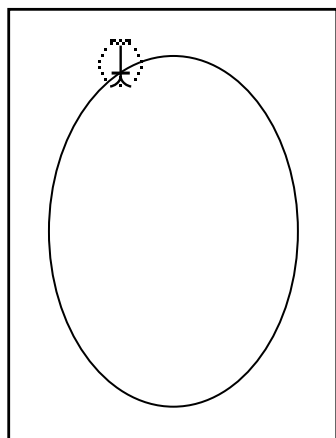
When you create a text area, you can use the Fit Headline command to fit type the width of the area. For more information, see [Fitting Headline Type](#).

To enter type within a path:

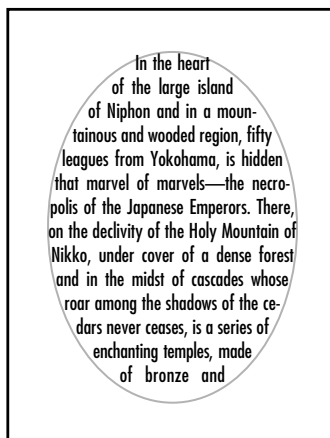
- 1 Select the type tool or the area-type tool.
- 2 Position the pointer on the path, and click the mouse button. An insertion point appears.



3 Enter the type you want.



Area-type pointer on path



Type flows to fill area

As with text rectangles, if you enter more type than will fit within the area, in [Artwork view](#) a small box with a plus sign (+) appears near the bottom of the area. To display all of the type, you can adjust the size of the path containing the type, you can create a copy of the path to contain the extra type, or you can link the path to another text object so that the type will flow into that object. For more information about linking text objects, see [Linking Text Objects](#).

Selecting Type

You can use the selection tool or the type tool's I-beam pointer to select type. To make changes to all of the type in a text object, use the selection tool to select the type. To edit parts of a text object, use the I-beam pointer.

The I-beam pointer lets you select parts of a text object and change their attributes. This means that you can have several different fonts, sizes, colors, and so on, within the same text object. The I-beam pointer appears after you enter type with any of the type tools. This pointer indicates that you can edit existing type.

To select type using the I-beam pointer:

- 1 Select any of the type tools.
- 2 Select the type you want to edit using one of the following methods:
 - Click before or after a character to set an insertion point. Once you have created an insertion point, you can enter new type.
 - Drag to select the type you want to change.
 - Position the pointer in a word and double-click to select that word.
 - Position the pointer in a paragraph and triple-click to select the entire paragraph.
 - Click the text object with a type tool, and then choose **Select All** from the **Edit** menu to select all type in the current text object.

Once you have selected the type, you can edit it. For more information, see [Editing Text](#).

Linking Text Objects

You can link text objects that have been created with the type tool or the area-type tool. When you link text objects, the type flows from one object to another to fill in blank areas in one object. Thus, one text object can fill several different paths, such as several columns or several irregular shapes.

Type flows from one object to another based on the text objects' stacking order. Type flows first into the backmost object in the stacking order, and continues to the next object in the stacking order. The most recently created object is always frontmost.

You can change the order in which type flows by changing the stacking order of text objects using the Send to Front and Send to Back commands. You can either adjust the stacking order before linking type, or you can adjust the stacking order on linked text objects to change the flow of the type from one text object to another.

If you are working with text rectangles and you run out of room in a rectangle, you can create a copy of the rectangle for overflow type.

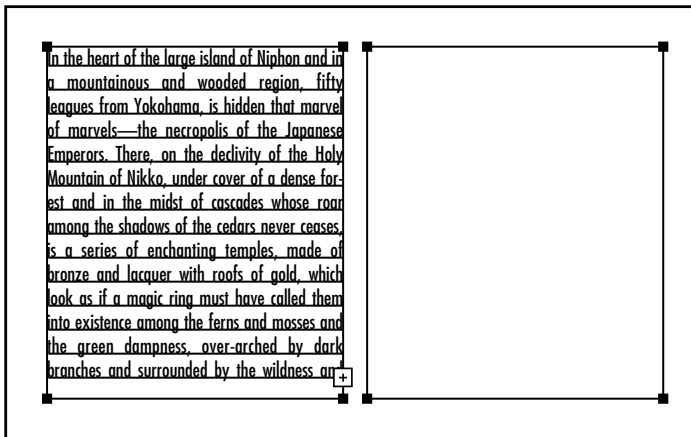
You can also unlink text objects to change their stacking order without affecting the flow of type. Unlinking does not return the type to its original object; to do so, you must cut and paste the type. If you want to delete a single or unlinked text object without deleting the type, you must first create a new path, link the new path with the text object, and then delete the old path.

To link text objects:

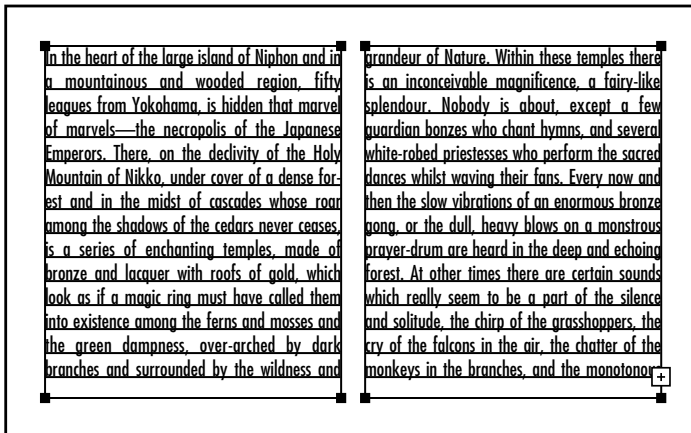
- 1 Select the selection tool.



2 Drag to surround the text objects to be linked, or click with the selection tool.



3 Choose Link Blocks from the Type menu.



To unlink linked text objects:

Choose Unlink Blocks from the Type menu.

To remove or replace a linked text object without deleting the type:

- 1 Select the group-selection tool.
- 2 Click the edge of the text rectangle that you want to remove.
- 3 Press Delete. The path you selected disappears, and the type that it contained flows into the remaining path.
- 4 To add a new path, create or select the path, hold down the Shift key and use the group-selection tool to click the text object to which you want to link the new path. Then choose Link Blocks from the Type menu.

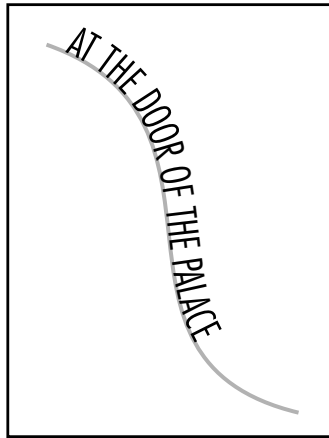
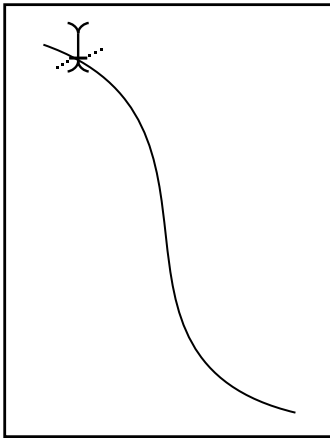
Entering Type on a Path

You can enter type that follows an open or a closed path. You first need to create a path. The path can be regularly or irregularly shaped. When you create type along a path, the path's paint characteristics are reset to unstroked and unfilled. You can later paint it if you want without affecting the paint attributes of the type.

Once you have entered type on a path, you can move the type along the path or to the opposite side of the path. Keep in mind, however, that you can have only one text object on a path.

To enter type along a path:

- 1 Select the type tool or the path-type tool.
- 2 Position the pointer on the path, and click the mouse button. An insertion point appears on the path.
- 3 Enter the type you want. Type appears along the path.

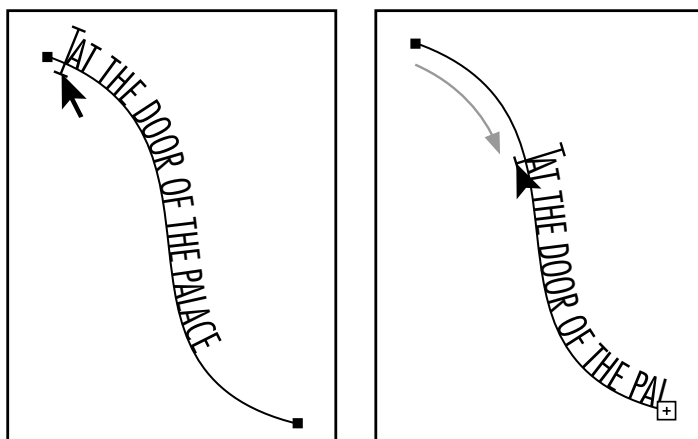


To move type along a path:

- 1 Use the selection tool to select the text object if it is not already selected.



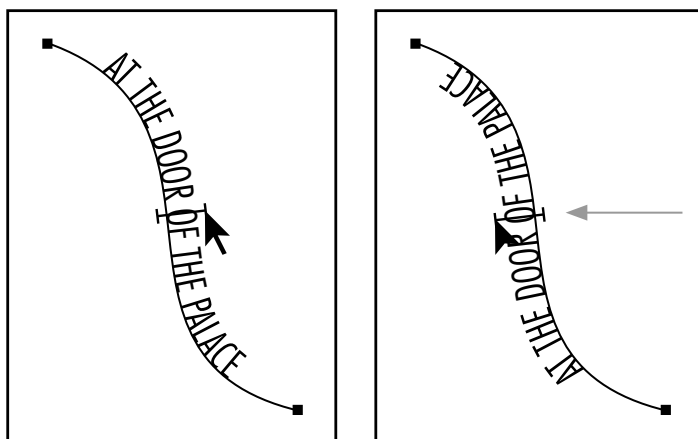
2 Position the pointer on the I-beam at the beginning of the line of type.



3 Press the mouse button, and begin dragging the I-beam in the direction you wish to move the type. Be careful not to drag across the path. Release the mouse button when the type is repositioned as desired.

To flip the direction of the type along a path:

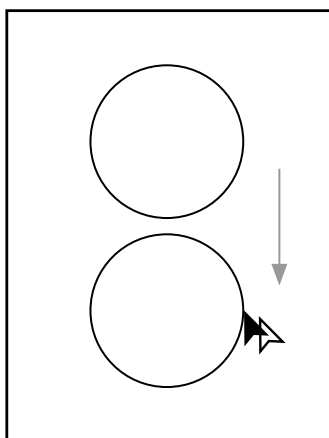
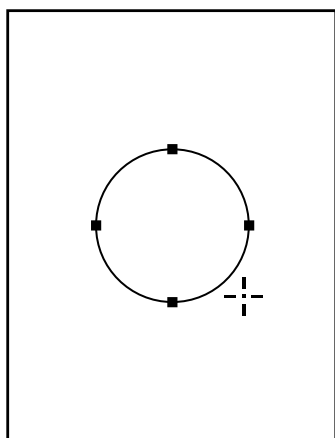
- 1 Select the selection tool.
- 2 Position the pointer on the I-beam.
- 3 Choose one of the following options:
 - Press the mouse button, and drag the I-beam across the path.
 - Double-click the I-beam.



To move type across a path without changing the direction of the type, you use the Baseline Shift option in the Character palette. For example, if you have created type that runs from left to right across the top of a circle, you can enter a negative number in the Baseline Shift text box to drop the type so that it follows the inside of the top of the circle.

To create type above and below a circle:

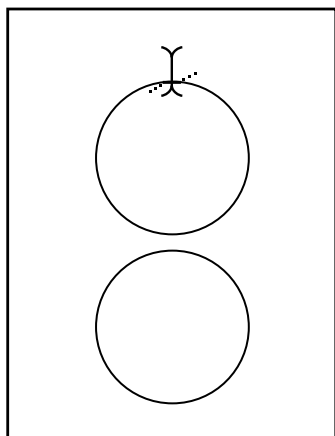
- 1 Select the oval tool.
- 2 Hold down Shift as you drag to draw a circle.
- 3 Select the selection tool.
- 4 Hold down the Option key, and drag a copy of the circle away from the first circle. To constrain the movement horizontally, vertically, or diagonally, hold down the Shift key as you drag.



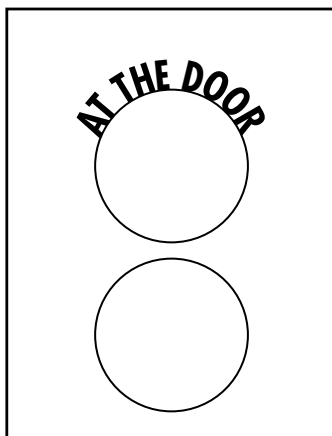
- 5 Select both circles.
- 6 Choose one of two options:
 - Choose Paragraph from the Type menu to display the Paragraph palette. Click Center Alignment.
 - Choose Alignment/Center from the Type menu.
- 7 Select the type tool or the path-type tool, and position the pointer on the anchor point at the top of the first circle.



8 Click the mouse button, and enter the type you want to appear across the top of the circle. Click the type tool or the path-type tool in the toolbox when you have finished.



Entering type



Result

9 Use the selection tool to select the second circle.

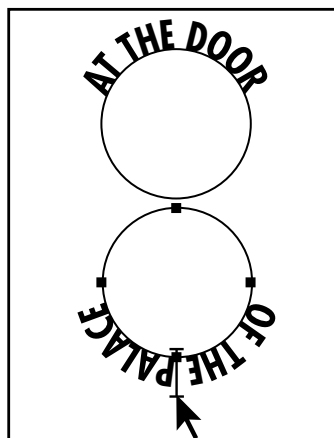
10 Select the type tool or the path-type tool, and position its pointer on the anchor point at the bottom of the second circle.

11 Click the mouse button, and enter the type you want to appear across the bottom of the circle. The type appears upside down.

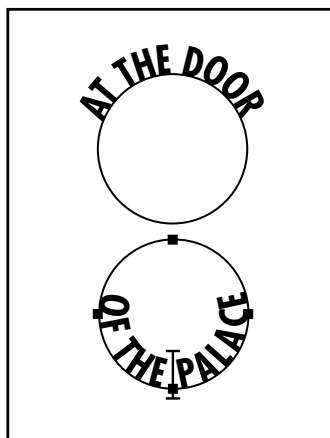
12 Using the selection tool, click to select the second circle. An I-beam appears on the anchor point at the bottom of the circle. You can either double-click the I-beam or drag the I-beam to flip the type on the circle.



The type flips across the circle.



Double-click or drag the
I-beam ...



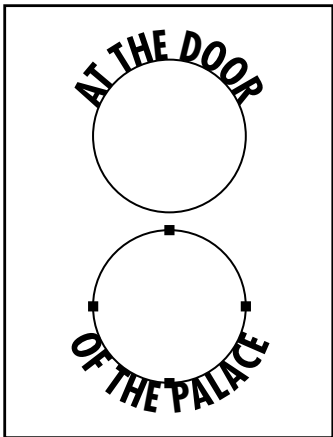
to flip the type.

13 Choose Character from the Type menu. (If necessary, open the full Character palette by clicking the display control in the bottom right of the palette.)

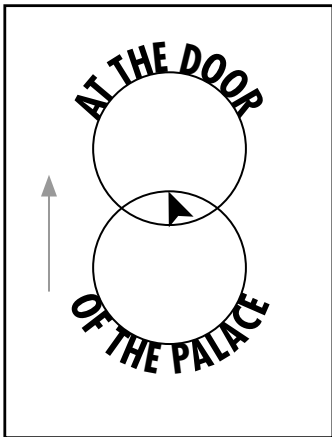
14 Enter a negative value in the Baseline Shift text box to move the type to the outside of the circle.



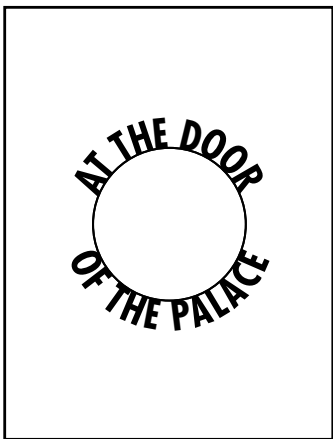
15 Select one circle and move it on top of the other by dragging an anchor point. If the Snap to Point option is turned on in the General Preferences dialog box, the second circle's anchor point will snap into position when you move it on top of the first circle.



Select ...



and drag to align.



Result: Artwork view



Result: Preview view

Importing Text Files

You can import text files into the Adobe Illustrator program from other applications. Once you have created an insertion point with any of the type tools, use the Import Text command to import type. The Import Text command is available only when an insertion point has been created.

To import type:

- 1 Use one of the type tools to define the point or area in which the imported type will appear.
- 2 Choose Import Text from the File menu. The Open dialog box appears.
- 3 Select the document you want to open and click Open. The type from the file you selected flows into the text object.

Most of the styles you used in typing the original document will be retained. If the original type is word-wrapped and you import it as a point-text object, each paragraph will appear on a single line.

Fitting Headline Type

Adobe Illustrator lets you fit type across the full width of a text path in an object, using the Fit Headline command. For you to use the Fit Headline command, the type must be entered into a text rectangle or into a text area. For more information on rectangle text and area text, see [Entering Text in a Rectangle](#) and [Entering Text in a Nonrectangular Area](#).

The Fit Headline command was specifically designed to work with Adobe multiple master fonts, to adjust the weight of the font and the [tracking value](#) when spreading type across a path. However, the Fit Headline command also works with other fonts, by adjusting the tracking value alone.

When you use the Fit Headline command with an Adobe multiple master font, the width of the font is adjusted so that the selected type fits across the entire width of the rectangle or object. If you choose the Fit Headline command with a nonmultiple master font, the tracking value of the type is adjusted to fit the words across the full length of the path.



Note: Since the Fit Headline command enters a specific tracking value for type, any changes to the type that affect the tracking value will change the headline width. After changing the type, you may need to use the Fit Headline command to refit the type on the path.

AT THE DOOR OF THE PALACE

In the heart of the large island of Nippon and in a mountainous and wooded region, fifty leagues from Yokohama, is hidden that marvel of marvels—the necropolis of the Japanese Emperors. There, on the declivity of the Holy Mountain of Nikko, under cover of a dense forest and in the midst of cascades whose roar among the shadows of the cedars never ceases, is a series of enchanting temples, made of bronze and lacquer with roofs of gold, which look as if a magic ring must have called them

into existence among the ferns and mosses and the green dampness, over-arched by dark branches and surrounded by the wildness and grandeur of Nature. Within these temples there is an inconceivable magnificence, a fairy-like splendour. Nobody is about, except a few guardian bonzes who chant hymns, and several white-robed priestesses who perform the sacred dances whilst waving their fans. Every now and then the slow vibrations of an enormous bronze gong, or the dull, heavy blows on a monstrous

Nonmultiple master font before Fit Headline command

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into existence among the ferns and mosses and the green dampness, over-arched by dark branches and surrounded by the wildness and grandeur of Nature. Within these temples there is an inconceivable magnificence, a fairy-like splendour. Nobody is about, except a few guardian bonzes who chant hymns, and several white-robed priestesses who perform the sacred dances whilst waving their fans. Every now and then the slow vibrations of an enormous bronze gong, or the dull, heavy blows on a monstrous

Result: the tracking value is adjusted to fit type across path

AT THE DOOR OF THE PALACE

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into existence among the ferns and mosses and the green dampness, over-arched by dark branches and surrounded by the wildness and grandeur of Nature. Within these temples there is an inconceivable magnificence, a fairy-like splendour. Nobody is about, except a few guardian bonzes who chant hymns, and several white-robed priestesses who perform the sacred dances whilst waving their fans. Every now and then the slow vibrations of an enormous bronze gong, or the dull, heavy blows on a monstrous

Multiple master font before Fit Headline command



AT THE DOOR OF THE PALACE

In the heart of the large island of Nippon and in a mountainous and wooded region, fifty leagues from Yokohama, is hidden that marvel of marvels—the necropolis of the Japanese Emperors. There, on the declivity of the Holy Mountain of Nikko, under cover of a dense forest and in the midst of cascades whose roar among the shadows of the cedars never ceases, is a series of enchanting temples, made of bronze and lacquer with roofs of gold, which look as if a magic ring must have called them

into existence among the ferns and mosses and the green dampness, over-arched by dark branches and surrounded by the wildness and grandeur of Nature. Within these temples there is an inconceivable magnificence, a fairy-like splendour. Nobody is about, except a few guardian bonzes who chant hymns, and several white-robed priestesses who perform the sacred dances whilst waving their fans. Every now and then the slow vibrations of an enormous bronze gong, or the dull, heavy blows on a monstrous

Result: the font's width and tracking are adjusted.

To fit headline type across a specified area:

- 1** Enter type into a text rectangle or a text area using the type tool or the area type tool.
- 2** Select the type using any of the text tools.
- 3** Choose Fit Headline from the Type menu.

Wrapping Type around a Graphic Object

You can make type wrap around any graphic object, including [text paths](#) and [compound paths](#), using the Make Wrap command. You must use rectangle or area type when wrapping type around a path; point type will not wrap around a path. To wrap type around an object, the object must be in front of the type in the [stacking order](#). If the object is behind the text object, use the Bring to Front command from the Arrange menu. You can make one or several text objects wrap around any number of objects.

To control how closely type wraps around an object, you can create a graphic boundary that is unstroked and unfilled.

To wrap type around a graphic object:

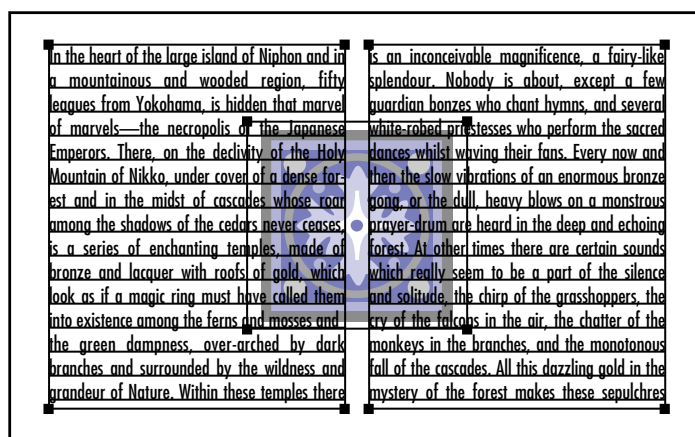
- 1 Make sure that the object or objects that you will wrap type around are in front of the type. If necessary, use the Bring to Front or Paste in Front commands
- 2 If desired, use any of the drawing tools to create an unfilled, unstroked graphic boundary as an outline for the area around which the type will wrap.

You can use the graphic boundary to control how closely type wraps around an object. This is useful to wrap type around a large text object consisting of a single point-text, such as a large initial capital letter. You can then adjust and resize the unpainted object using a selection tool to achieve the exact kind of type wrap you want.

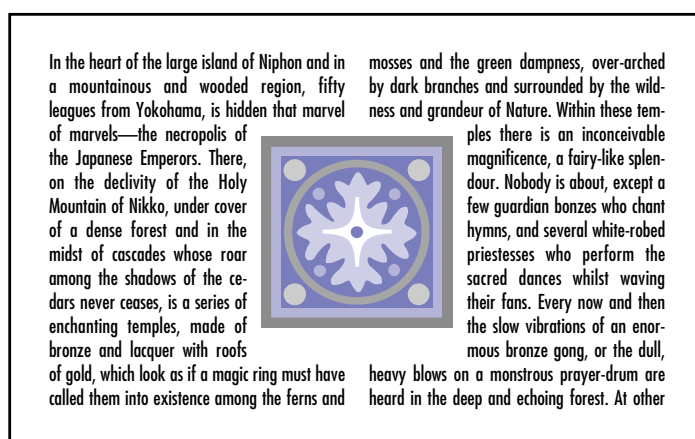
- 3 Using the selection tool, select the text object or objects that you want to wrap and the graphic objects.



4 Choose Make Wrap from the Type menu. The type wraps around the graphic object.



Text objects selected



Make Wrap command applied

To separate the text object from the graphic objects, use the Release Wrap command in the Type menu. To force the type to flow to the next line or to the other side of the wrap object, press Tab or Return.

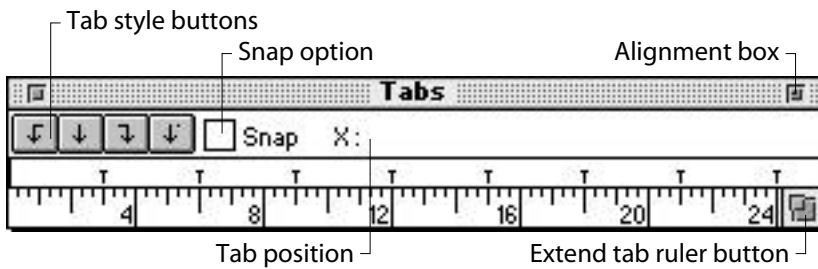
For more examples of wrapping type around graphic objects, see “Wrapping Type” in *Beyond the Basics*.

Using the Tab Ruler Palette

The Tab Ruler palette lets you set left, right, center, and decimal point tabs in text. When setting tabs, a visual tab guide appears in the selected text to help you set tabs even if the text path is rotated or wrapped. The units of measure for the tab ruler are defined by the units of measure shown in the Document Setup dialog box.

To set tabs in text:

- 1 Select any text object using a selection tool, or select a range of text using the text tool.
- 2 Select Show Tab Ruler from the Window menu. The Tab Ruler palette appears.



3 Choose from these options:

- Click the Alignment box at the upper right of the palette to align the Tab Ruler with the left margin of the selected text.
- Drag the Extend Tab Ruler button at the lower right of the palette to extend the ruler.
- Click the Snap option to snap tabs to ruler units as you drag them. You can also hold down the Control key as you drag tabs to temporarily turn the Snap option on or off.

4 To set a tab in the selected text, click the Tab Ruler where you want the tab to appear. The tab position (relative to the left margin of the selected text) appears in the top center of the palette.



To change an existing tab setting:

1 With the Tab Ruler palette open, click a tab mark to highlight it. Click one of the Tab Style buttons to change the tab style:



Left-Justified Tab. Justifies text to the left, keeping the right margin ragged.



Center-Justified Tab. Centers text on the tab mark.



Right-Justified Tab. Justifies text to the right, keeping the left margin ragged.



Decimal-Justified Tab. Justifies text in alignment with a decimal point (useful for columns of numbers).

2 To move a tab, click it and drag it to a new position. As you drag, a line indicates where the tab is moving in the text. To simultaneously move all tab stops that are to the right of the selected tab, hold down the Shift key while dragging the tab stop. To remove a tab you've created, click it and drag it off the top or left side of the ruler.

Editing Text

You can edit type by typing over it; by deleting it, cutting, copying, or pasting it. You can also paint type.

You can also use the Cut, Copy, Paste, Delete, or Select All commands in the Edit menu to copy type from Adobe Illustrator to other applications, to bring type from another application into an Adobe Illustrator document, or to edit type within an Adobe Illustrator document. When you use the Copy command to copy type to and from other applications, you copy only the characters, not the styles.

To edit type attributes including font, type size, kerning, leading, alignment, hyphenation, and so on, you use the Character and Paragraph palettes. For information on how to change type attributes, see [Setting Type Attributes](#).

Painting type

You can paint type, the text object, or the type path. You may want to paint the text object to create a background for your type. Usually, you leave the type path as it was created, unfilled and unstroked.

To paint type, a text object, or a type path:

1 Choose one of the following options:

- To paint the type, use the selection tool to select the type.
- To paint a text object or type path, use either the direct-selection tool or the group-selection tool and click once to select the path or object. Do not select the baselines.

2 Use the [Paint Style palette](#) to paint the type.

Transforming a text object

The selection tool lets you select an entire text object so that you can transform the object. You transform type along with its path. You can also transform individual text objects within linked text objects.

For more examples of transformed type, see *Beyond the Basics*.

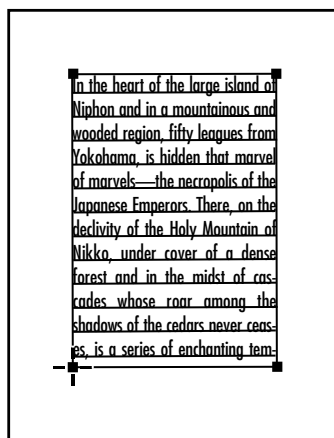


To transform a text object including its path:

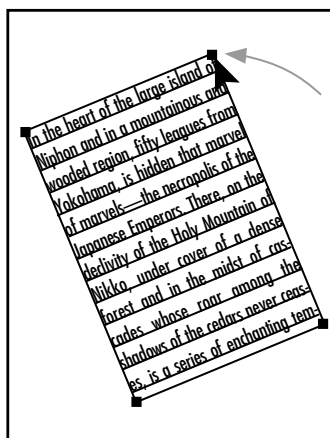
1 Choose one of two options:

- To transform all of the type in a text object, use the selection marquee to select the text object, or click its baseline.
- To transform individual text objects in a series of linked text objects, use the group-selection tool to select the linked objects you want to transform.

2 Select the rotate, scale, or shear tool to transform the text object and its path.



Click with the rotate tool ...



and drag to rotate the text object

Hyphenating words

The Adobe Illustrator program contains an auto-hyphenation feature that you can turn on or off as needed. You can set the hyphenation parameters in the Paragraph palette in the Type menu. If you select the auto-hyphenation option, you can specify the minimum number of letters allowed at the beginning or end of a word before allowing a hyphen to be inserted. You can also limit the number of consecutive hyphenated lines.

You can enter a discretionary hyphen to hyphenate a word manually by pressing Command-Shift-hyphen. Adobe Illustrator will always break a word at a discretionary hyphen, regardless of the auto-hyphenation setting.

You can also specify the hyphenation for a specific word, or exclude a word from being hyphenated, using the Hyphenation Options command.



Setting Auto-hyphenate feature:

- 1** Choose Paragraph from the Type menu. The Paragraph palette appears.
- 2** Select the Auto-hyphenate option. If the Hyphenation box is not visible, click the display control in the palette's lower right corner.
- 3** In the Hyphenation box, enter the minimum number of letters at the beginning and end of a word before a hyphen will be inserted.
- 4** If desired, select the Limit Of option, and enter the maximum number of consecutive hyphenated lines.

To specify how a word may be hyphenated:

- 1** Choose Preferences/Hyphenation Options from the File menu. The Hyphenation Options dialog box appears:
- 2** If desired, choose the language in which the hyphenation rules will apply from the Languages pop-up menu. When you select a different language, the rules for hyphenating words change to match that language's rules. You can also change the hyphenation language for the document using the Language pop-up menu in the [Character palette](#).
- 3** Enter the word for which you want to specify hyphenation characteristics. If you enter the word with no hyphens, Adobe Illustrator will never hyphenate the word. If you enter the word with one or more hyphens inserted, Adobe Illustrator will hyphenate the word only at those places.
- 4** Click Add.
- 5** To remove a word from the hyphenation list, click the word to select it, and then click Delete.
- 6** When you have finished, click Done.

Setting Type Attributes

The Adobe Illustrator program gives you precise control over type attributes including font family, type size, leading, indentation, horizontal scale, baseline shift, kerning, tracking, alignment, hanging punctuation, and word- and letterspacing.

You can either set type attributes before you enter new type or reset them to change the appearance of existing selected type. You can also set attributes for several text objects if they are all selected.

You can select all type attributes through the Character palette and Paragraph palette under the Type menu. In addition, the following shortcuts can be used to enter values in the Character and Paragraph palettes:

- To apply a value in a text box to the selected type, and move to the next text box in the palette, press Tab.
- To apply a value in a text box to the selected type and remain in the same text box in the palette, press Return.
- To select a font name alphabetically in the Character palette, with the Font text box selected, type a letter to list the name of the first font beginning with that letter. Continue to type the font name until the correct font name appears.
- To return to a default type value or font name, click the text box title. (For example, you can click the Size text box title to return to the default type size.)

Some of the type attributes also have separate submenus or palettes so that you do not have to open the Character or Paragraphs palettes if you want to change only one attribute. In addition, some attributes can be changed using keyboard shortcuts. For a complete list of shortcuts, see the Quick Reference Card.

***Note:** Special characters, such as the infinity symbol, may display correctly but not print. To print symbols, you may have to select the characters and apply the Symbol font to them.*

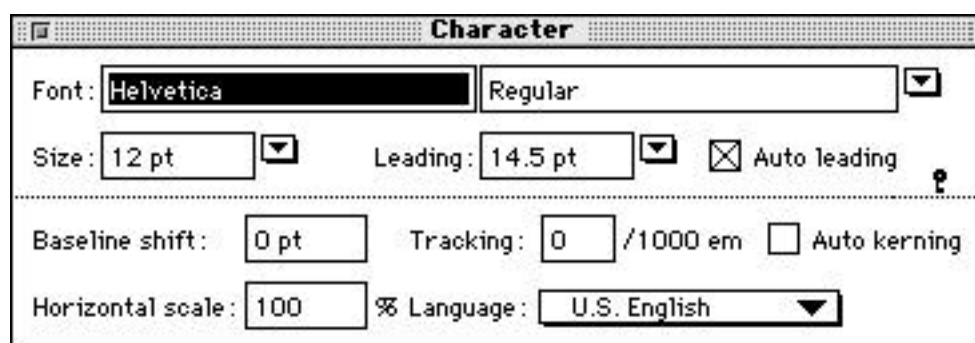
Choosing a Font Family

A *font family* is a complete set of characters, letters, and symbols that comprises a particular typeface design in one style. For example, the font used in this paragraph is Minion. The default font family in the Adobe Illustrator program is Helvetica.

You can choose a font from the Font pop-up menu, or from the Character palette.

To choose a font from the Character palette:

1 Choose Character from the Type menu. The Character palette appears.



2 Choose one of two options:

- Type the name of the font family you want to use in the Font text box.
- Choose a font from the Font pop-up menu.

3 Press Return or Tab to apply the new font.

To choose a font from the Font menu:

1 Open the Font menu. A checkmark appears next to the currently selected font. If type is selected and the selection contains more than one font, no checkmarks appear.

2 Drag to choose the font family you want. If more than one style of the font is installed, a submenu appears containing a list of styles available for the font family you have chosen.

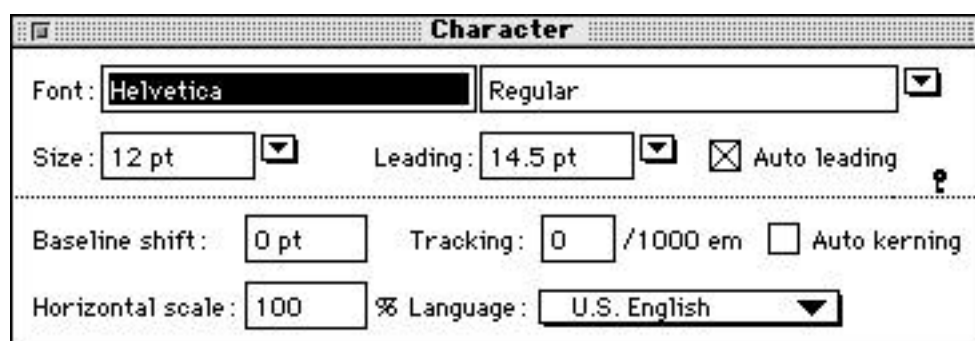
3 Select the style you want. The font you choose becomes the active font.

Choosing a Type Size

You can choose the type size in either the Character palette or the Size submenu under the Type menu. The default type size is 12 points. Type size is always measured in points. One point is equal to 1/72 of an inch. When you change the type size, the Info palette displays the new type size.

To choose a type size from the Character palette:

1 Choose Character from the Type menu. The Character palette appears, displaying the currently selected type size in the Size text box.



If the selection contains fonts of more than one size, the text box is blank.

2 Choose a new type size from the Size pop-up menu. You can also enter a number by typing the size in the Size text box. The new size is automatically applied.

To choose a type size from the Type menu:

1 Choose Size from the Type menu. The Size submenu appears. A checkmark appears next to the current type size.

2 Choose one of two options:

- Select a new type size from the Size submenu.
- Choose Other to display the Character palette. Enter a value in the Size text box, and press Return or Tab.

Specifying Leading

Leading specifies the amount of vertical space between baselines. Leading is always measured in points. If a line of type contains characters with different leading values, the line's leading will be set to the maximum of these values.

In the heart of the large island of Nippon and in a mountainous and wooded region, fifty leagues from Yokohama, is hidden that marvel of marvels—the necropolis of the Japanese Emperors. There, on the declivity of the Holy Mountain of Nikko, under cover of a dense forest and in the midst of cascades whose roar among the shadows of the cedars never ceases, is a series of enchanting temples, made of bronze and lacquer with roofs of gold, which look as if a magic ring must have called them

7-point type with 7.5-point leading

In the heart of the large island of Nippon and in a mountainous and wooded region, fifty leagues from Yokohama, is hidden that marvel of marvels—the necropolis of the Japanese Emperors. There, on the declivity of the Holy Mountain of Nikko, under cover of a dense forest and in the midst of cascades whose roar among the shadows of the cedars never

7-point type with 10-point leading

The default Auto-Leading option sets the leading at 120 percent of the type size. For example, type in a 10-point type size would have a leading value of 12 points (120 percent of 10 points).

To change the leading value using the Character palette:

- 1 Choose Character from the Type menu.
- 2 Enter a value in the Leading text box, or choose a value from the pop-up menu.
- 3 Press Return or Tab to apply the new leading value.

To change the leading value from the Type menu:

- 1 Choose Leading from the Type menu.
- 2 Choose one of two options:
 - Select a leading value from the Leading submenu.
 - Choose Other to display the Character palette. Enter a value in the Leading text box, and press Return or Tab.



To specify leading before a paragraph:

1 Choose one of two options:

- To apply leading to a single paragraph in a text object, click the type tool anywhere in the desired paragraph.
- To apply leading to all paragraphs in a text object, use the selection tool to select the entire text object.

2 Choose Paragraph from the Type menu. The Paragraph palette appears.

3 Enter a value in the Leading Before Paragraph text box. The value is applied to the type.

In the heart of the large island of Nippon and in a mountainous and wooded region, fifty leagues from Yokohama, is hidden that marvel of marvels—the necropolis of the Japanese Emperors.

There, on the declivity of the Holy Mountain of Nikko, under cover of a dense forest and in the midst of cascades whose roar among the shadows of the cedars never ceases, is a series of enchanting temples, made of bronze and lacquer

**Leading before paragraph:
20 points**

In the heart of the large island of Nippon and in a mountainous and wooded region, fifty leagues from Yokohama, is hidden that marvel of marvels—the necropolis of the Japanese Emperors.

There, on the declivity of the Holy Mountain of Nikko, under cover of a dense forest and in the midst of cascades whose roar among the shadows of the cedars never ceases, is a series of enchanting temples, made of bronze and lacquer with roofs of gold, which look as if a magic ring must have called them into exist-

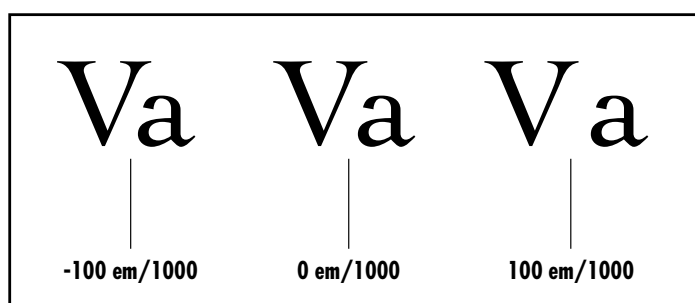
**Leading before paragraph:
10 points**

Specifying Kerning and Tracking

Kerning controls the spacing between two characters. *Tracking* inserts uniform spacing between more than two characters in selected text.

The Character palette displays either a Kerning option or a Tracking option, depending on the position of the cursor. If you have placed an insertion point between two characters, the option is Kerning. If you have selected a group of characters or one or more text objects, the option is Tracking.

Positive kerning or tracking values move characters apart; negative kerning or tracking values move characters closer together. Kerning and tracking values are measured in units that are 1/1000 of an *em space*. The width of an *em space* is relative to the current type size. In a 1-point font, 1 *em* corresponds to 1 point; in a 10-point font, 1 *em* corresponds to 10 points. Because kerning units are 1/1000 *em*, 100 kerning units in a 10-point font are equivalent to 1 point.



Various values of kerning between the letters "V" and "a"



No tracking



Top line tracked
1100 em/1000



When kerning type, you can use a font's kerning information to space characters better; to do so, you use the Auto-Kerning option. Many fonts contain information about the spacing of character pairs; for example, the spacing between an *A* and a *W* should often be less than the spacing between an *A* and an *F*. A font's kerning information applies only to characters in that font; therefore, you cannot apply auto-kerning to adjacent characters in different fonts.

To auto-kern all type in a file, choose **Select All** from the **Edit** menu, and select the **Auto-Kerning** option in the **Character** palette.

To change the tracking or kerning value:

- 1 Select the text object or type you want to adjust, or place an insertion point between two characters.
- 2 Choose one of two options:
 - Choose **Tracking** from the **Type** menu.
 - Choose **Character** from the **Type** menu.

The **Character** palette appears.

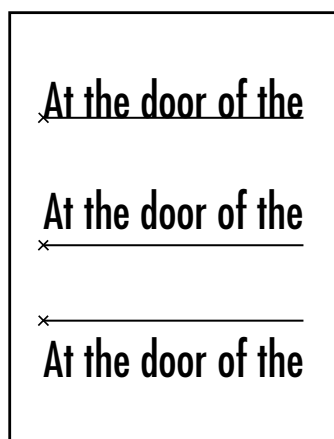
- 3 Enter a positive or a negative value in the **Tracking/Kerning** text box
- 4 Select or deselect the **Auto-Kerning** check box. Select **Auto-Kerning** to use the kerning value is the value you've set, if any; or the font's kerning table value, if there is one; or zero. Any kerning values you set override auto-kerning values.
- 5 Press **Return** or **Tab**.

To view the kerning value between two characters:

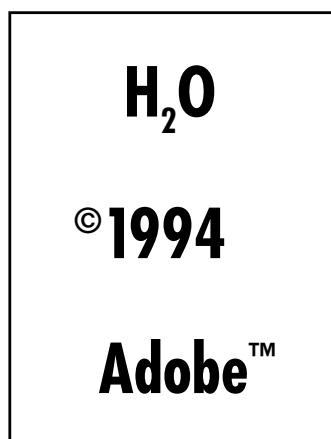
- 1 Place an insertion point between two characters whose kerning value you want to view.
- 2 The **Info** palette displays the total kerning value for the two characters.

Specifying Baseline Shift

Baseline shift controls the distance that type appears from its baseline, and can either raise or lower the selected type. You can use the Baseline Shift option to create subscripts or superscripts, or to move path type above or below a path without changing the direction in which the type flows. A positive value moves type above the baseline; a negative value moves it below the baseline. The default value for baseline shift is 0 points. The Baseline Shift value is measured in points unless you change the units in the General Preferences dialog box.



Default, positive, and negative baseline shift



Typical usage for baseline shift

The Baseline Shift option can be used to move type to a new location on a path. For example, if you use the path type tool to position type on a circle, the type appears above the circle. You can use the Baseline Shift option to move the type inside the circle.

To specify baseline shift:

- 1 Choose Character from the Type menu. The Character palette appears.
- 2 Enter a value in the Baseline Shift text box. This value is measured in the units you specify in the Indent/Shift units text box in the General Preferences dialog box.
- 3 Press Return or Tab.

Adjusting Horizontal Scale

Horizontal scale specifies the proportion between the height and width of the type. Unscaled characters have a value of 100 percent. You can adjust the horizontal scale to compress or expand selected characters. These adjustments have no effect on the characters' height.

If you have scaled characters nonuniformly using a transformation tool, the characters' horizontal scale value will reflect the change; you can return them to their original proportions by setting the horizontal scale to 100 percent.



Various percentages of horizontal scale

To adjust the horizontal scale of a text object:

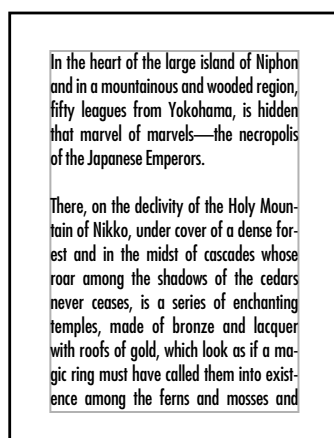
- 1 Choose Character from the Type menu. The Character palette appears.
- 2 Enter a percentage in the Horizontal Scale text box.
- 3 Press Return or Tab.

Note: Uniformly scaling a text object won't affect its horizontal scale, but will change the type size, leading, indentation, and baseline shift. Nonuniform scaling and skewing will affect horizontal scale, as well as the type size, leading, indentation, and baseline shift.

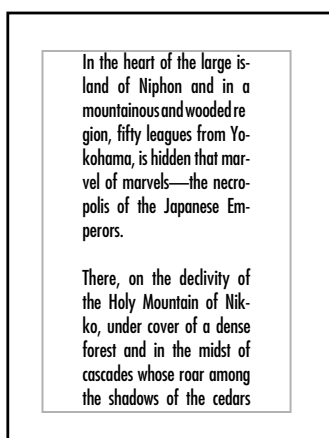
Specifying Paragraph Indentation

Indentation specifies the amount of space between the path that contains the type and the edge of the characters in each line of a text object. Indentation is measured in the Indent/Shift Units specified in the General Preferences dialog box, and is selected using the Paragraph palette. You can indent from the left or the right side of the path, and you can choose additional indentation for the first line of a paragraph. Negative indentation moves the type outside the margin.

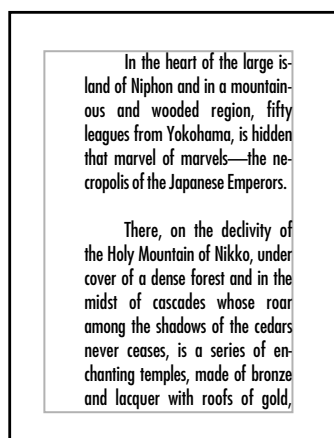
Indentation affects only the selected paragraph or paragraphs, allowing you to easily set different indentations for every paragraph. Indentation values are measured from the edge of each baseline, not from the edge of the path.



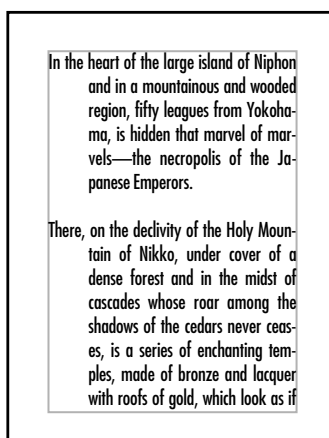
No indentation



10-point indentation on both left and right



10-point indentation on left; first line indentation 10 points



10-point indentation on left; first line indentation -10 points

Changing Alignment Options

Alignment controls how lines of type are arranged in paragraphs. Alignment options are left, right, centered, or justified. Each paragraph (or line in point type) can have its own alignment. Left alignment, the default option, aligns type on the left margin, with a ragged right edge. Right alignment aligns type on the right margin, with a ragged left edge. Centered alignment centers each line of type between margins. Justified alignment adjusts type to extend to both the left and right margins by adding space to the line of type. Point type and path type cannot be justified.

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There, on the declivity of the Holy Mountain of Nikko, under cover of a dense forest and in the midst of cascades whose roar among the shadows of the cedars never ceases, is a series of enchanting temples, made of bronze and lacquer with roofs of gold, which look as if a magic ring must have called them into existence among the ferns and mosses and

Left alignment

In the heart of the large island of Nippon and in a mountainous and wooded region, fifty leagues from Yokohama, is hidden that marvel of marvels—the necropolis of the Japanese Emperors.

There, on the declivity of the Holy Mountain of Nikko, under cover of a dense forest and in the midst of cascades whose roar among the shadows of the cedars never ceases, is a series of enchanting temples, made of bronze and lacquer with roofs of gold, which look as if a magic ring must have called them into existence among the ferns and mosses and

Right alignment

In the heart of the large island of Nippon and in a mountainous and wooded region, fifty leagues from Yokohama, is hidden that marvel of marvels—the necropolis of the Japanese Emperors.

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Center alignment

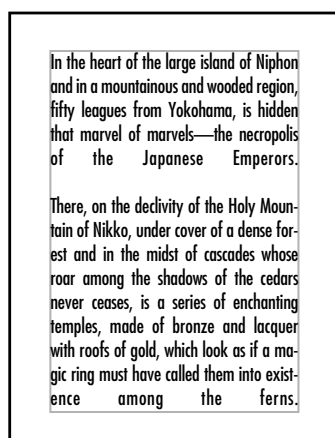
In the heart of the large island of Nippon and in a mountainous and wooded region, fifty leagues from Yokohama, is hidden that marvel of marvels—the necropolis of the Japanese Emperors.

There, on the declivity of the Holy Mountain of Nikko, under cover of a dense forest and in the midst of cascades whose roar among the shadows of the cedars never ceases, is a series of enchanting temples, made of bronze and lacquer with roofs of gold, which look as if a magic ring must have called them into existence among the ferns.

Justified alignment



You can also choose to justify the last line of a paragraph. By default, the last line of a justified paragraph is left-aligned with a ragged right margin.



Justified alignment; Justify Last Line option selected

To change alignment options from the Paragraph palette:

1 Choose Paragraph from the Type menu. The Paragraph palette appears.

1 In the Paragraph palette, click the alignment style of your choice.

2 Press Return or Tab.

To change alignment options from the Type menu:

1 Choose Alignment from the Type menu. The Alignment submenu appears.

2 Select the Alignment option of your choice.

Selecting Hanging Punctuation

Hanging punctuation controls whether punctuation marks fall inside or outside the margins. If hanging punctuation is turned on, the following characters will appear outside the margins: periods, commas, single-quotation marks, double-quotation marks, apostrophes, hyphens, em dashes, en dashes, colons, and semicolons.

"In the heart of the large island of Nippon and in a mountainous and wooded region, fifty leagues from Yokohama, is hidden that marvel of marvels—the necropolis of the Japanese Emperors."

"There, on the declivity of the Holy Mountain of Nikko, under cover of a dense forest and in the midst of cascades whose roar among the shadows of the cedars never ceases, is a series of enchanting temples, made of

Paragraph without hanging punctuation

"In the heart of the large island of Nippon and in a mountainous and wooded region, fifty leagues from Yokohama, is hidden that marvel of marvels—the necropolis of the Japanese Emperors."

"There, on the declivity of the Holy Mountain of Nikko, under cover of a dense forest and in the midst of cascades whose roar among the shadows of the cedars never ceases, is a series of enchanting temples, made of

Paragraph with hanging punctuation

To select hanging punctuation:

- 1 Choose Paragraph from the Type menu. The Paragraph palette appears.
- 2 Select the Hanging Punctuation check box.

Changing Spacing Options

Spacing options include options for controlling the wordspacing and letterspacing in lines of justified or unjustified type. In unjustified type, you may want to adjust the word spacing without affecting the letterspacing. The Word Spacing and Letter Spacing options apply primarily to **justified type**, although you can set the desired spacing on unjustified type if you choose.

Spacing options are always applied to an entire paragraph. To adjust the spacing in a few characters but not an entire paragraph, use the Tracking option.

To justify a line of type, the Adobe Illustrator program adds or subtracts space between words and letters. The Word Spacing option adjusts the white space that is inserted between words to justify a line of type. The Letter Spacing option adjusts the white space that is inserted between letters to justify a line of type.

Both word spacing and letterspacing are measured as percentages of the width of a space in the currently selected type size. The width of a space varies between type sizes. For each option, there are three text boxes: minimum, desired, and maximum.

For a justified text object, the default values for word spacing are 100-percent minimum, 100-percent desired, and 200-percent maximum. At 100 percent, no additional space will be added between words. The default values for letter spacing are 0-percent minimum, 0-percent desired, and 5-percent maximum. Zero-percent means that no space is added between letters. The Minimum and Maximum text boxes are available only for justified type. If you have selected other alignment options, the Minimum and Maximum text boxes will be dimmed. You may need to experiment with these values to achieve the effect you want.

To change spacing options:

- 1 Choose Paragraph from the Type menu or Spacing from the Type menu. The Paragraph palette appears.
- 2 In the Word Spacing or Letter Spacing text boxes, enter the values you want.

Setting Type Preferences

The Keyboard Increments options in the General Preferences dialog box let set the increments in which baseline shift and Kerning/tracking values increase or decrease when you use keyboard shortcuts. The default key increment values are 2 points for size/leading, 2 points for baseline shift, and 20/1000 ems for kerning/tracking.

The Cursor Key unit of measure is determined by the Ruler Units in the lower left of the General Preferences dialog box; the Size/Leading and Baseline Shift unit of measure is determined by the Indent/Shift Units. The units for point size, leading, and leading before paragraphs are also determined by the Indent/Shift units.

To set type preferences:

- 1 Choose Preferences/General from the File menu. The General Preferences dialog box appears.
- 2 Choose a unit of measure from the Indent/Shift Units pop-up menu.
- 3 In the Keyboard Increments box, enter the values you want for size/leading, baseline shift, and tracking/kerning.
- 4 Click OK.

Converting Text Objects to Editable Path Outlines

The Create Outlines command in the Type menu lets you turn text into a set of paths that you can edit and manipulate as you would any graphic object. To use the Create Outlines command with a given typeface, you must have the Type 1 or TrueType font outlines for that typeface installed on your system.

You can modify the outlines created from type as you would any graphic object. For example, you can create logos from type and fill them with patterns. Also, if you select the outlines, and choose Release Compound from the Object menu, you can use the outlines as text areas. In addition, you can use type outlines as masks.

The Create Outlines command retains all formatting of the selected type. It also retains the paint attributes of the type; so, for example, if the type is stroked, the outlines are stroked.

You must convert an entire text object to outlines; you cannot convert a single letter within a text object. To convert a single letter into an outline, create a text object containing only that letter.

To convert a text object to path outlines:

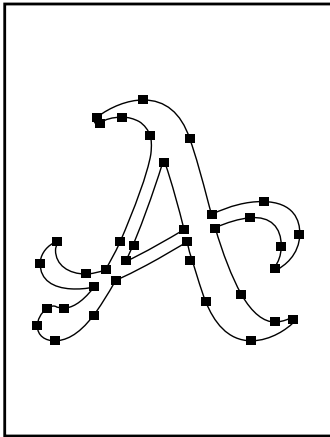
- 1 Using a selection tool, select the type you want to convert. Use the selection tool to select the area and path type; use the direct-selection tool to select the baseline of point type.

You must select type with a selection tool, not a type tool, to be able to convert the type to outlines.

- 2 Choose Create Outlines from the Type menu.



3 To edit the outlines, use the direct-selection tool. The following illustration shows anchor points added to the A and then stretched.



Text outlines can be edited ...



or painted, like any graphic object.

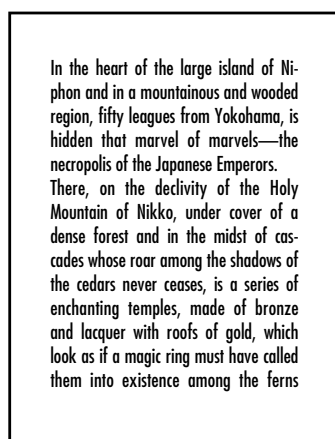
To use several outlined letters as a mask:

- 1 Select all of the letters.
- 2 Choose Compound Paths/Make from the Object menu.
- 3 Choose Masks/Make from the Object menu. For more information on masking, see [Masking](#).

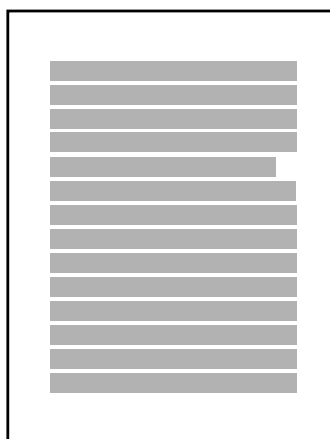
Greeking Type below a Specified Font Size

You can instruct Adobe Illustrator to greek type below a specified point size—that is, to replace the type on-screen with non-letterforms that act as placeholders in the artwork. Greeking type only affects artwork displayed on-screen; it has no effect on the printed image.

Adobe Illustrator will automatically greek type below a specified type size, as set in the Greek Text Limit box in the General Preferences dialog box. Any type at or below the type size specified will appear on screen as nonletterforms.



Type above the Greek Text limit



Type below the Greek Text limit

In addition, if you zoom out so that type on-screen falls below the Greek Text limit, the type will appear greeked. For example, if the Greek Text limit is set at 6 points, 12-point type viewed at a 50-percent zoom level will appear greeked.

Using the Transformation Tools

The transformation tools include the [scale tool](#), the [rotate tool](#), the [reflect tool](#), the [shear tool](#), and the [blend tool](#).

All of the transformation tools, with the exception of the blend tool, use an object's center point as the default point of origin for a transformation. You can drag anywhere on an object with a transformation tool to transform around the object's center. You can also set a new point of origin by clicking the object, moving the cursor away from the point at which you've clicked, and then dragging to transform. You can also change the point of origin using the [transformation tool dialog boxes](#).

When you transform an object, the changes take place horizontally (along the x axis), vertically (along the y axis), or a combination of the two, relative to the [Constrain Angle](#) setting in the General Preferences dialog box.

Using the Transformation Tool Dialog Boxes

You can use a transformation tool's dialog box to enter exact parameters for the transformation. To transform around the selected object's center point, double-click a transformation tool icon to display the transformation dialog box. To transform around a new point of origin, hold down Option and click the object to simultaneously set the new point of origin and to display the transformation dialog box.

Duplicating transformations

You can use a transformation tool's dialog box to create a copy of the object to transform, rather than the original object. You can also repeat a transformation by choosing the Repeat Transform command from the Arrange menu. (The Repeat Transform command does not work with the blend tool.)

Transforming pattern-filled objects

If an object that you want to transform is painted with a pattern, you can choose to transform only the pattern, transform only the object, or transform the pattern and object simultaneously. To do this, use the Pattern Tiles and Object options in the transformation tool dialog boxes. Select the Pattern Tiles option to transform only the pattern tiles; select the Object option to transform only the object; or select both options to transform the patterns and object simultaneously.

If you want to always transform pattern tiles with an object, turn on the Transform Pattern Tiles option in the General Preferences dialog box. Note that turning this option on or off in any dialog box updates the option in all dialog boxes in the program.

Shortcut: To transform only the pattern tiles in an object, select the center point and hold down the P key as you drag with the transformation tool.

Once you have transformed a pattern, all patterns that you subsequently apply will be transformed the same way. To return patterns to their original state, select another paint style.

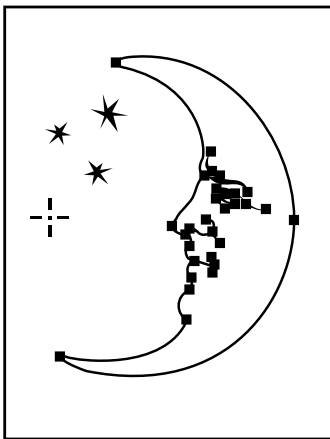
Using the Scale Tools

Scaling an object enlarges or reduces it horizontally (along the x axis), vertically (along the y axis), or both horizontally and vertically, relative to a fixed point of origin that you designate. The default point of origin is the object's center point.

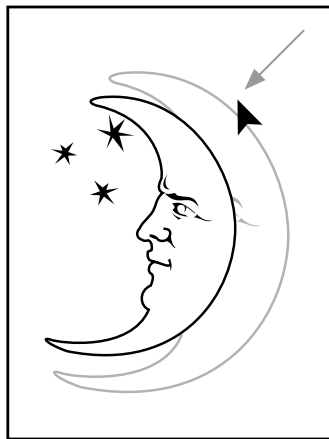
To display the Scale dialog box using the object's center point as the point of origin, double-click the scale tool icon. To display the Scale dialog box and set a new point of origin, hold down the Option key, and then click the object with the scale tool.

To scale by dragging:

- 1 Select the object you want to scale.
- 2 Select the scale tool.
- 3 Choose one of three options:
 - Select the object and drag to transform around the center point.
 - Click to set the point of origin from which you want the object to be scaled.
 - Double-click the scale tool icon to use the center point as the point of origin and specify precise scaling factors.
- 4 Move the arrowhead away from the point of origin, and then drag to scale the object.



Click with the scale tool to set point of origin ...



and then drag to scale.



To scale the object uniformly, hold down the Shift key as you drag. To scale a copy of the object instead of the object itself, hold down the Option key before you release the mouse button. For finer control over the scaling, start dragging farther from the point of origin.

To scale by specifying scale factors:

- 1 Select the object you want to scale.
- 2 Select the scale tool.
- 3 Choose one of two options:
 - To set the point of origin from which you want the object to be scaled, hold down the Option key and click.
 - To set the center point as the point of origin, double-click the scale tool icon.

The Scale dialog box appears.

4 Specify the new scale parameters as follows:

- If you choose uniform scaling, enter the scale factor as a percentage. With uniform scaling, you can also choose to preserve line weights or to scale them. If you scale line weights, the line weights of all [stroked paths](#) (as specified in the Paint Style dialog box) are scaled along with the objects.
- If you choose nonuniform scaling, enter the horizontal and vertical scale factors as percentages. The scale factors are relative to the specified point of origin, and they can be negative.

5 Click OK. The object assumes its scaled size and shape and remains selected. If you click Copy instead of OK, a copy of the object is scaled, and the original object remains the same.

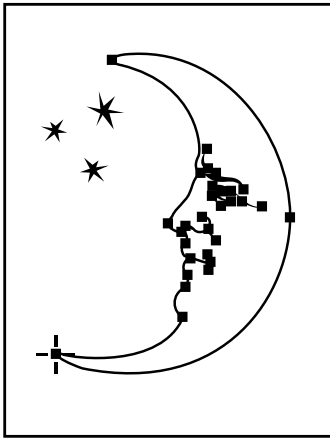
For more information, see [Using the Transformation Tool Dialog Boxes](#).

Using the Rotate Tools

Rotating an object turns it on a fixed point that you designate.

To rotate by dragging:

- 1 Select the object you want to rotate.
- 2 Select the rotate tool.
- 3 Choose one of two options:
 - Click and drag to rotate around the object's center point.
 - Click to set the point of origin around which you want the object to rotate; then move the arrowhead away from the point of origin, and then drag in a circular motion.



Click with the rotate tool to set the point of origin ...



and then drag to rotate.

To rotate by multiples of 45 degrees, hold down the Shift key as you drag the arrowhead. To rotate a copy of the object instead of the object itself, hold down the Option key after you start to drag.

To give yourself finer control over the rotation, start dragging farther from the point of origin.

To rotate by specifying an angle:

- 1 Select the object you want to rotate.
- 2 Select the rotate tool, and choose one of two options:
 - To set the point of origin from which you want the object to be rotated, hold down the Option key and click.



- To set the center point as the point of origin, double-click the rotate tool icon.

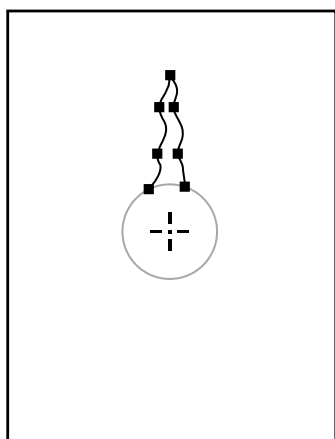
The Rotate dialog box appears.

3 Enter the rotation angle in degrees. Enter a negative angle to rotate the object clockwise; enter a positive angle to rotate the object counterclockwise.

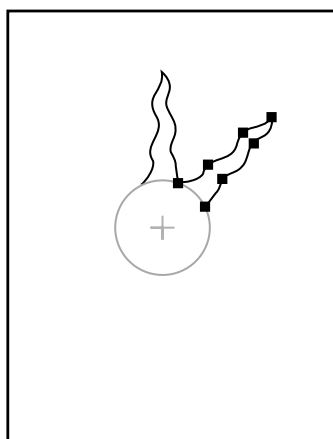
4 Click OK. If you click Copy instead of OK, a copy of the object is rotated, and the original object remains the same.

For more information, see [Using the Transformation Tool Dialog Boxes](#).

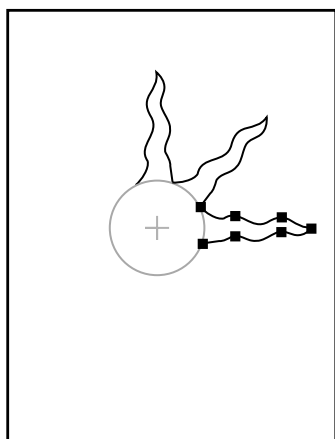
To place copies of your object in a circular pattern around a point of origin, use the Copy button, and then choose Repeat Transform from the Arrange menu.



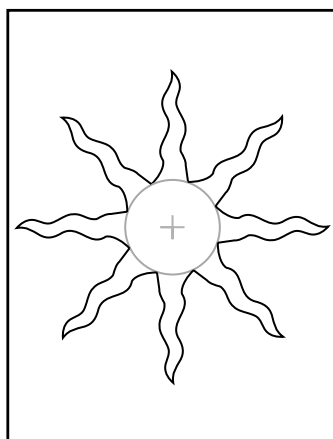
Select object to copy, and set point of origin



Use the Rotate dialog box and Copy option to rotate



Use Repeat Transform to copy and rotate again



Result

Using the Reflect Tools

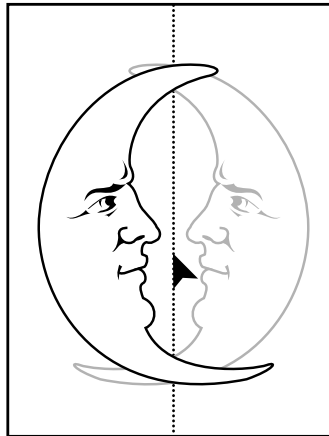
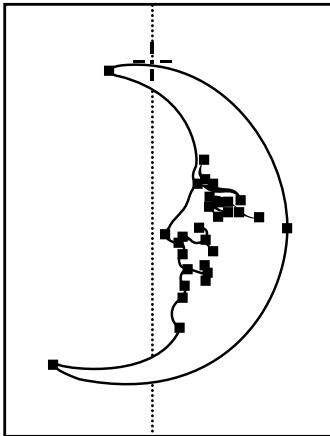
Reflecting an object creates a mirror image across an invisible axis that passes through a point that you specify. Copying while reflecting lets you create a mirror image of an object.

To reflect by dragging:

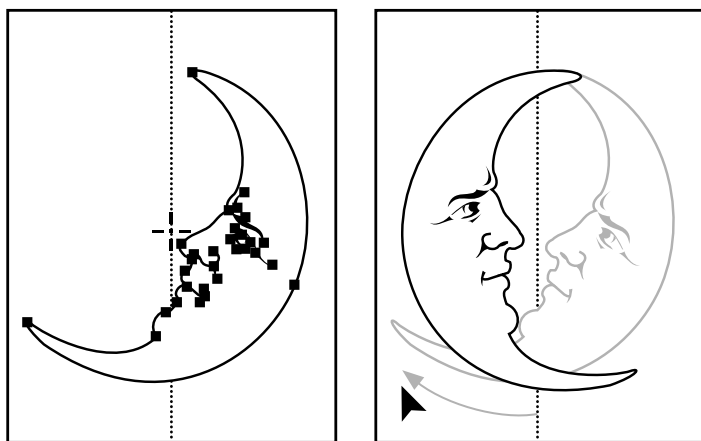
- 1 Select the object you want to reflect.
- 2 Select the reflect tool.
- 3 Position the pointer on any point along the invisible axis across which you want the reflection to take place, and click to set the point of origin.
- 4 Position the arrowhead at another point along the invisible axis.

Choose one of two options:

- Click to set a point across which to reflect the object. When you click, the selected object crosses over the defined axis.



- Adjust the axis of reflection by dragging the arrowhead instead of clicking. As you drag, the invisible axis of reflection rotates around the point you clicked in step 3. When the image is in the position you want, release the mouse button.



To constrain the reflection axis to multiples of 45 degrees relative to the [constraint angle](#) set in the General Preferences dialog box, start dragging and then hold down the Shift key.

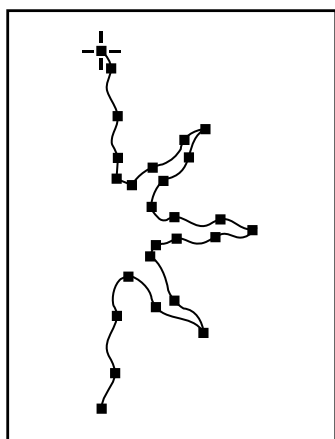
To reflect by specifying an axis:

- 1 Select the object you want to reflect.
- 2 Select the reflect-dialog tool.
- 3 Position the dotted cross on one point along the invisible axis across which you want the reflection to take place. Press the Option key and click the mouse button. The Reflect dialog box appears.
- 4 Select the axis across which you want the object to be reflected. You can reflect an object across a horizontal, a vertical, or an angled axis.

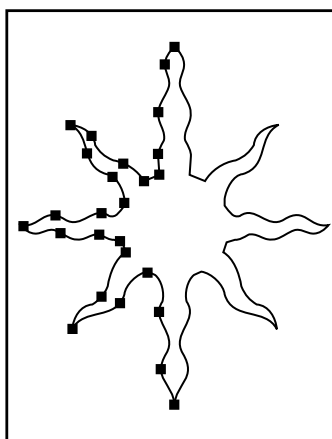
If you choose an angled axis, enter the angle of reflection, in degrees, relative to the x axis, that you want the axis of reflection to have. Positive angles reflect the axis counterclockwise; negative angles reflect it clockwise.



5 Click OK. If you click Copy instead of OK, a copy of the object is reflected, and the original object remains the same.



Origin set at top of path



Reflect-Copy across a vertical axis

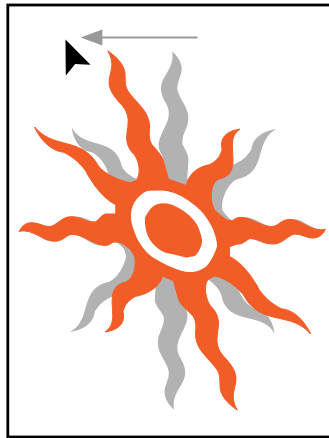
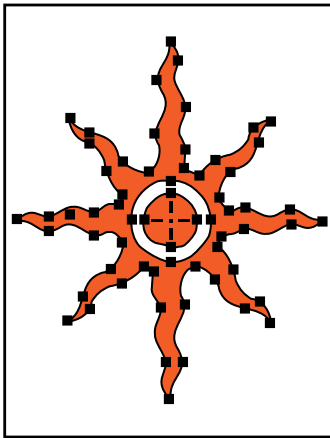
For more information, see [Using the Transformation Tool Dialog Boxes.](#)

Using the Shear Tools

Shearing an object slants, or *skews*, the object along an axis you specify. Copying while shearing is useful for creating cast shadows.

To shear by dragging:

- 1 Select the object you want to shear.
- 2 Select the shear tool.
- 3 Choose one of three options:
 - Select and drag the object to shear using the object's center point as the point of origin.
 - To set the point of origin from which you want the object to be sheared, hold down the Option key and click.
 - To set the center point as the point of origin and display the Shear dialog box, double-click the shear tool icon.
- 4 Move the arrowhead away from the shear axis, and then drag in the direction in which you want to shear the object.



To shear along an angle that is a multiple of 45 degrees relative to the current x axis, start dragging and hold down the Shift key. To shear a copy of the object instead of the object itself, start dragging and then hold down the Option key.

For finer control over the shearing, start dragging farther from the point of origin.



To shear by specifying an angle and an axis:

- 1 Select the object you want to shear.
- 2 Select the shear tool.
- 3 Choose one of two options:
 - To set the point of origin from which you want the object to be sheared, hold down the Option key and click.
 - To set the center point as the point of origin, double-click the shear tool icon.

The Shear dialog box appears.

- 4 Enter the new shear angle. The shear angle is the amount of slant to be applied to the object, relative to a line perpendicular to the shear axis.

Note: Contrary to the way the program works with other transformation tools, the shear angle is calculated clockwise from the current axis.

- 5 Specify the axis along which the object is to be sheared. You can shear an object along a horizontal, a vertical, or an angled axis.

If you choose an angled axis, enter the angle of the axis that you want, in degrees, relative to the x axis.

- 6 Click OK. If you click Copy instead of OK, a copy of the object is sheared and the original object remains the same.

For more information, see [Using the Transformation Tool Dialog Boxes](#).

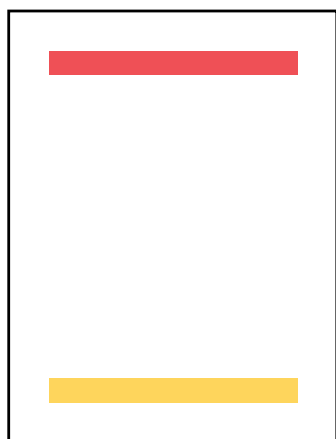
Repeating Transformations

Sometimes you may want to repeat the same transformation several times, especially when you are copying objects. The Repeat Transform command in the Arrange menu lets you repeat a move, scale, rotate, reflect, or shear operation as many times as you want. You must choose the command immediately after you perform the operation. This command does not work with the blend tool.

Using the Blend Tool

Blending lets you create a series of intermediate shapes and colors between two objects. You can blend two open paths, such as two lines, or you can blend two closed paths, such as two shapes. Depending on the way you paint the objects you are blending, you can produce airbrush effects such as complex shading, highlighting, and contouring.

One of the simplest uses for the blend tool is to distribute shapes evenly between two objects. In this example, a series of evenly spaced bars was created using the blend tool.



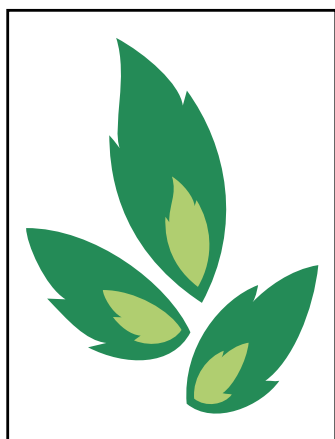
Select two objects



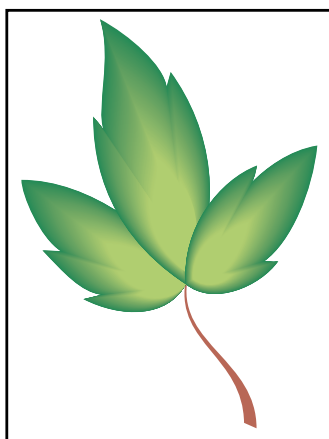
Use the blend tool to
distribute them evenly



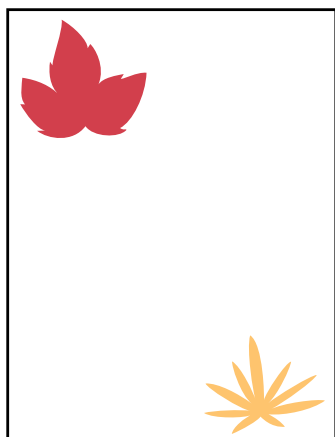
You can also blend between two open paths to create a smooth transition between objects, or combine blends of colors and objects to create color transitions in the shape of a particular object.



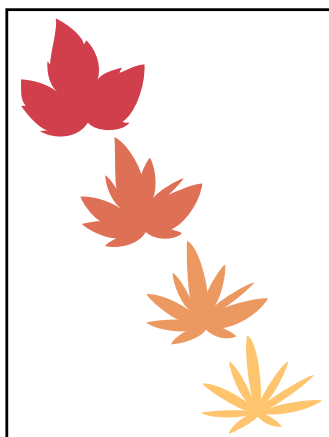
You can blend two overlapping similar shapes ...



to create a smooth blend of color in an object ...



or blend dissimilar shapes ...



to create a transformation of shape and color.

The following rules apply to blending shapes and their associated colors. (Color gradient fills do not follow the same rules. For information about gradient fills, see [Painting with Gradient Fills](#).)

- You can blend between only two objects at a time. You cannot blend between [groups](#) of objects. You can, however, use the [direct-selection tool](#) to select the components of groups, and blend between the components.



- You cannot blend between an open path and a closed path. Both paths must be either open or closed. You also cannot blend compound paths.

- You can blend between two objects painted with two process colors or with two custom colors. If you blend between one object painted with a process color and another object painted with a custom color, the blended shapes will be painted with an appropriate process color. If you blend between two different custom colors, process colors will be used to paint the intermediate steps. If, however, you blend between tints of the same custom color, the steps will all be painted with the custom color.

Note: If you are preparing artwork containing blends for separations, you can use tints to minimize the number of separations needed. To blend a custom color with white, do not use process white. Use zero percent tint of the same custom color instead of white to get an appropriate custom tint.

- You can also blend between two patterned objects, but they must have the same pattern.

To create a blend:

- 1 Place paths at the desired distance from each other and paint them (if desired).

- 2 Use a selection tool to select two or more points between which you want to blend.

If you are blending open paths, be sure to select at least one endpoint on each path; you can select more than one point on each path, but at least one of the selected points must be an endpoint.

- 3 Select the blend tool.



4 Click each selected path once, on two corresponding selected points. The Blend dialog box appears.



The dialog box displays a recommended number of steps, along with the percentage of change in the first and last steps, based on the two colors you are blending.

For example, if you blend an object that is filled with 100-percent black with an object that is filled with 100-percent white, the program enters 254 in the Number of Steps text box because 254 is the maximum number of printable gray values between black and white on a high-resolution output device. (The total number of printable colors would then be 256: the starting color, the ending color, and 254 colors in between.) If one object is 50-percent black and the other is 100-percent white, the program enters 127 in the Number of Steps text box.

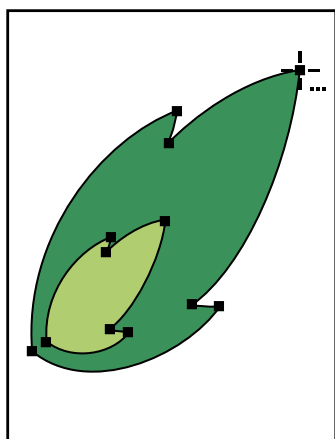
5 To change the number of steps in the blend, enter a whole number between 1 and 1000 in the Number of Steps text box.

6 To change the percentage of change in the first and last steps, enter any number between -100 and 200 in the First Blend and Last Blend text boxes. The default value is determined by the value in the Number of Steps field.

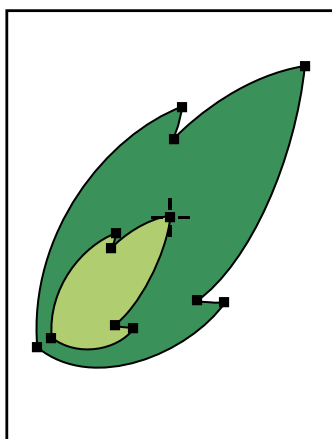
For example, if you specify 19 steps, the First Blend and Last Blend text boxes display 5 percent and 95 percent, respectively. This means that the first blend will occur 5 percent of the way between the two selected objects, and the last blend will occur 95 percent of the way between them.



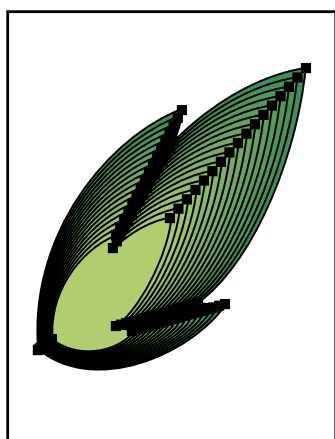
7 Click OK to create the blend. The entire set of blended objects (excluding the original paths) is selected and grouped.



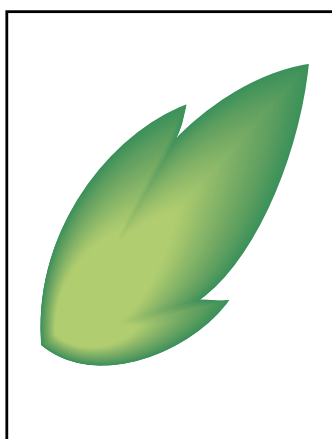
To blend, click an anchor point on first object ...



and then a corresponding anchor point on second object.



Result (object selected)



Result (object deselected)

Using Patterns

The Adobe Illustrator package comes with more than 50 patterns from the Adobe Collector's Edition: Patterns and Textures. The patterns include basic graphics, classic, cartographic, and lithologic designs. You can use these patterns as is or you can edit them. In addition, you can create your own patterns from scratch or from existing artwork. Once you have created a pattern, you use the Paint Style palette to paint with the pattern.

See the following topics for more information:

- [Filling with Patterns](#)
- [Creating Patterns](#)
- [Modifying Patterns](#)
- [Deleting Patterns](#)
- [Moving All Patterns in a File](#)
- [Previewing and Printing Patterns](#)

Creating Patterns

The Adobe Illustrator program builds a pattern from a pattern *tile*, which consists of the pattern objects (or artwork) surrounded by a rectangle, called a *bounding rectangle*. The bounding rectangle becomes the pattern's background. The rectangle must have square corners to tile properly and must be the backmost object in the stacking order. Also, the bounding rectangle cannot be rotated; it must have its edges parallel to the sides of the window, not to the x and y axes.

You can create patterns from scratch with any of the tools in the Adobe Illustrator program. Once you create a pattern, you can customize it by resizing the pattern, moving or transforming it, or coloring its objects. For information on creating specific types of patterns, see the following topics:

- [Constructing Simple Patterns](#)
- [Constructing Geometric Patterns](#)
- [Constructing Patterns with Irregular Textures](#)

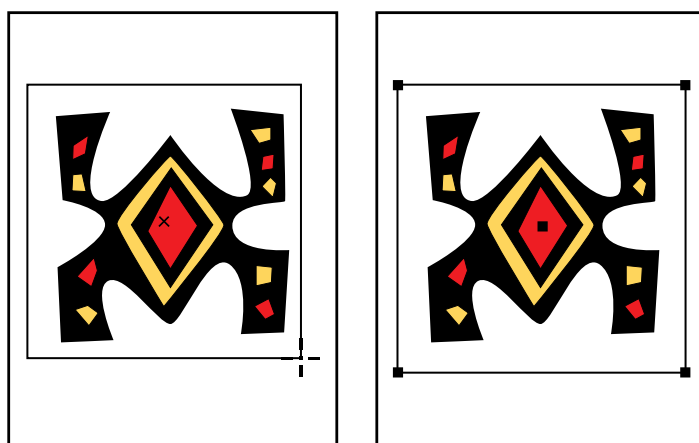
Constructing Simple Patterns

The simplest way to construct a pattern is to draw a bounding rectangle around any graphic or text object. Then you make the rectangle the backmost object to make the pattern tile and paint the rectangle with a different fill or stroke value than the object. Finally, you define the pattern tile as a pattern using the Pattern dialog box.

To make a pattern easier to print, remove any unnecessary detail from the pattern artwork and group objects that are painted the same color so that they are adjacent in the stacking order.

To create a pattern from existing artwork:

1 Draw a rectangle around the artwork you want to define as your pattern. If necessary, make the rectangle larger and then scale it later.

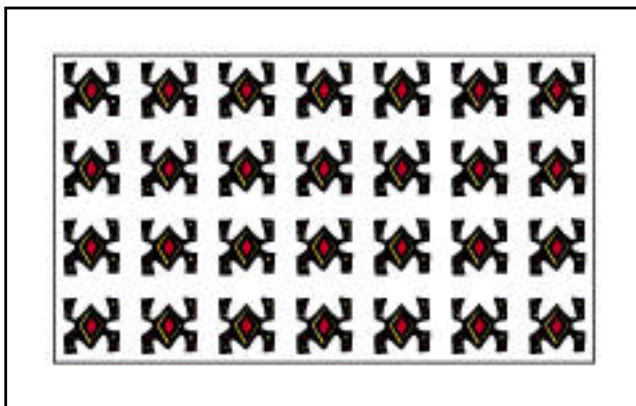


For greatest efficiency in previewing and printing, the rectangle should be about 1-inch square. You can draw a rectangle between 1/4-inch and 3-inches square. The more complex the pattern, the smaller the rectangle should be; however, the smaller the rectangle (and the pattern tile it creates), the more copies will be needed to create the pattern. If you are creating a simple pattern, you may want to draw a larger rectangle.

2 Choose Send to Back from the Arrange menu to make the rectangle the backmost object. The rectangle becomes your pattern's background.



- 3 Paint the rectangle using the Paint Style palette. If you wish to outline your pattern boundaries, stroke the rectangle. (You cannot paint the rectangle with another pattern.) Make sure that the fill value is different from the colors at the edges of the pattern object, or the object will not be visible against the background.
- 4 Use the selection tool to select the bounding rectangle and its contents.
- 5 Choose Pattern from the Object menu. The Pattern dialog box appears.
- 6 Click New. A preview of the pattern tile appears in the upper right corner of the dialog box.
- 7 Name the pattern. The name may contain up to 31 characters. Click OK.



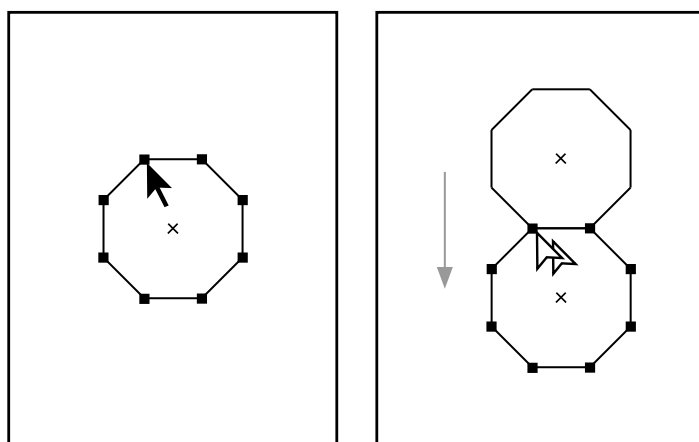
Object filled with pattern

Constructing Geometric Patterns

To construct a geometric pattern that tiles uniformly, you first construct a geometric object that contains a center point and paint the object. For example, the octagon in the following illustrations was created by using the Polygon filter, rotating the resulting octagon 22.5 degrees using the Rotate Each filter, and then adding a center point using the Attributes dialog box under the Object menu. You then arrange copies of the object into the pattern you desire, and draw the bounding rectangle around the pattern. Finally, you define the pattern tile as a pattern using the Pattern dialog box.

To construct a geometric pattern:

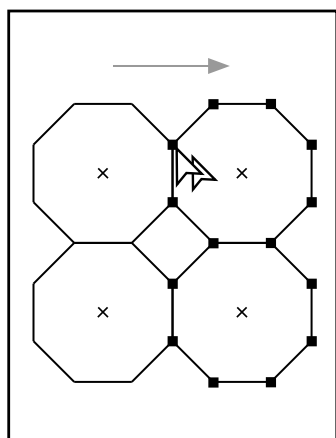
- 1 Make sure that the [Snap to Point option](#) is on in the General Preferences dialog box.
- 2 Select the geometric object.
- 3 For precise positioning, use the selection tool and grab the selected object by one of its points.
- 4 Begin dragging a copy of the object vertically, and then hold down the Option key and the Shift key. The Option key copies the object while the Shift key constrains its movement.



- 5 When the copy of the object has snapped into place, release the mouse button and then the Option and Shift keys.
- 6 Select both objects and grab them by a point.



7 Begin dragging the objects to the right, and then hold down the Option and Shift keys to create a copy and constrain the move.



8 When the copy of the object has snapped into place, release the mouse button and then the Option and Shift keys.

9 Continue repeating steps 3 through 8 until you've built the pattern you want.

To define the geometric objects as a pattern:

1 Select the rectangle tool.

2 Start drawing the bounding rectangle at the center point of the upper left object.

3 Stretch the boundary to snap to the center point of the lower right object.

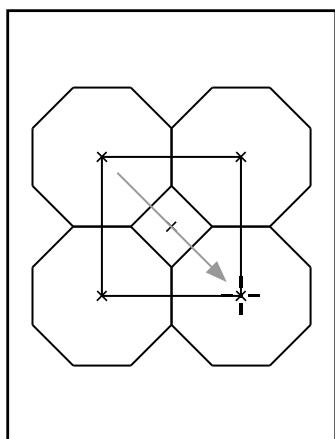
4 Paint the rectangle and the octagons the desired color. The following illustrations show the rectangle painted with no fill and no stroke, and the diagonal pairs of octagons filled with gray and black, respectively.

5 With the rectangle selected, choose Send to Back from the Arrange menu.

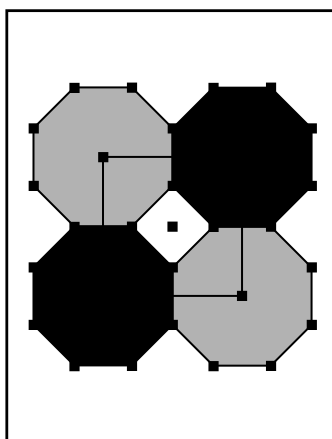
6 To make the pattern easier to print, delete any unnecessary detail from the artwork. If possible, group objects with the same paint attributes so they are adjacent in the stacking order.



7 Select the entire pattern tile including the bounding rectangle.



Draw the bounding rectangle from center point to center point.



Paint the rectangles and objects the desired color.

8 Choose Pattern from the Object menu. The Pattern dialog box appears.

9 Click New. A preview of your new pattern tile is shown in the lower right corner of the dialog box.

10 Name the pattern, and click OK.

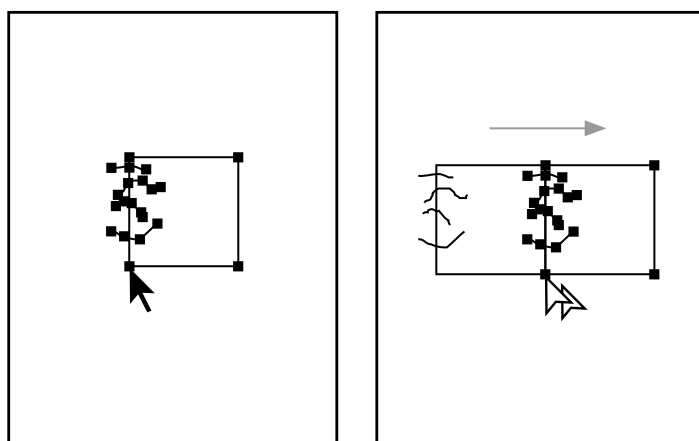
You can now use the Paint Style palette to paint an object with your newly created pattern.

Constructing Patterns with Irregular Textures

You can create an irregularly textured pattern that will tile seamlessly. You do so by creating a pattern that repeats itself where it intersects the bounding rectangle, but remains irregular in appearance within the rectangle.

To create an irregular texture:

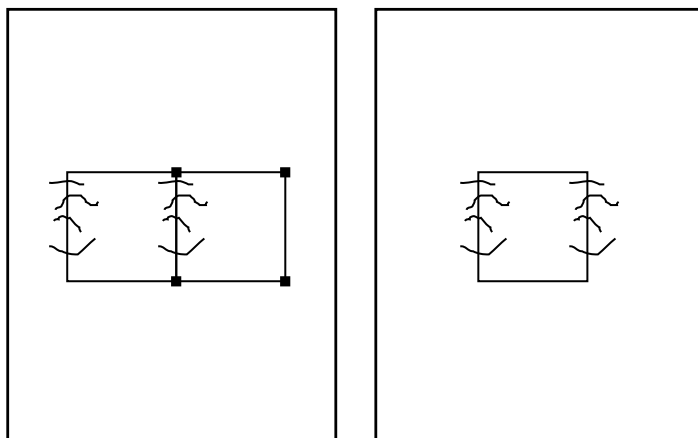
- 1 Draw a bounding rectangle.
- 2 Start drawing your texture with the objects or lines that intersect only the left side of the bounding rectangle. When you have finished, select the lines and the rectangle.
- 3 Place the pointer on the lower left corner of the rectangle.
- 4 Begin dragging the rectangle to the right, then hold down the Option and Shift keys to create a copy and to constrain the move.



- 5 When the upper left corner point of the copy snaps to the upper right corner point of the bounding rectangle, release the mouse button and then the Option and Shift keys.
- 6 Click outside the rectangle to deselect it.



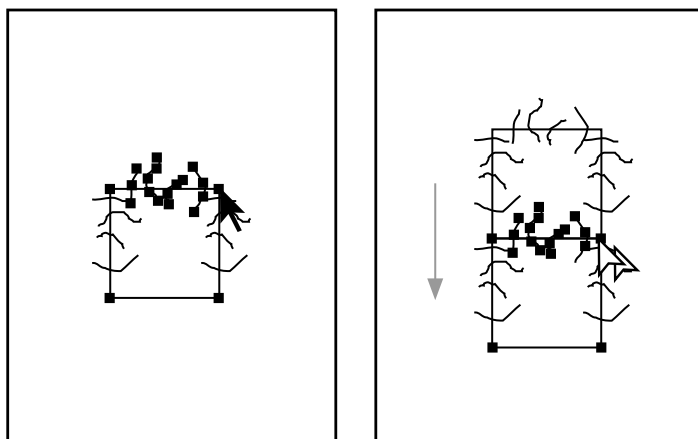
7 Select the right rectangle and delete it.



Shortcut: If you know the exact dimensions of the rectangle, you can eliminate steps 3 through 7 by selecting only the lines and using the Move command to specify a horizontal move the width of the rectangle. Be sure to click Copy instead of OK in the Move dialog box.

8 Using the freehand tool, continue drawing your texture with only the objects or lines that intersect the top side of the rectangle. When you have finished with the top side only, select all of the lines crossing the top side and the bounding rectangle.

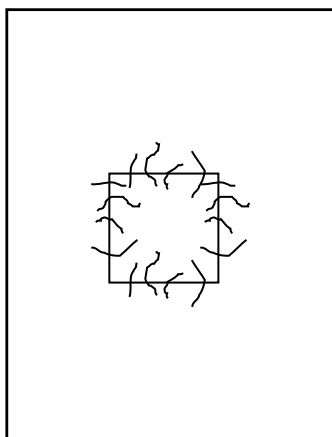
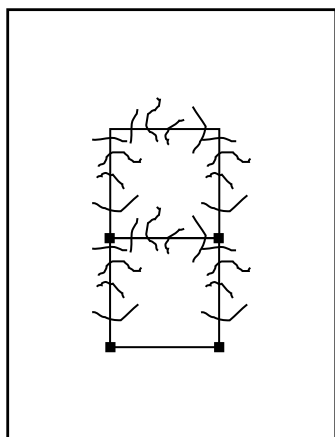
9 Place the pointer on the upper right corner of the rectangle. Begin dragging the rectangle down, and then hold the Option and Shift keys to create a copy and constrain the move.



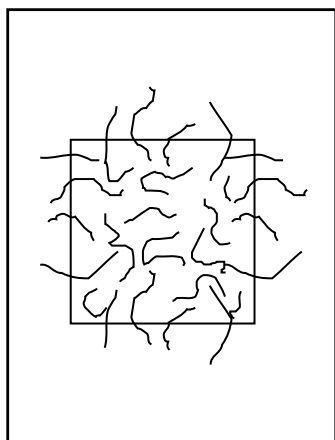
10 When the upper left corner point of the copy snaps to the lower left corner point of the rectangle, release the mouse button and then the Option and Shift keys.

11 Deselect everything.

12 Select the lower rectangle and any objects that don't cross the top rectangle, and delete them.



13 Using the freehand tool, fill in the middle of the rectangle with your texture. Be careful not to intersect any of the rectangle edges.



To paint the texture:

1 Select all the elements of the pattern tile, except the bounding rectangle.

2 Choose Paint Style from the Object menu. The Paint Style palette appears.

3 Specify a stroke attribute and click OK.



4 Select the bounding rectangle only.

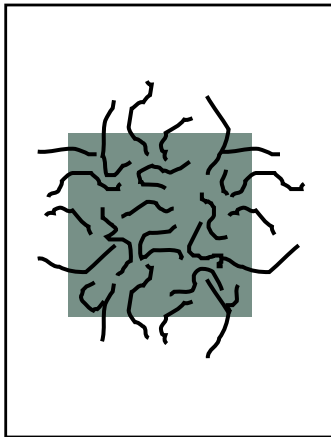
5 Paint the rectangle using the Paint Style palette. To make the pattern boundaries invisible, make the stroke transparent.

To define the artwork and bounding rectangle as a pattern:

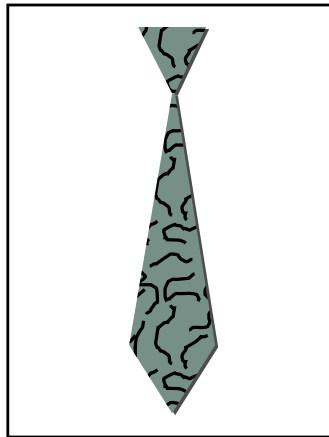
1 Select the entire pattern tile.

2 Choose Pattern from the Object menu. The Pattern dialog box appears.

3 Click New, name the pattern, and click OK.



Final pattern



**Object filled with pattern
at left**

Using Patterns in Your Artwork

To use patterns in your artwork, you use the [Paint Style palette](#). Like custom colors and gradient fills, patterns are saved with the current document. You can use the Import Styles command to load patterns from other documents or to customize your startup files so that patterns you use frequently are loaded when the program is opened. See [Importing Styles](#) for more information on using the Import Styles command.

Modifying Patterns

You may want to use a pattern that you have already created and edit it to create a new pattern. You can retrieve a pattern's original artwork by pasting a copy of the pattern into your artwork document using the Paste option in the Pattern dialog box.

Pasting patterns

Once you have pasted the pattern into your artwork, you can make any changes to it you want and then define it as a new pattern.

To paste an existing pattern into your artwork:

- 1 Make sure that nothing is selected in your artwork.
- 2 Choose Pattern from the Object menu. The Pattern dialog box appears.
- 3 Click to select the name of the pattern that you want to paste, click Paste, and then click OK. The pattern is pasted into your artwork document.

Redefining patterns

After you have created a pattern, you can redefine it by changing its bounding rectangle or its contents while keeping the original pattern name. Any existing objects painted with that pattern are automatically painted with the new definition rather than with the old definition.

To redefine a pattern:

- 1 Open the document containing the new pattern definition.
- 2 If you want to keep different definitions of the same pattern name in several documents, close any documents that you do not want to be affected.
- 3 Select the rectangle and its contents.
- 4 Choose Pattern from the Object menu. The Pattern dialog box appears with a list of all the available patterns.
- 5 Select the name of the pattern to be redefined.
- 6 Click OK to save the new pattern definition with the original pattern name; then click OK again.

Deleting Patterns

You should eliminate unused patterns in your file. To delete a pattern, use the Delete option in the Pattern dialog box. Any objects painted with a deleted pattern are filled with black. In addition, the Select All Unused option in the Pattern dialog box searches all open artwork documents and finds all patterns that are not currently in use.

To select all unused patterns:

- 1** Choose Pattern from the Paint menu. The Pattern dialog box appears.
- 2** Click the Select All Unused option. All the unused patterns are highlighted in the pattern list.
- 3** Click Delete if you want to delete the unused patterns. If you want to save any of the patterns, hold down the Shift key and click to deselect the patterns you do not want to delete.
- 4** Click OK.

Moving All Patterns in a File

Patterns begin tiling from the ruler origin, and continue to tile in a left-to-right sequence, from bottom to top, until the object is filled. To adjust where all patterns in a file begin tiling, you can change the document's ruler origin.

Do not change the ruler origin unless you want to adjust where all the patterns in a file begin tiling.

To move all of the patterns within a file:

- 1** Choose Show Rulers from the View menu.
- 2** Move the selection pointer to the box in the lower right corner where the rulers intersect.
- 3** Hold down the mouse button, and begin dragging into the window. Two intersecting lines, indicating the ruler origin, follow the pointer. When the ruler origins are positioned where you want them, release the mouse button. If you need help with this step, see [Changing the Ruler Origin](#).

All patterns within the file will begin tiling from the new ruler origin. If you have moved pattern tiles within objects, the pattern tiles are now moved from the new ruler origin.

Previewing and Printing Patterns

The Preview and Print Patterns option in the [Document Setup dialog box](#) lets you choose whether to preview and print patterns in your artwork. By default, this option is turned on. Because patterns can significantly slow previewing and printing, you may want to turn off the Preview and Print Patterns option. You can turn the option back on at any time if you want the patterns in your artwork to preview and print.

For more information about printing efficiently, [Additional Tips for Efficient Printing](#).

Using Plug-in Filters

A *plug-in filter* is a software module supplied separately from the Adobe Illustrator program.

A collection of plug-in filters are installed in the Plug-Ins folder within the Adobe Illustrator 5.5 folder. These filters allow you to apply special effects such as distortions, color manipulations, alignment of objects, calligraphic effects, and specialized object searches based on color or stroke and fill characteristics. You can also create a wide range of objects with plug-in filters, from spirals and stars, to distinct objects created by the intersection of paths in your artwork.

The plug-in filters included with this version of Adobe Illustrator comprise nine categories: [Colors filters](#), [Create filters](#), [Distort filters](#), [Objects filters](#), [Pathfinder filters](#), [Select filters](#), [Stylize filters](#), [Text filters](#), and [Other filters](#). With the exception of the Text filters, all of the filters work on path objects only, not on text objects. To apply a filter to type, convert the text object to a path using the [Create Outlines command](#).

Installing the Adobe Illustrator program automatically installs the plug-in filters. To install additional filters, drag the filter icons into the Plug-Ins folder within the Adobe Illustrator 5.5 application folder and then restart the Adobe Illustrator program; you can then select the filter from the submenu of the Filter menu.

To specify a different plug-ins folder:

- 1 Choose Preference/Plug-ins from the File menu. The Plug-ins Preference dialog box appears.
- 2 Select a folder from which Adobe Illustrator will install plug-in filters. Click Select.
- 3 Restart the Adobe Illustrator program. Adobe Illustrator will now only install plug-in filters from the selected folder.

To remove a plug-in filter:

- 1 Open the folder containing plug-in filters.
- 2 Locate the icon for the Adobe Illustrator plug-in filter you want to remove. Drag the filter out of the folder.



3 Restart the Adobe Illustrator program.

To use a plug-in filter:

1 Select the part of the image to which you want to apply the filter.

2 Choose a filter from the submenu of the Filter menu. In some cases, a dialog box will appear; after choosing the desired options, click OK.

To reapply a plug-in filter effect:

To reapply a filter, press Command-Shift-E, or select the filter name from the Filter menu; the last filter used is listed at the top of the menu selections.

Using the Artwork View Speedup and the 040 Speedup Filters

The Artwork View Speedup filter and the 040 Speedup filter accelerate graphics tasks.

The Artwork View Speedup Filter

The Artwork View Speedup filter speeds up redrawing and editing in [Artwork view](#). All artwork handles are displayed in black while editing in Artwork View with the Artwork View Speedup filter applied. To use the Artwork View Speedup filter, place it in the Plug-Ins folder.

The 040 Speedup Filter

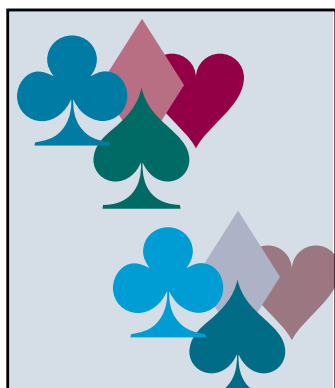
The 040 Speedup filter accelerates a variety of application tasks, including previewing, on Macintosh computers with the 68040 processor, such as the Quadra™ or Centris™. The 040 Speedup filter has no effect on machines other than those containing 68040 processors.

Using the Colors Filters

The Colors filters adjust colors, intensify or diminish an object's color, or distribute colors among objects according to their orientation or their [stacking order](#).

The Adjust Colors filter

The Adjust Colors filter changes the percentage of CMYK color in a selected object. You can either increase or decrease the percentage of each color, by entering the a positive value in the text box next to each color, and then clicking the Increase by % or Decrease by % radio button. For example, if you want to increase the percentage of cyan in your object's color by 20 percent, you enter 20 in the cyan text box, click the Increase by % button, and then click Apply or OK.



Adjust Colors changes the percentage of each CMYK color in a selected object

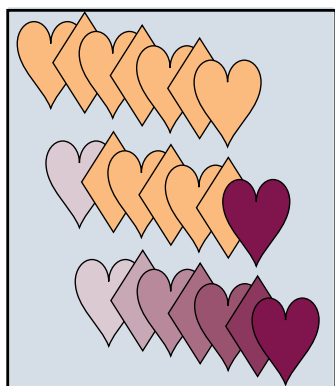
The Blend Front to Back, Blend Horizontally, and Blend Vertically filters

The Blend filters create a series of intermediate colors between a range of selected objects, based on the orientation or stacking order of the objects.

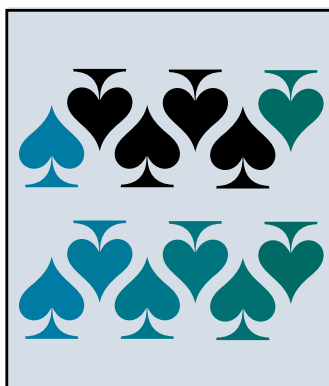
The Blend Front to Back filter selects the frontmost object in the stacking order and the backmost object in the stacking order, and paints all objects in between with the intermediate colors between those two objects.



The Blend Horizontally filter selects the two most separated objects in the horizontal plane of the image, and paints all objects in between with the intermediate colors between those two objects.

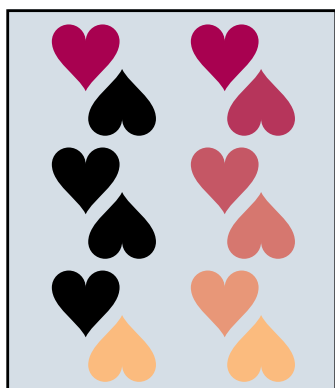


Blend Front to Back creates intermediate blend between shapes at farthest horizontal plane



Blend Horizontally creates intermediate blend between the frontmost and backmost objects

The Blend Vertically filter selects the two most separated objects in the vertical plane of the image, and paints all objects in between with the intermediate colors between those two objects.



Blend Vertically creates intermediate blend between the topmost and bottommost objects

The Custom to Process Filter

The Custom to Process filter converts custom colors to the equivalent combination of CMYK process colors. To use this filter, you must first move it from the Optional Plug-Ins folder to the Plug-Ins folder and restart Adobe Illustrator.

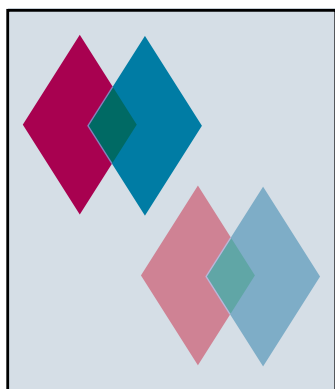


To convert custom colors to process colors:

- 1 Choose Colors/Custom to Process from the Filter menu. The Custom to Process dialog box appears.
- 2 Check Retain Tint if you want to retain the custom color tint from the Paint Style palette.
- 3 Press OK.

The Desaturate and Desaturate More filters

The Desaturate and Desaturate More filters decrease the color intensity of the selected object by decreasing the percentages of CMYK color values. To see how the Desaturate or Desaturate More filters affect your image, monitor the CMYK values in the Paint Style palette before and after using these filters.

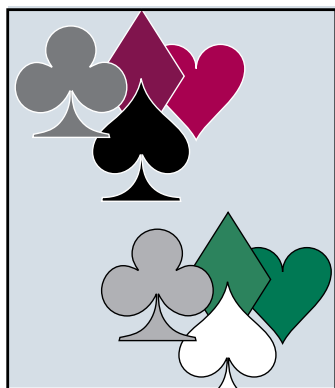


Desaturate decreases the CMYK values proportionately



The Invert Colors filter

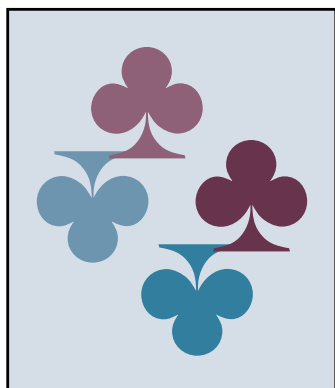
The Invert Colors filter creates a color negative (or inverse) of the selected object. When you invert an image, its color values on the CMYK scale are converted to the inverse of the CMYK color values of the original. For example, if an object originally was composed of 0 percent cyan and 80-percent yellow, the inverted image would contain 100-percent cyan and 20-percent yellow.



Invert flips CMYK values to the inverse values on all selected objects

The Saturate and Saturate More filters

The Saturate and Saturate More filters intensify the colors of the selected object by increasing the percentages of CMYK color values. To see how the Saturate or Saturate More filters affect your image, monitor the CMYK values in the Paint Style palette before and after using these filters.



Saturate intensifies the CMYK values proportionately

Using the Create Filters

The Create filters create special objects such as polygons, spirals, stars, and multiple trim marks, as well as special effects, such as mosaic tiling in a PICT image.

The Fill & Stroke for Mask Filter

The Fill & Stroke for Mask filter creates two objects that serve as the fill and stroke for a mask. The filter places the stroked object on top of the mask, and it places the filled object behind the masked objects.

To apply a fill and stroke to a mask:

- 1 Select the mask you want to fill or stroke.
- 2 Choose Paint Style from the Object menu. The Paint Style palette appears.
- 3 Check the Auto Apply box in, and choose a fill or stroke for the mask.
- 4 Choose Create/Fill & Stroke for Mask from the Filter menu. Click OK.

The Mosaic filter

The Mosaic filter creates sharp definition in an image by clustering pixels of similar color values together into individual tiles.

The Mosaic filter works only on PICT files, such as those generated by the Adobe PhotoShop™ program. When the Mosaic filter imports a PICT file into Adobe Illustrator, it creates the tiling effect on the image before it pastes the image into the artwork.



Mosaic tiles an image in a mosaic pattern



To use the Mosaic filter:

- 1 Choose Create/Mosaic from the Filters menu.
- 2 Select a PICT file to which to apply the Mosaic filter. Click OK. The Mosaic dialog box appears.

The dimensions of the PICT file are displayed at the top left of the dialog box. The filter automatically fills in options at the optimum levels for the image.

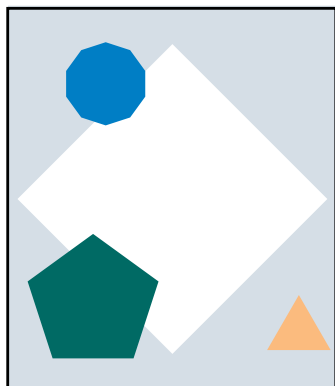
- 3 If desired, change filter options as follows:

- *Tile Spacing.* Enter the distance in points you want between each tile in the filtered image.
- *New Size.* Enter the desired length and width of the filtered image in points. For example, if you want the image to be 100 points by 200 points, you would enter 100 in the Horizontal text box and 200 in the Vertical text box.
- *Number of Tiles.* Enter the number of tiles in the horizontal and vertical directions you want your image to contain.
- *Use Ratio, Lock Width or Lock Height.* Set the number and size of tiles to conform to the image size you've entered in the New Size boxes. You can change the number of tiles in one direction, and lock the number of tiles in the other direction, using the Lock Width or Lock Height options. To have Adobe Illustrator automatically calculate a proportional ratio of tiles for the size indicated, click Use Ratio.
- *Color or Grayscale.* Check the appropriate option to import the image as either a color or black-and-white image.



The Polygon filter

The Polygon filter draws an object with a given number of sides of equal length, each side being the same distance from the center of the object.



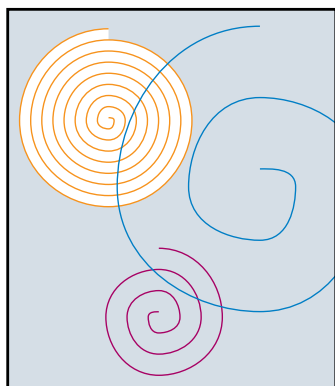
Polygon creates multisided regular objects

To use the Polygon filter:

- 1 Choose Create/Polygon from the Filter menu. The Polygon dialog box appears.
- 2 Enter the number of sides for your polygon and the distance from the center (the radius) that each line's endpoint will be placed.
- 3 Click OK.

The Spiral filter

The Spiral filter creates a spiral-shaped object of a given radius and number of winds (that is, the number of complete turns that the spiral will complete from start to finish).



Spiral creates any size spiral shape with multiple winds

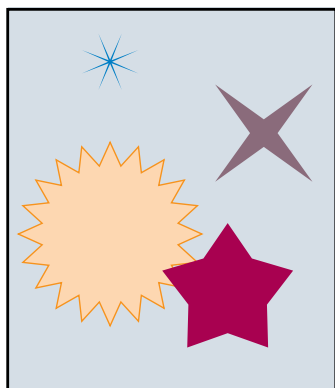


To use the Spiral filter:

- 1 Choose Create/Spiral from the Filter menu. The Spiral dialog box appears.
- 2 Enter the number of winds, the radius of the spiral from the center to the farthest point, and the direction of the spiral.
- 3 Click OK.

The Star filter

The Star filter creates a star-shaped object with a given number of points and size.



Star creates star shape with variable point size and depth

To use the Star filter:

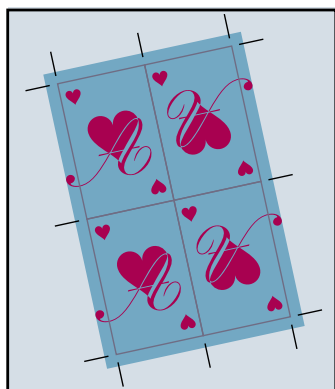
- 1 Choose Create/Star from the Filter menu. The Star dialog box appears.
- 2 Enter the number of points, the length of the first radius (that is, the distance from the center that the star's outermost points will be placed), and the length of the second radius (that is, the distance from the center that the star's innermost points will be placed).
- 3 Click OK.



The Trim Marks filter

The Trim Marks filter creates lines to indicate where a printed image should be trimmed. The marks can be created around a single object, or around multiple objects in your artwork. Since the trim marks created with the Trim Marks filter are not recognized as special objects by the Adobe Separator program, they do not affect the *bounding box*, or printable image area, around the artwork. This is useful when you want to create several sets of crop marks around objects on a page, for example, when you are creating a sheet of business cards to be printed.

Trim marks created with the Trim Marks filter do not replace crop marks created in Adobe Separator or crop marks created with the Make Cropmarks command in the Object menu. To create trim marks around an object, select the object and choose the Trim Marks command in the Create submenu of the Filter menu. The filter creates trim marks based on an imaginary rectangle drawn around the imageable area of the object.



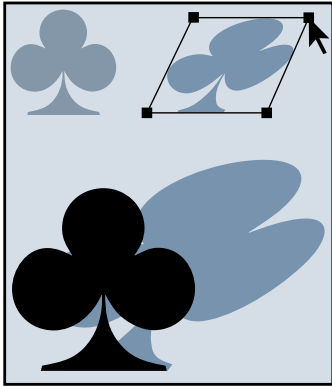
**Trim Marks creates multiple
crop marks on a page**

Using the Distort Filters

The Distort filters change an object's shape and path directions, to create special effects.

The Free Distort filter

The Free Distort filter varies the size and shape of an object by dragging the corner points of a Distort box. As you drag the corner points of the box, the object's shape is distorted accordingly.



Free Distort

To distort an object:

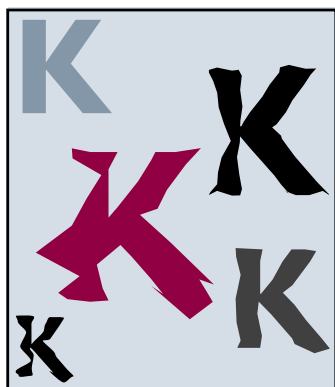
- 1 Select the object.
- 2 Choose the Distort/Free Distort from the Filter menu. The Free Distort dialog box appears.

The object's image is shown within the Distort Box. (If you don't want to see the object as you distort it, click Show Me to uncheck the box.)
- 3 Select any of the four corner points and drag to distort the object.
- 4 To return the object to its original shape and try again, press Reset.
- 5 When you are finished distorting the object, click OK.



The Roughen filter

The Roughen filter moves anchor points in a jagged array from the original path, creating a rough edge on the object.



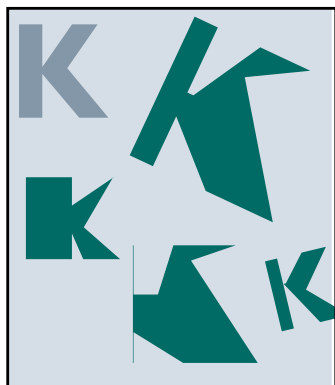
Roughen

To use the Roughen filter:

- 1 Select the object with a selection tool.
- 2 Choose Distort/Roughen from the Filter menu.

The Scribble filter

The Scribble filter randomly moves anchor points away from the original path.



Scribble

To use the Scribble filter:

- 1 Select the object with a selection tool.
- 2 Choose Distort/Scribble from the Filter menu.



The Tweak Filter

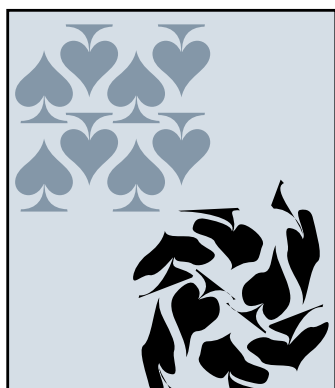
The Tweak filter moves points on the selected path by the amount you specify.

To use the Tweak filter:

- 1 Select the path to be tweaked.
- 2 Choose Distort/Tweak from the Filter menu.
- 3 In the Tweak dialog box, enter the amount by which you want to move points in the Horizontal and Vertical text boxes.
- 4 Select the types of points you want to move: anchor points, “in” control points (control points that lead into anchor points on the path), or “out” control points (control points that lead out of anchor points on the path).
- 5 Click OK.

The Twirl filter

The Twirl filter rotates a selection more sharply in the center than at the edges.



Twirl

To use the Twirl filter:

- 1 Select an object with a selection tool.
- 2 Choose Distort/Twirl from the Filter menu.
- 3 Enter a value for the twirl angle from -999 to 999.
- 4 Click OK.

Using the Objects Filters

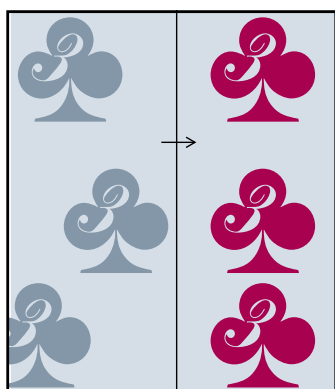
The Objects filters add anchor points, align objects horizontally and vertically, rotate and scale objects, and create copies of a path a specified distance from an original path. You can also replace a stroked path with a filled object.

The Add Anchor Points Filter

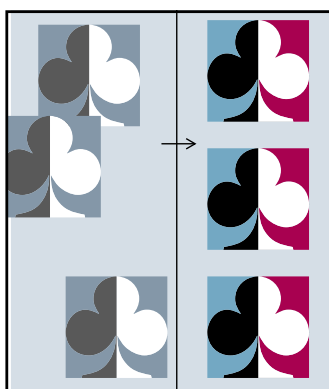
The Add Anchor Points filter adds an anchor point between two anchor points. This filter is especially useful for creating effects with the Punk, Bloat, Twirl, and Free Distort filters. To use the Add Anchor Points filter, select the object, and choose Object/ Add Anchor Points from the Filter menu.

The Align Objects filter

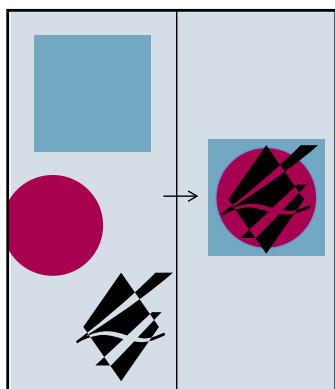
The Align Objects filter aligns selected objects along an axis that you specify, using the Align Objects dialog box.



Align Objects: Vertical Centers option



Align Objects: Vertical Centers and Distribute options



Align Objects: Vertical Centers and Horizontal Centers options



To align objects:

- 1 Select the objects you want to align.
- 2 Choose Objects/Align Objects from the Filter menu. The Align Objects dialog box appears.
- 3 Select Vertical or Horizontal to align the objects along the vertical or horizontal axis.
- 4 Select the appropriate option for anchor point alignment: along the top, center, or bottom anchor points for horizontal alignment, and the left, center, or right anchor points for vertical alignment. You can also select None if you don't want to align the objects along one of the axes.
- 5 If you want the objects to be distributed evenly along the axis, select the Distribute option.
- 6 Click OK.

The Distribute Objects Horizontally and Distribute Objects Vertically Filters

These two filters provide shortcuts to the Horizontal Distribute and Vertically Distribute options of the Align Filter.

To distribute objects on the horizontal axis:

- 1 Select the objects to be aligned on the horizontal axis.
- 2 Choose Objects/Distribute Horizontally from the Filter menu.

To distribute objects on the vertical axis:

- 1 Select the objects to be aligned on the vertical axis.
- 2 Choose Objects/Distribute Vertically from the Filter menu.

The Move Each Filter

The Move Each filter moves objects in a random or specified direction.

To use the Move Each filter:

- 1 Select the paths to move.
- 2 Choose Objects/Move Each from the Filter menu.



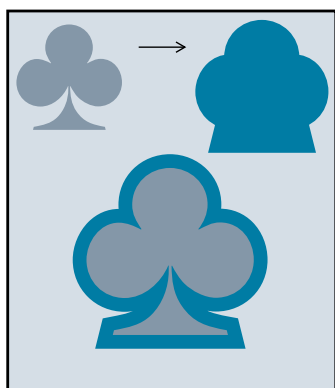
3 In the Move Each dialog box, enter the distances you want to move the selected paths horizontally and vertically. These numbers must be between -55.556 and 55.556 inches.

4 Choose one of two options:

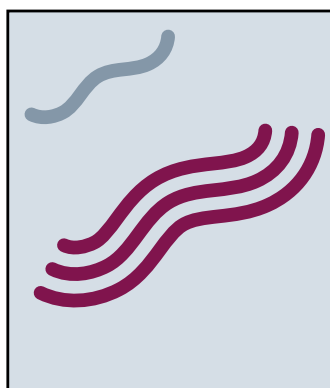
- To move the paths by the specified amounts, click OK.
- To move the paths by random amounts, click Random, and then click OK. The amounts shown in the Horizontal and Vertical text boxes specify the maximum distance the paths can move in each direction.

The Offset Path filter

You can create a replica of a path, set off from the selected path by a specified distance, using the Offset Path filter. This is useful when you want to create concentric shapes or make many replications of a path at a regular distance from the original path. You can create an offset path from a closed path or an open path; if created from a closed path, the new offset path appears the specified distance outside the original path.



Offset Path used on a closed path; path offset 3 points



Offset Path: path offset at +5 and -5

To create an offset path:

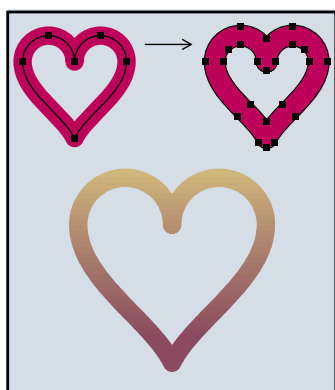
- 1 Select the paths you want to offset.
- 2 Select Objects/Offset Path in the Filter menu. The Offset Path dialog box appears.
- 3 Select the Offset distance, Line Join type, and Miter Limit (For a description of these options, see [Setting Line Attributes](#)).
- 4 Click OK.



The Outline Path filter

The Outline Path filter traces the outline of all stroked paths within the selected artwork, and substitutes a filled object of the identical width as the original stroked path. You can use this filter to create an overlay of your original artwork that strips out all stroked lines and replaces them with compound filled paths. This is useful when you prepare artwork for trapping color separations.

***Note:** Because the Outline Path filter deletes the original artwork, it's a good idea to make a copy of the artwork before applying the filter.*



**Outline Stroke: 4-point
stroke converted to filled
shape**

To create an outline of your artwork:

- 1 Select the artwork to outline. The image can contain both filled and stroked paths, but only stroked paths will be outlined.
- 2 Choose Objects/Outline Path in the Filter menu. The outline replaces the original artwork and is selected.

The Rotate Each Filter

The Rotate Each filter rotates objects in a random or specified direction.

To use the Rotate Each filter:

- 1 Select the paths to be rotated.
- 2 Choose Objects/Rotate Each from the Filter menu.



3 In the Rotate Each dialog box, enter the angle by which you want to rotate the selected paths. This number must be between -360 degrees and 360 degrees.

4 Choose one of two options:

- To rotate the objects by the specified amount, click OK.
- To rotate the objects by a random amount, click Random, and then click OK. The angle shown in the Angle text box specifies the maximum number of degrees the selected objects will rotate.

The Scale Each Filter

The Scale Each filter scales objects a random or specified amount.

To use the Scale Each filter:

1 Select the paths you want to scale.

2 Choose Objects/Scale Each from the Filter menu.

3 In the Scale Each dialog box, enter the percentages by which you want to scale the selected paths in the Horizontal and Vertical text boxes. These numbers must be between -4000 and 4000 percent.

4 Choose one of two options:

- To scale the objects by the specified amounts, click OK.
- To scale the objects by random amounts, click Random, and then click OK. The amounts shown in the Horizontal and Vertical text boxes specify the maximum percentages the objects can be scaled in each direction.

Using the Pathfinder Filters

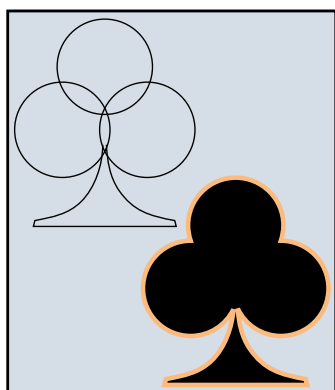
The Pathfinder filters combine, isolate, and subdivide paths, and build new paths formed by the intersection of objects. These filters also enable you to trap colors on objects and text.

Most of the Pathfinder filters create compound paths. A compound path is a group of two or more paths that are painted so that overlapping paths can appear transparent. Except where noted, the paths created by all Pathfinder filters are assigned the same paint style as the top path in the current layer's stack. (For more information about the stacking order, see [Stacking Objects](#).)

Note: Applying the Pathfinder filters to very complex selections, such as those consisting of many fine overlapping blends, may fail due to computer memory limitations. If you are unable to successfully use a Combine command, try increasing the memory size allotted to the Adobe Illustrator program.

The Unite filter

The Unite filter traces the outline of all selected objects as if they were a single merged object. Any paths inside the selected objects are ignored.

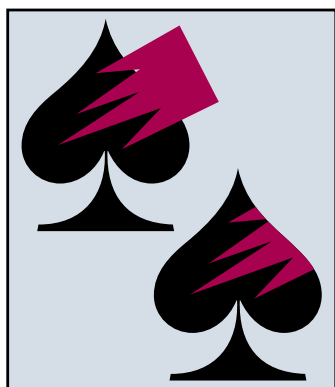


Unite creates a single, merged club shape from four separate original shapes



The Intersect filter

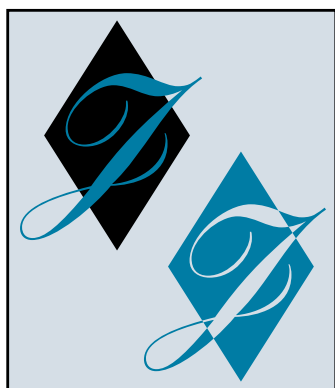
The Intersect filter traces the outline of all overlapping shapes in the selected objects, ignoring any nonoverlapping areas.



Intersect creates a new object from the intersection of the spade and jagged shape

The Exclude filter

The Exclude filter traces all nonoverlapping areas of the selected objects. You can use this filter to “knock out,” or cover up, parts of an image, by placing an object over the unwanted area. Any area of overlap will not be traced in the grouped path.



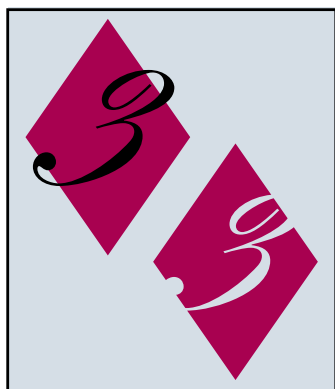
Exclude knocks out area where “J” overlaps diamond

The Minus Front filter

The Minus Front filter traces the backmost path in the stacking order, ignoring any areas overlapped by paths more forward in the stacking order.



You can use this filter to knockout areas of your illustration by adjusting the stacking order. Adjust the area to be eliminated by selecting an object and using the Send to Front command or the Send to Back command to change the stacking order, and then apply the filter.

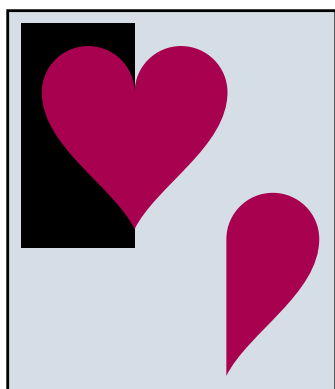


Back Minus Front

The Minus Back filter

The Minus Back filter traces all areas in the frontmost path, ignoring any areas overlapped by paths behind in the stacking order (for information about the stacking order, see [Stacking Objects](#)).

You can use this filter to knockout areas of your illustration by adjusting the stacking order. Adjust the area to be eliminated by selecting an object and using the Send to Front command or the Send to Back command to change the stacking order, and then applying the filter.

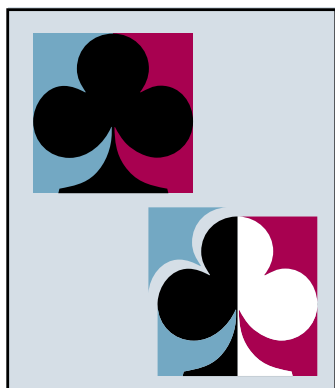


Front Minus Back

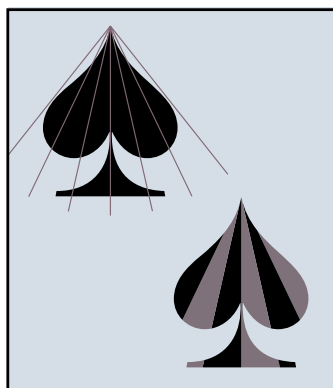


The Divide filter

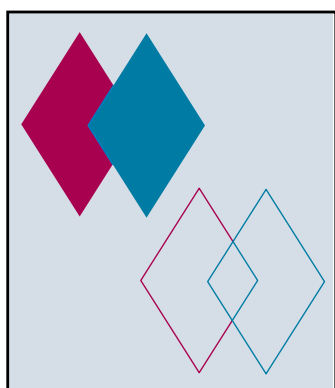
The Divide filter divides an image into its component filled faces (a face is an area undivided by a line segment). Applying the Divide Fill filter to an object creates independent faces that can be ungrouped and independently manipulated.



Divide Faces creates independent objects from the artwork's component faces



Divide Faces used with lines to cut spade into segments; segments then filled



Divide Edges creates independent stroked lines divided at each intersection

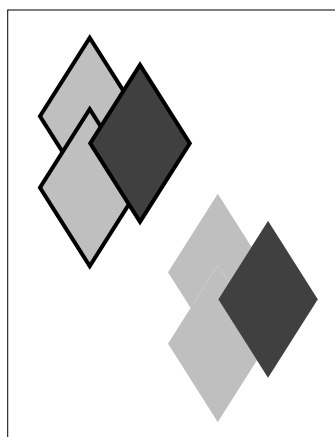
The Outline filter

The Outline filter divides an image into its component line segments, or edges. Each edge can be ungrouped and independently manipulated. This filter is useful for preparing an image when you need to create trap for overprinting objects.

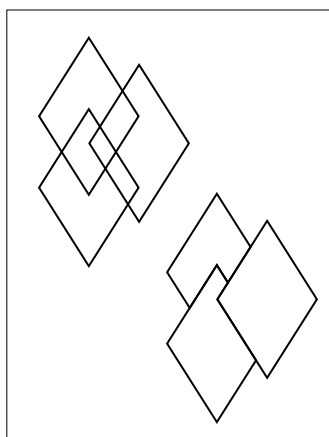


The Trim Filter

The Trim filter removes the part of a filled path that is hidden and does not merge similarly colored objects.



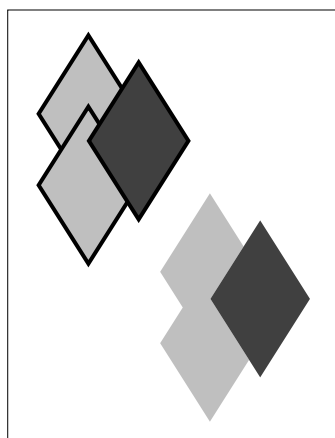
Objects before and after Trim in Preview view



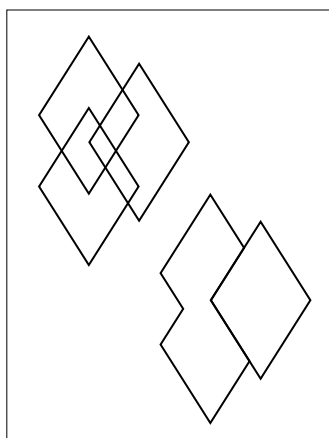
Objects before and after Trim in Artwork view

The Merge Filter

The Merge filter removes the part of a filled path that is hidden and merges any adjoining or overlapping objects filled with the same color.



Objects before and after Merge in Preview view



Objects before and after Merge in Artwork view

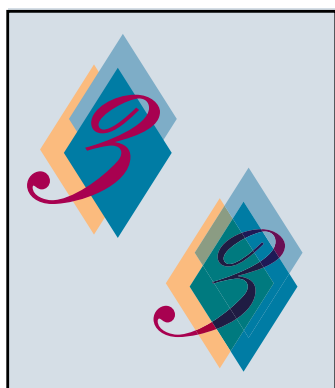
The Crop filter

The Crop filter divides the image into its component filled faces (a face is an area undivided by a line segment), and then deletes all the parts of the image that fall outside of the boundary of the topmost object.



The Hard filter

The Hard filter mixes two or more colors to create a color that represents how colors will overprint. The mix color is created by combining the highest CMYK value from each color in the selection. For example, if Color 1 is created from C=20, M=66, Y=40, K=0, and Color 2 is created from C=40, M=20, Y=30, K=10, the resulting hard mix color is C=40, M=66, Y=40, and K=10.

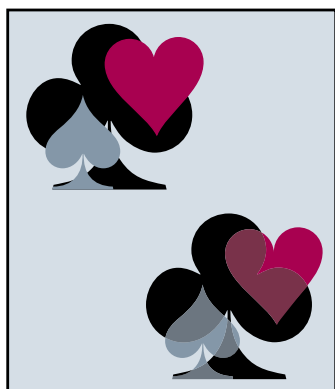


Mix Hard

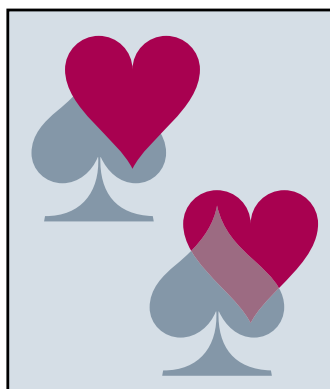
The Soft filter

The Soft filter creates a transparent effect on overlapping colors in the image, and then divides the image into its component faces (a face is an area undivided by a line segment).

When you choose the Soft filter from the submenu, a dialog box appears that allows you to enter a value between 1 and 100 to determine the percentage of transparency you want in the overlapping colors. A low value produces a low level of transparency; a high value produces a high level of transparency.



Mix Soft: rate of 50



Mix Soft: rate of 150



The Trap Filter

To compensate for potential gaps between colors in artwork, print shops traditionally have used a technique called *trapping* to create a small area of overlap between two adjoining colors. You can use the Trap filter as a tool to create trap between objects in your artwork.

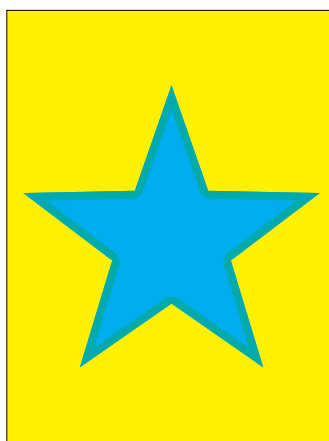
For a complete description of trapping, see [Step 4: Create Trap to Compensate for Misregistration On-Press](#).

Although the Trap filter has been designed to automate the process of creating trap between objects, it is not intended to be used with highly complex artwork. For example, it does not work with gradients, patterns, placed objects, or strokes. If you need to create trap for complex images, you can select the individual parts of the image that can be trapped and use the Trap filter to create trap between those objects, or you can use a separate, dedicated trapping program.

The Trap filter automatically identifies the lighter artwork—whether it's the object or background—and overprints (traps) it into the darker artwork.



Light object and dark background: The Trap filter creates a spread trap from the object that underlies the dark background.



Dark object and light background: The Trap filter creates a choke trap from the background that overlaps the dark object.



In some cases, the top and bottom objects may have similar color densities so that one color is not obviously darker than the other. In this case, the Trap filter will determine the trap based on slight differences in color; if the trap chosen by the Trap filter is not satisfactory, you can use the Reverse Trap option to switch the way in which the filter traps the two objects.

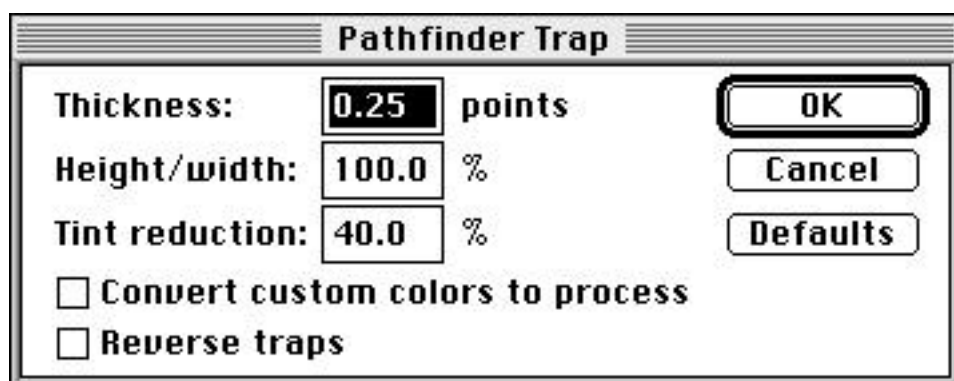
Determining the amount of trap to use with the Trap filter

The amount of trap required for a piece of artwork depends on the accuracy of the registration of the press that will be used to print your piece, and so varies by printing press. For this reason, you need to consult your print shop for the amount of misregistration expected. When using the Trap filter, you should enter the line weight your print shop recommends for the trap; for example, if your print shop recommends a trap of 0.5 point, you would enter 0.5 in the Trap Thickness text box in the Trap filter. Typical trap thickness ranges between 0.3 point and 1 point.

You should also be aware that after you have created a trap for an object, the amount of trap will increase or decrease if you change the scale of the object. For instance, if you create a graphic that has a .5 point trap and scale it to five times its original size, the result will be a 2.5 point trap for the enlarged graphic. Therefore it is generally best to scale your graphic to the size it will be used before adding traps.

To use the Trap filter:

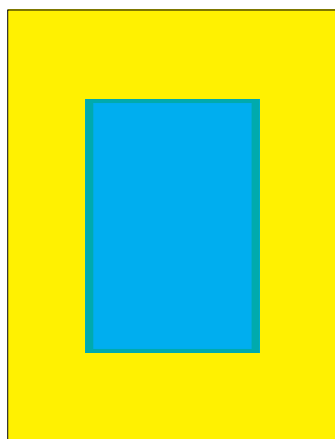
- 1 Select two or more objects.
- 2 Choose Pathfinder/Trap from the Filter menu. The Trap dialog box appears.



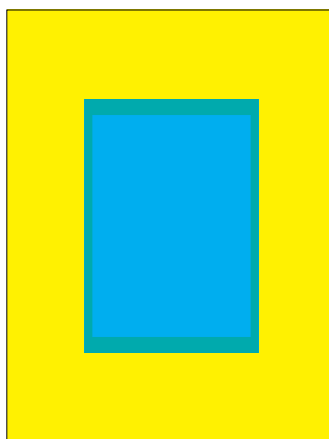
3 Enter the trap thickness you want in the Thickness text box. Trap thickness is entered in points and is typically in the range of 0.3 to 1.0 points.

4 Enter a value in the Height/Width Percentage text box to specify the trap on horizontal lines as a percentage of the trap on vertical lines.

Specifying different horizontal and vertical trap values lets you compensate for on-press irregularities, such as paper stretch. Contact your print shop for help in determining this value. The default value of 100 percent results in the same trap width on horizontal lines as that on vertical lines. To increase the trap thickness on horizontal lines without changing the vertical trap, set the Height/Width value to greater than 100 percent. To decrease the trap thickness on horizontal lines without changing the vertical trap, set the Height/Width value to less than 100 percent.



Height/Width set to 50%.



Height/Width set to 200%.

5 Enter a Tint Reduction value to change the tint of the trap.

A Tint Reduction value of 100 percent results in a trap that is 100 percent of the CMYK values of the lighter trapped color and 100 percent of the CMYK values of the darker trapped color.

A Tint Reduction value of less than 100 percent creates a trap that is a smaller percentage of the CMYK values of the lighter color trapped and 100 percent of the darker color trapped.

See [Trapping with Tints](#) in the following section for more information.



6 Select additional trapping options as required:

- Select the Convert Custom Colors to Process option when trapping custom colors if you want to convert the trap into equivalent process colors. This creates an object of the lighter of the custom colors and overprints it.
- Select Reverse Traps to trap darker colors into lighter colors. This option does not work with so-called enriched black colors which contain additional CMY colors to enrich 100 percent black values.

7 Click OK to create trap on the selected objects. Click Default to return to the default trapping values.

Trapping with tints

When trapping two light-colored objects, the trap line may show through the darker of the two colors, resulting in an unsightly dark border. For example, if you trap a light yellow object into a light blue object, a bright green border is visible where the trap is created.

To prevent the trap line from showing through, you can specify a tint of the trapping color (in this example, the yellow color) to create a more pleasing effect. Use the Tint Reduction text box in the Trap dialog box to specify a tint.



The Tint Reduction value reduces the CMYK values of only the lighter color being trapped; the darker color values remain at 100 percent. At a Tint Reduction value of 100 percent, the trap line between a yellow value of 80 percent and a cyan value of 100 percent contains 80 percent yellow and 100 percent cyan. At a Tint Reduction of 50 percent, the trap line contains 40 percent yellow and 100 percent cyan.



Tint Reduction value of 100%: The resulting trap line contains 100% of the CMYK values of the lighter color



Tint Reduction value of 50%: The resulting trap line contains 50% of the CMYK values of the lighter color

The Tint Reduction value affects the CMYK values of custom colors as well. At a Tint Reduction of 50 percent, the trap line for an object filled with a custom color that is 10 percent cyan, 20 percent magenta, 80 percent yellow, and 0 percent black contains 5 percent cyan, 10 percent magenta, 80 percent yellow, and 0 percent black. The background color remains at 100 percent of its tint.

The Tint Reduction value is set by default at a value of 40 percent. Check with your print shop to find out what percentage of tint is most appropriate given the type of press, the inks and paper stock used, and so on.



Trapping text

Trapping text can present special problems, and it requires an additional step when using the Trap filter. You should avoid applying process colors to text at small point sizes, since any misregistration can make the text difficult to read. Likewise, trapping text at small point sizes can result in hard-to-read text. As with tint reduction, check with your print shop before trapping such text. For example, if you are printing black text on a colored background, simply overprinting the text onto the background may be enough.

To use the Trap filter with text, you first need to convert the text to outlines. You can do this with the Create Outline command in the Type menu. However, when you convert text to outlines, hinting is lost. Hinting optimizes how type prints at small point sizes on printers with resolution's of 600 dots per inch (dpi) or fewer.

To trap text with the Trap filter:

- 1 Select the text you want to trap with the object selection tool.
- 2 Choose Create Outlines from the Type menu.
- 3 Select the objects and text you want to trap with a selection tool.
- 4 Choose Pathfinder/Trap from the Filter menu. The Trap dialog box appears.
- 5 Set the trap options you want, and click OK.

The Pathfinder Options Filter

The Pathfinder Options filter allows you to change the precision of Pathfinder filters, automatically remove redundant points created with Pathfinder commands, and set the Divide and Outline commands to remove unpainted artwork.

To set Pathfinder options:

- 1 Choose Pathfinder/Options from the Filter menu. The Pathfinder dialog box appears.



2 Enter a precision value in the precision text box. The value you enter affects the precision with which Pathfinder filters calculate when applied. The more precise the calculation, the more accurate the drawing and the longer the filter takes to complete the command.

3 If desired, select one of two options:

- The Remove Redundant Points option deletes any coincident points that are created when using a Pathfinder filter.
- The Divide and Outline will Extract Unpainted Artwork option automatically deletes any unfilled objects remaining in the selected artwork after using the Divide filter or the Outline filter.

4 Click OK.

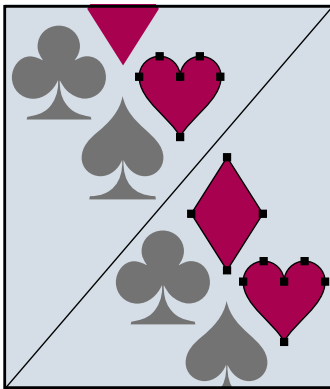
Using the Select Filters

The Select filters select matching parts of an illustration by selecting objects with the same colors, paint styles, masks, and stroke and fill weights. The Select filters are helpful when you want to edit a number of objects in the same way but have not previously grouped the objects. You can also select stray single points in an illustration.

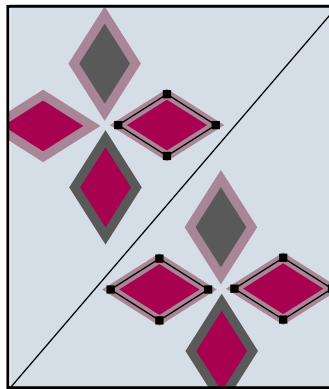
The Same Fill Color and Same Paint Style filters

The Same Fill Color filter selects all objects in the image that contain the same fill color as the selected object.

The Same Paint Style filter selects all objects in the image that have the same fill, stroke, and stroke weight attributes as the selected object.



Same Fill selects objects with same fill color



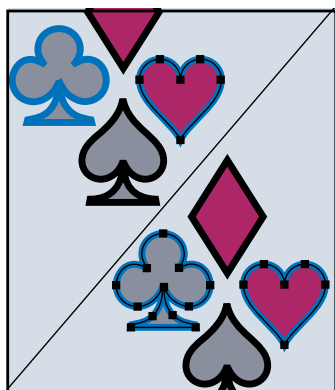
Same Paint Style selects objects with same fill and stroke



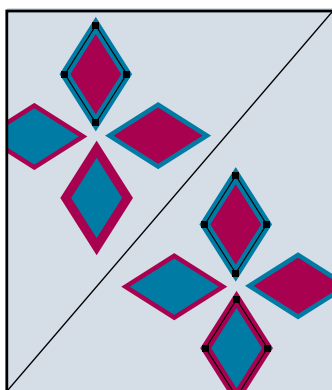
The Same Stroke Color and Same Stroke Weight filters

The Same Stroke color filter selects all objects in the image that have the same stroke color as the selected object.

The Same Stroke Weight filter selects all objects in the image that have the same stroke weight as the selected object.



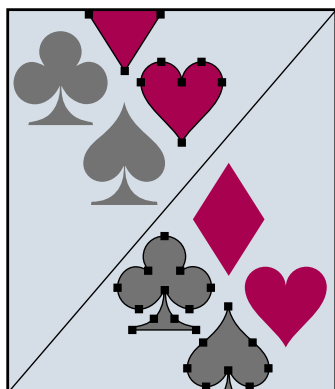
Same Stroke Color selects objects with same stroke color



Same Stroke Weight selects objects with same stroke weight

The Select Inverse filter

The Select Inverse filter selects every object in the image that was not selected when the Select Inverse filter was applied.



Inverse selects all objects not currently selected

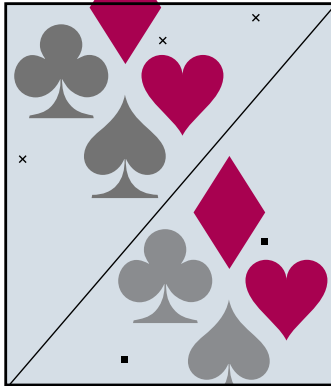
The Select Masks Filter

The Select Masks filter finds and selects masks in the artwork. If no objects are selected, the filter selects all masks. If objects are selected, the filter deselects objects that are not masks.



The Select Stray Points filter

The Select Stray Points filter finds and selects all isolated single points in the artwork. This is useful if you want to clear any extraneous points from your artwork. For example, if you inadvertently click the pen tool in the artwork area, and then choose another tool, a single stray point will be left on the image. After you select all stray points in the artwork, you can then press Delete to erase them.



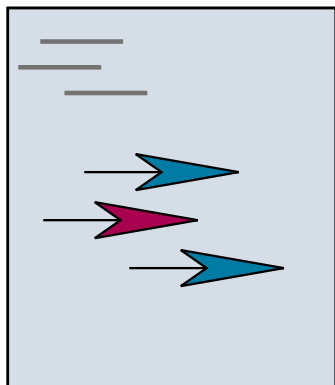
Stray Points selects only individual points

Using the Stylize Filters

The Stylize filters let you add special effects and elements to the artwork, such as a bloated or jagged look, arrows, and drop shadows, as well as calligraphic effects and rounded shapes.

The Add Arrowheads filter

The Add Arrowheads filter adds an arrowhead to any selected line.



Arrowheads

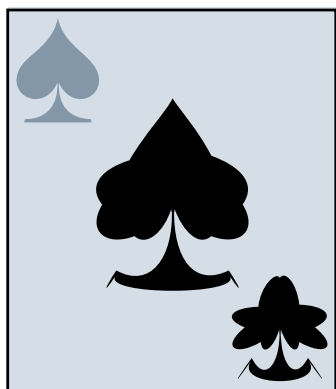
To use the Add Arrowheads filter:

- 1 Select a path with any selection tool.
- 2 Choose Stylize/Add arrowheads from the Filter menu. The Add Arrowheads dialog box appears.
- 3 You can select from a number of preformatted arrowhead types by clicking the forward or back icons below the arrow box.
- 4 To rescale the size of an arrowhead, enter the percentage you want in the Scale box.
- 5 Click the Beginning or End option boxes to place the arrowhead at the beginning or the end of the line.
- 6 Click OK.



The Bloat filter

The Bloat filter curves paths outward from their anchor points at an angle determined by the Percent Bloat value.



Bloat

To bloat an object:

- 1 Select the object with a selection tool.
- 2 Choose Stylize/Bloat from the Filter menu. The Bloat dialog box appears.
- 3 Enter a bloat value between 0 and 100 percent.
- 4 Click OK.

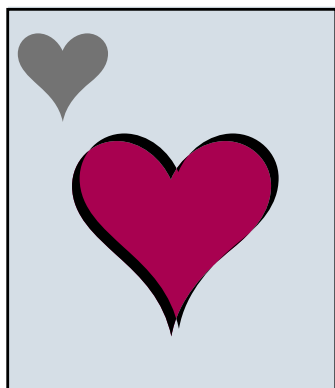
The Calligraphy filter

The Calligraphy filter applies a calligraphic stroke to an existing filled or stroked path.

If you want to create a brush stroke with a calligraphic effect, use the [Calligraphy option](#) in the brush tool dialog box.



Note: The Calligraphy filter should not be used on text.



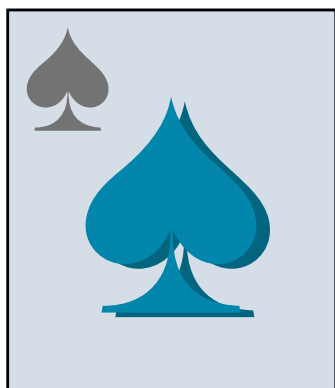
Calligraphy: pen weight of 3 points and angle of 45 degrees

To use the Calligraphy filter:

- 1 Select the filled or stroked path to which you want to apply a calligraphic effect.
- 2 Choose Stylize/Calligraphy from the Filter menu. The Calligraphy dialog box appears.
- 3 Enter a value in the Pen Width and Pen Angle fields to vary the width of the stroke and the pen angle.
- 4 Click OK.

The Drop Shadow filter

The Drop Shadow filter creates a three-dimensional shadow effect on any selected object. You can offset the drop shadow any distance from your object along the x or y axis, and you can also vary the darkness of the drop shadow.

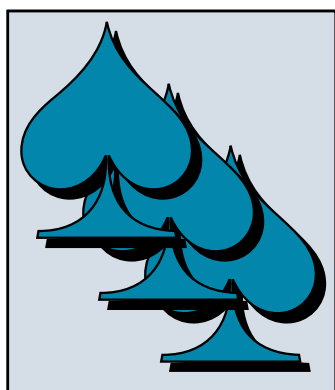


Drop Shadow

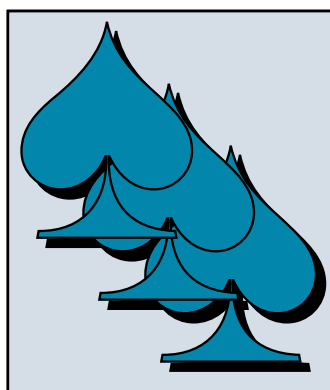


To create a drop shadow:

- 1** Select the object for which you want to create the drop shadow
- 2** Choose Stylize/Drop Shadow from the Filter menu. The Drop Shadow dialog box appears.
- 3** Enter the distance you want the drop shadow to be offset from the object on the x axis and the y axis.
- 4** Enter the percent darkness you want the drop shadow to appear (100 percent would be a solid color; 0 percent would be transparent).
- 5** If you want to add the shadow as part of the object rather than as a separate object in the background, click the Group Shadows box. For instance, if you have two objects currently selected, one overlapping the other, grouping the shadows makes the shadow of the top object appear on top of the bottom object. If you do not group the shadows, the shadows of both selected objects appear behind the bottom object.



**Overlapping objects
with Group Shadow
option on.**



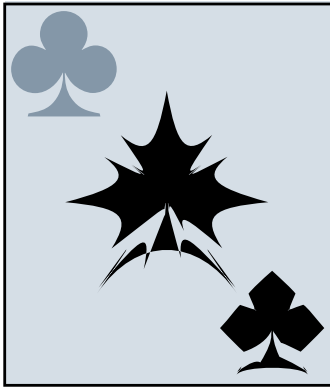
**Overlapping objects
with Group Shadow
option off.**

- 6** Click OK.



The Punk filter

The Punk filter moves anchor points in a jagged array to create jagged edges on the selected path.



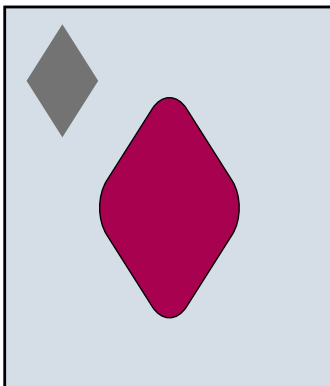
Punk

To use the Punk filter:

- 1 Select the object with a selection tool
- 2 Choose Stylize/Punk from the Filter menu.
- 3 Enter a Punk percent value between -200 and 200. The higher the value, the more jagged the effect.
- 4 Click OK.

The Round Corners filter

The Round Corners filter converts the corner points of a path to smooth curves.



Round Corners



To use the Round Corners filter:

- 1** Select the object on which you want to round the corners.
- 2** Choose Stylize/Round Corners from the Filter menu. The Round Corners dialog box appears.
- 3** Enter a value, in points, in the Radius field of the Round Corners dialog box to determine the shape of the rounded curve.
- 4** Click OK.

Using the Text Filters

The Text filters change the case of text, check spelling, export text in text objects to various file formats, find and replace fonts, find text strings on paths and in text objects, revert text paths to artwork paths, divide text into rows and columns and alter the flow of text, and search for and replace special characters in text.

The Change Case Filter

The Change Case filter allows you to change text from the current case setting to all uppercase, all lowercase, or mixed case (that is, each word beginning with an uppercase letter).

To change the capitalization of selected text:

- 1 Choose a text tool, and select the text to be changed.
- 2 Choose Text/Change Case from the Filter menu.
- 3 Select from the options listed, and click OK.

The Check Spelling Filter

The Check Spelling filter compiles a list of misspelled words in your document, and offers a list of alternate spellings. If the filter has incorrectly identified a word as misspelled, you can either skip the word without changing it in the document, or add the word to the dictionary list. These new words are then added to the custom file AI User Dictionary in the Plug-Ins folder. You can edit this list of words as well.

To check spelling in your document:

- 1 Choose Text/Check Spelling from the Filter menu. The Check Spelling dialog box displays a list of words not found in the current Adobe Illustrator dictionary.
- 2 To list separately words that are misspelled in the same way, but are in different cases (such as Mispell and misspell), click the Case Sensitive option.
- 3 To obtain a list of alternative spellings for a misspelled word, click the word in the Misspelled Words list. The first instance of that word is highlighted in your document, and any alternative spellings appear in the Suggested Corrections list.



4 Choose one of three options:

- To enter a new spelling for a misspelled word, either click the correct spelling in the Suggested Corrections text box or type the corrected spelling in the Change text box. To change the first instance of the misspelled word in the document, click Change, or double-click the word. To change every instance of the selected misspelled word in the document, click Change All.
- To skip a word without changing it, click Skip. To skip every instance of the word in the document, click Skip All. This removes the word from the Misspelled Words list, but the word will reappear the next time the document is checked.
- To add the word to your dictionary, click Learn. (To add several words at once, hold down the Shift or Command key while clicking or dragging the mouse to select the words.)

5 To edit your current dictionary list, click Edit List. The Learned Words dialog box appears.

6 Choose one of three options:

- To change a word in the dictionary list, select a word in the list, retype it into the text box, and click Change.
- To add a new word, type it into the text box and click Add.
- To remove a word, select the word and click Remove.

7 When you have finished, click Done.

To change language dictionaries in the Spell Checking filter:

1 Choose Text/Check Spelling from the Filter menu. The Check Spelling dialog box appears.

2 Click Language. Locate the language dictionary in the Plug-Ins folder inside the Adobe Illustrator 5.5 folder. Adobe Illustrator 5.5 now includes a U.S. English dictionary and a U.K. English dictionary.

3 Select the language dictionary you want to use, and click Open.



The Export filter

The Export filter exports text from text objects to a new text file in one of 14 file formats (for example, WordPerfect, Microsoft Word, or Rich Text Format). You must have the Claris XTND utility installed to use the Export filter. (This utility was automatically installed if you used the Easy Install option when copying the Adobe Illustrator program onto your hard drive.)

To export text:

- 1 Using a text selection tool, select text to export.
- 2 Choose Text/Export from the Filter menu. The Export Text dialog box appears.
- 3 Select the desired file format in the Export File submenu.
- 4 Type the name of the new text file in the name box.
- 5 Click Export.

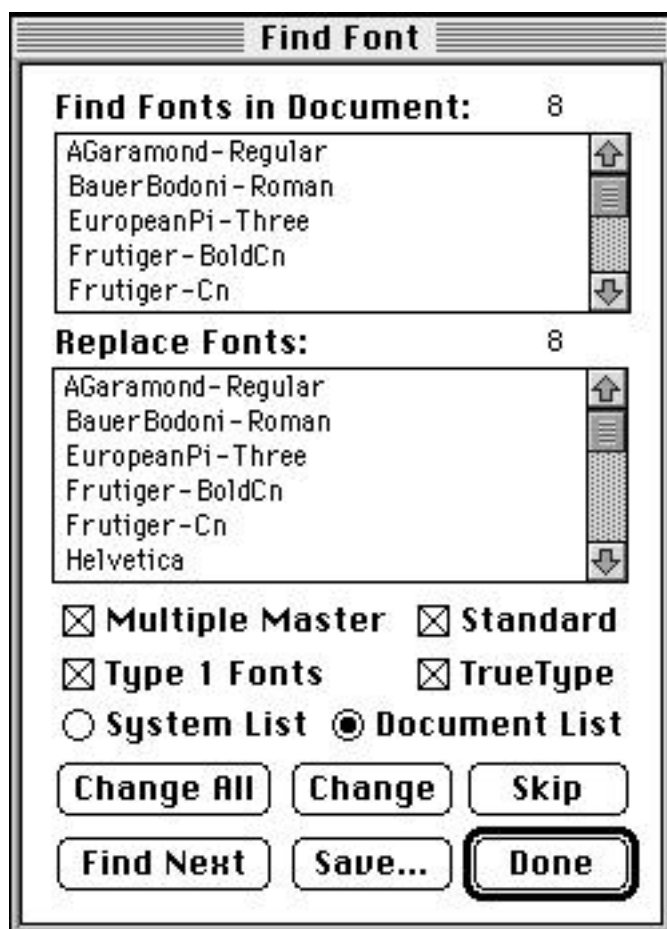
The Find Font Filter

The Find Font filter creates a list of all the fonts in your document and allows you to search for and replace them by name. This filter also lets you save the list of fonts as a file.



To find and replace fonts in your document:

1 Choose Text/Find Font from the Filter menu. The Find Font dialog box appears, containing a list of all fonts found in your document. (If you have a large number of fonts, it may take a few moments for all the fonts to appear in the list.)



2 Choose from these options:

- Click Multiple Master, Standard (Courier, Helvetica, Symbol, and Times), Type 1, or TrueType to display these fonts.
- Click Document List to limit the fonts you can use as replacements to those already present in your document. Click System List to make all fonts currently installed on your system (as filtered through the options you chose above) available as replacements.

3 Click a font name in the top list. The Find Font filter selects the next instance of that font.



4 Click Find Next to find the next instance of that font, or click Skip to go to the next name in the font list and search for that font.

5 To change the font of selected text, click the font you want to use as a replacement from the Replace Fonts list; then click Change or Change All, depending on whether you want to change just that instance or all instances of the selected font. When there are no more instances of a font in your document, that font name is removed from the list of fonts to find.

6 To save a list of all fonts found in the document, click Save, and then enter a filename and location for the font list file.

7 When you have finished, click Done.

The Find filter

The Find filter finds and replaces text strings on paths and within text objects.

To use the Find filter:

1 Choose Text/Find from the Filter menu. The Find Text dialog box appears.

2 Enter the desired text string, and replacement string, if applicable.

3 Choose from any of four options:

- **Whole Word.** Searches only for entire words that match the text typed in the Find text box.
- **Case Sensitive.** Searches only for text strings that exactly match the upper- and lowercase settings of the text in the Find text box.
- **Search Backwards.** Searches the document in reverse order, from the text selection cursor to the front of the document.
- **Wrap Around.** Searches the entire document, starting from the text selection cursor to the end of the document, and then from the front of the document to the text selection cursor.



4 Choose one of four options:

- **Find Next.** Searches for the next instance of the text string, without replacing it.
- **Replace, then Find.** Replaces the text string, then searches for the next instance of it.
- **Replace.** Replaces just the currently found instance of the text string in the document.
- **Replace All.** Replaces all occurrences of the text string in the document.

5 Click the Close box at the upper left corner of the dialog box when you are finished finding text.

The Revert Text Path Filter

The Revert Text Path filter converts any text path to an artwork path.

To convert a text path to an artwork path:

1 Choose a text tool to select and delete all text on the path you want to convert.

2 Choose Text/Revert Text Path from the Filter menu. The Revert Text Path dialog box appears.

3 Click the Delete Text Path box if you want just a single copy of the original text path converted to an artwork path. If the box is unchecked, Adobe Illustrator creates a second copy of the artwork path directly on top of the original text path.

4 Click OK.

The Rows & Columns Filter

The Rows & Columns filter allows you to divide rectangles and text blocks into blocks of rows and columns, and precisely to change the height, width, and gutter size between rows and columns. You can also use the Rows & Columns filter to change the way in which text flows (from left to right, or up and down) by clicking on the Text Flow icon.



While making any changes to the dimensions of the columns, or to the text flow, you can preview the effect by clicking the Preview option. To add path guides along the row and column edges, click the Add Guides option.

To divide a rectangular graphic object or text box into rows and columns:

- 1 Choose the selection tool and click a rectangle or text box to select it.
- 2 Choose Text/Rows & Columns from the Filter menu. The Rows & Columns dialog box appears.

Columns			
Columns:	2	Rows:	2
Column Width:	72.583	Row Height:	42.666
Gutter:	8 pt	Gutter:	6 pt
Total Width:	153.167	Total Height:	91.333
Text Flow:	☒ Preview ☐ Add Guides		
		Cancel	OK

- 3 Enter the number of columns you want in the Columns text box, and the number of rows you want in the Rows text box. You can either enter the number in the text boxes or use the control buttons on the sides of the text boxes to increase or decrease the values in the text boxes. The filter automatically adjusts the column-width and row-height values to fill the selected text box.
- 4 Change the dimensions of the column width, row height, column gutter, row gutter, or overall height and width by entering a new value in the corresponding text box, or by using the arrow controls to increase or decrease the value in the text box.
- 5 Change the direction of the text flow from left to right, or from top to bottom, by clicking the Text Flow icon in the lower left of the dialog box.
- 6 Click OK.



The Smart Punctuation Filter

The Smart Punctuation filter searches for keyboard text symbols and replaces them with publishing text symbols.

You can search and replace text symbols in the entire document by selecting the Entire Document option, or you can replace symbols only in text you've highlighted by selecting the Selected Text Only option. If you want to see a list of the number of symbols replaced, click the Report Results option.

To replace standard keyboard characters with publishing characters:

1 Choose Text/Smart Punctuation from the Filter menu. The Smart Punctuation dialog box appears.

2 Choose one or more of the Smart Punctuation options:

- *V, W, Y Ligatures*. Changes any occurrence of the ff, fi, or ffi letter combinations into ligatures (that is, a text symbol that combines the letters in a more readable format). To change to the ff and ffi ligatures, you must have the appropriate Adobe Expert font installed on your system.
- *V, X, Z Ligatures*. Changes any occurrence of the ff, fl, or ffl letter combinations into ligatures. To change to the ff and ffl ligatures, you must have the appropriate Adobe Expert font installed on your system.
- *Smart Quotes* (“ ”). Changes straight keyboard quote marks (" ") and (' ') into printer's quote marks (“ ”) and (‘ ’).
- *Smart Spaces* (.). Replaces multiple spaces after a period with a single space.
- *En, Em Dashes* (--). Replaces a double keyboard dash (--) with an en dash (–) and replaces a triple keyboard dash (---) with an em dash (—).
- *Ellipses* (. . .). Replaces three keyboard periods (...) with an ellipsis (. . .).
- *Expert Fractions*. Replaces separate characters used to represent fractions with their single-character equivalents, if you have an expert fractions font set available for that font.

3 Click OK to search and replace for selected characters.

Using the Other Filters

The Other filters provide information on your documents, set and remove overprinting on black fill and black stroked lines, and create and delete EPSF Riders files.

The Document Info Filter

The Document Info filter lists general document information and object characteristics, as well as the number and names of custom colors, patterns, gradients, fonts, and placed art.

If you have not selected any objects, the Document Info filter lists information for the entire document. If you have selected one or more individual objects, the Document Info filter lists information only for the selected objects. In this case, the dialog box that appears is titled Selection Info instead of Document Info.

To view document information using the Document Info filter:

- 1** Select an object with a selection tool, or if you want information on all objects, deselect all objects by clicking the Artboard.
- 2** Choose Other/Document Info from the Filter menu. The Document Info dialog box appears.
- 3** Choose from the seven information screens listed in the Info pop-up menu:
 - Document lists the document name and settings in the Document Setup dialog box. This information screen is available only if you haven't selected any objects.
 - Objects lists the number of paths, masks, compound paths, custom colors, patterns, gradients, fonts, and placed art contained in the selected artwork.
 - Custom Colors lists the names of any custom colors in the selected artwork.
 - Patterns lists the names of any patterns in the selected artwork.
 - Gradients lists the names and types of gradients in the selected artwork.



- Fonts lists font names and font styles in the selected artwork.
- Placed Art lists the name and path of any placed art in the selected artwork.

4 If you want to save a copy of the document information as a text file, click Save. When you are finished, click Done.

The Overprint Black Filter

The Overprint Black filter allows you to set all black fill or black stroked lines to overprint (or, alternatively, to remove overprinting commands from black fill or black stroked lines).

The filter allows you to set a specific percentage of black in selecting artwork for overprinting. For example, you can set the Overprint Black filter to select only stroked lines at 80 percent black to overprint. You can set overprinting for custom colors that contain a specific percentage of black, or for process colors that include black. To use this filter, you must first move it from the Optional Plug-Ins folder to the Plug-Ins folder and restart Adobe Illustrator.

To set black lines to overprint:

- 1** Choose Other/Overprint Black from the Filter menu. The Overprint Black dialog box appears.
- 2** Enter the percentage of black for which you would like to add or remove overprinting. The filter detects paths painted the percentage of black you enter in the Percentage black text box.
- 3** Set the other options in the dialog box as needed:
 - *Add/Remove*. Click the Add option to add overprinting or the Remove option to remove overprinting.
 - *Fill/Stroke/Both*. Click the appropriate option to apply overprinting to filled paths, stroked paths, or both types of paths.
 - *Selected/All*. Click Selected to apply overprinting only to the selected artwork; click All to apply overprinting to the entire document where applicable.
 - *Include Blacks with CMY*. Click this option to apply overprinting to paths painted with cyan, magenta, or yellow if the path also contains black at the specified percentage.



- *Include Custom Blacks*. Click this option to apply overprinting to custom colors that include black at the specified percentage.

4 Click OK.

The Make Riders Filter and the Delete Riders Filter

The Make Riders filter creates an Adobe Illustrator EPSF Riders file. This Riders file is Postscript code that, when added to an Adobe Illustrator document, alters the way in which a document prints. The Delete Riders filter removes Riders files from your system.

A Riders file is used to set globally the screen frequency, angle, spot function, and flatness, or to add an annotation or an error handler message to documents. A Riders file overrides any settings you may have specified using the Separator program. Once the Riders filter is in your Plug-Ins folder, all files that are saved as EPS files or printed from Adobe Illustrator are affected. To remove the Riders information from your files, remove the Adobe Illustrator EPSF Riders files and resave all documents that contain imbedded Riders information.

To use this filter, you must first move it from the Separator & Utilities/Riders folder to the Plug-Ins folder and restart Adobe Illustrator.

To make an EPSF Riders file:

1 Choose Other/Make Riders from the Filters menu. The Make Riders dialog box appears.

2 Select options from the six pop-up menus:

- The *screen frequency*, also called the line screen, designates the number of rows of halftone dots per inch when printing. A low number designates a large dot, and a high number designates a small dot. The screen frequency value must be between 1 and 999.



- The *screen angle* determines the angle at which the rows of halftone dots will be printed. A setting of 0 degrees creates rows of vertical dots; a setting of 90 degrees creates rows of horizontal dots. The default setting for black-and-white printing is 45 degrees, to make the dot rows less conspicuous to the eye. The screen angle value must be between 0 and 360.
- The *spot function* determines a halftone dot's shape. Using a round spot function creates round halftone dots. The shape of the halftone dot can affect how gradients blend together, the quality of the midtones, and other variables of halftone screening. You can select from seven spot functions in the Spot Function pop-up menu. You can see the effect of different spot functions by printing a gradient from black to white, with a coarse line screen, using the different spot functions.

Select Import from the Spot Function pop-up menu to import a spot function. An imported spot function must be in correctly formatted Postscript language. (You can read more about formatting spot functions in the Spot Function Template file, located in the folder Separators & Utilities/Riders.)

Warning: *Importing an incorrectly formatted spot function can corrupt a document or make it unable to print.*

- **Flatness** determines the accuracy with which the Postscript interpreter draws curves. The Riders Flatness setting must be between 0.2 and 200 and is applied globally to all curves in an Illustrator document.

Note: *You can also set the flatness of an individual object by changing its **Output Resolution** in the Attributes dialog box. In most cases, you should use Output Resolution instead of the Rider filter's flatness setting. If a curve is extremely complex, and you don't want to lose any of the curve's quality, you can also use the **Split Long Paths option**.*



- The *Annotation option* lets you enter an annotation of up to 254 characters by selecting Setup from the Annotation pop-up menu. When the Annotation dialog box appears, select the font and type size from the pop-up menus, and type the annotation. The annotation will appear at the bottom-left corner of the printed page.

- The *Error Handler option* prints error information on the page if a Postscript error occurs. If you are using the Adobe PSPrinter or the LaserWriter 8.0 or higher printer driver, it is recommended you turn on the printer driver's error handling rather than use the Riders error handler.

3 When you have selected the options you want, click Make.

4 Save the file in the Plug-Ins folder.

To delete a Riders file:

1 Choose Other/Delete Rider from the Filter menu.

2 Select the riders file you want to delete and click Delete.

Creating Graphs

Adobe Illustrator's graph tools let you create six different graph styles. Once you create a graph, you can customize it using colors and designs and select options for the style. Each time you change the graph data, the graph is automatically updated.

Graphs are created as [grouped](#) objects. If you ungroup the elements of a graph, such as individual columns of data, you cannot change the graph's style or modify the graph's data. You can, however, select specific grouped elements of a graph with the [direct-selection and group-selection tools](#) and change the elements without ungrouping the entire graph. See [Selecting Parts of a Graph](#) for more information.

***Note:** Do not ungroup a graph if you intend to modify or change the graph's data or style. You will be unable to make use of any graph command on an ungrouped graph.*

To create a graph:

1 Double-click the graph tool, or choose Graphs/Style from the Object menu. The Graph Style dialog box appears with a preview of the selected graph style.

2 Select the graph style in the Graph Style box, as follows:

- *Grouped column.* The default graph style compares one item to another, or compares different items over a period of time.
- *Stacked column.* This graph compares the progress of a group of variables over time, or shows the relationship of parts to the total. The values for each category are stacked one on top of another, instead of side by side as they are in a grouped column graph.
- *Line.* This graph shows the trend of one or more items over a period of time.
- *Area.* Similar to the line graph, an area graph emphasizes totals as well as fluctuations in data over time.
- *Pie.* A pie graph is a circular graph with wedges showing data segments and their percentages of the total.



- *Scatter*. This graph plots data points as paired sets of coordinates along the x and y axes. Scatter graphs are useful for identifying patterns or trends in data. They also can indicate whether or not variables affect one another.

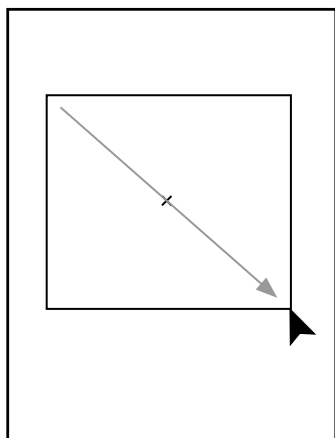
3 Select options for the selected graph style, as described in [Selecting Graph Options](#).

4 Click OK.

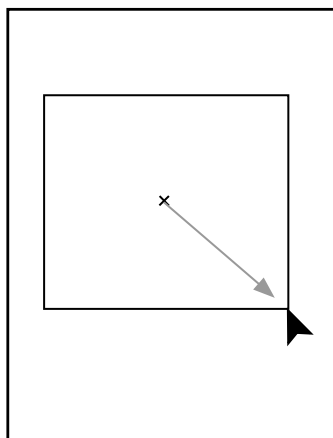
5 Select the graph tool. The pointer changes to a cross when you move it to the active window.

6 Choose one of two options to create a graph:

- Position the pointer at one corner of the rectangular area in which you want to create a graph, and drag diagonally to the opposite corner. To drag from the center of the graph, hold down the Option key and drag.



Dragging from corner to corner



Dragging from center to corner

- Double-click the graph tool in the toolbox to specify dimensions for the graph in the Graph dialog box. By default, the Graph dialog box displays the dimensions of the most recently drawn rectangle, oval, or graph. Dimensions are displayed in the units of measure specified in the Document Setup dialog box.

A graph of the shape and dimensions you designate appears, and the [Graph Data dialog box](#) appears. The anchor points on the graph indicate that it is selected.

Entering and Editing Graph Data

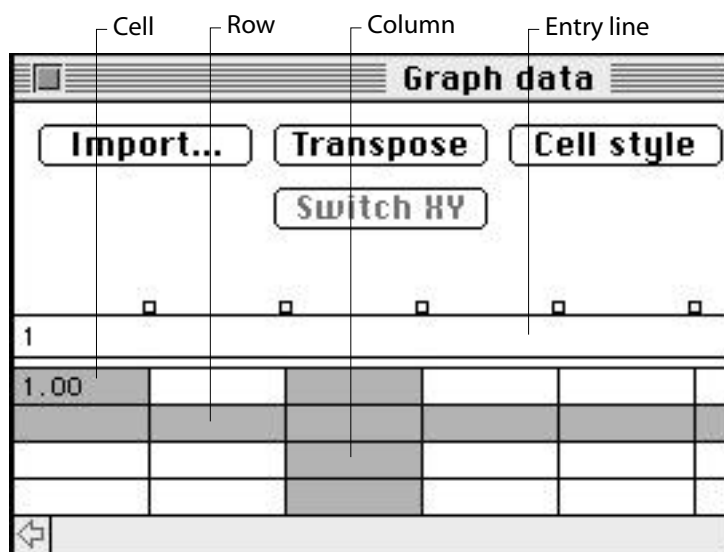
You can enter data in a graph in three ways: by typing it into the Graph Data dialog box, by [importing data from another file](#), or by [pasting data from another program or from another graph](#).

You can easily edit the data you enter. Note that you must always select an entire graph before you can change its data.

You can enter data in up to 32,767 rows by 32,767 columns, as memory permits.

To enter data manually:

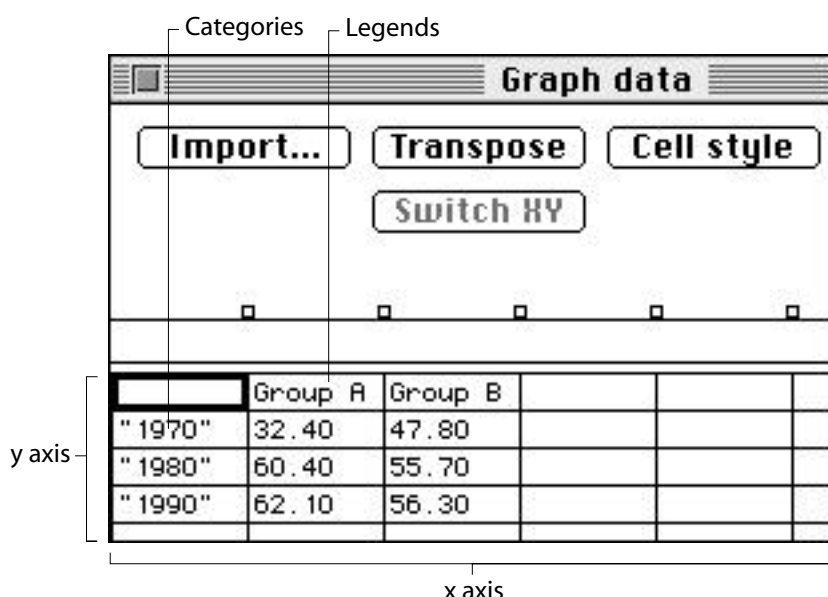
- 1 [Create a new graph](#). Make sure that the graph is selected.
- 2 If the Graph Data dialog box is not already open, choose Graphs/Data from the Object menu.



At the top of the worksheet is the entry line for entering data. You enter labels and then data that correspond to the labels. Each label or value you enter is placed in a separate cell. A *cell* is the intersections of rows and columns.



Labels are words or numbers that describe *categories*, whose data is entered in rows, or *legends*, whose data is entered in columns. In the final graph, legends appear as boxes that you can place above or to the right of a graph.



Graph data entered into the Graph Data dialog box; Automatic Labels option selected.

3 Enter labels and data for the particular graph style, according to the guidelines in [Entering Labels and Data for Particular Graph Styles](#). See [Selecting Graph Options](#) for additional examples of how different graph styles plot data.

For most graphs, you enter a label in at least the first row and the first column of the worksheet. Follow these guidelines:

- To create category labels for the horizontal (x) axis, enter the labels in the first column; scatter graphs do not use categories. (If you also are entering legends, skip the first cell of the column.)
- To create legend labels for the vertical (y) axis, enter the labels in the first row. (If you also are entering category labels, skip the first cell of the row.)



- To create labels consisting only of numbers, enclose the numbers in quotation marks. For example, to use the year 1993 as a label, enter “1993”; to use quotation marks around a number label, use two sets of quotation marks—““1993””, for example. If a label includes both text and numbers, you do not need to use quotation marks.
- To create line breaks in legends or labels, use the vertical bar key (|) to separate lines. For example, enter Total|subscriptions|1993 to produce the graph label:

Total
subscriptions
1993

The letters or numbers that you type appear simultaneously in the entry line and in the cell.

4 Continue entering data in the worksheet, choosing one of the following methods to move to another cell:

- Press the Tab key to enter the data and select the next cell in the same row.
- Press Return to enter the data and select the next cell in the same column.
- Click any cell.

5 To correct a mistake or to switch how data is entered in the Graph Data dialog box, choose one of these options:

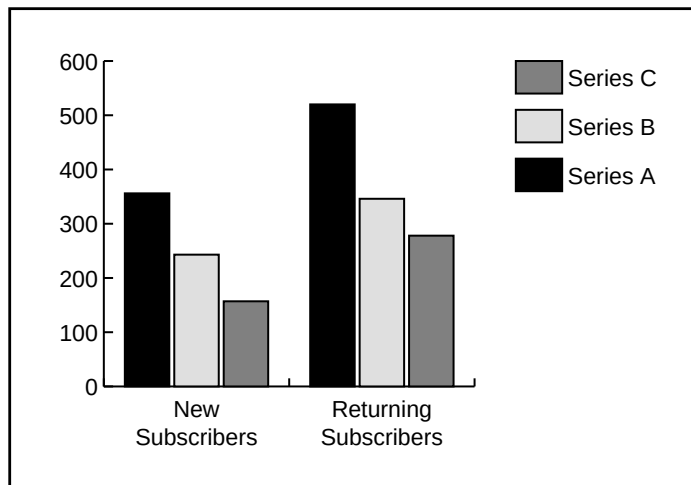
- If you accidentally enter graph data backwards (that is, in rows instead of columns, or vice versa), click Transpose to switch the columns and rows of data. For more information, see [Transposing Rows and Columns of Data](#).
- To switch the x and y axes of a scatter graph, click Switch XY. For more information about this option, see [Switching the Axes in Scatter Graphs](#).

6 To adjust the cell column width to display more or fewer digits, click Cell Style and enter a new value in the Cell Style dialog box. For more information about the Cell Style option, see [Adjusting Cell Column Width](#).



7 When you have finished entering data in the worksheet, choose one of these options:

- Click Apply to leave the Graph Data dialog box open and apply the data to the graph.
- Click OK to close the Graph Data dialog box and apply the data to the graph.
- To return data to its state when you last applied it to the graph, click Revert.



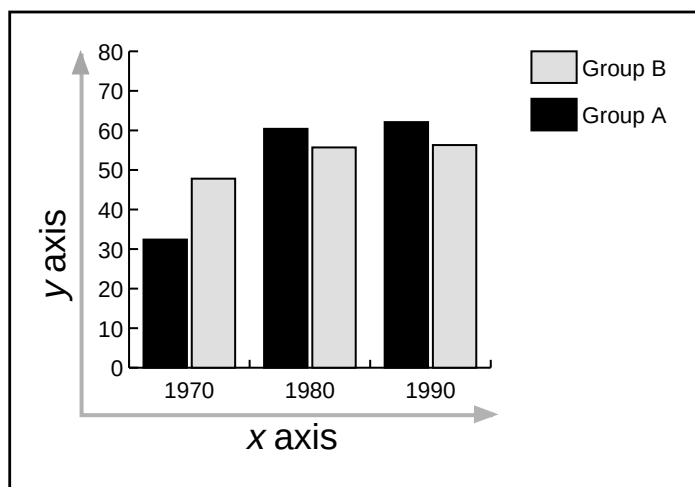
Entering Labels and Data for Particular Graph Styles

Follow these guidelines for entering data for the selected graph style.

Entering data for grouped column graphs

For grouped column graphs, enter numbers along the vertical (y) axis; enter labels for the data along the horizontal (x) axis. Labels may be words that describe a column of data or they may be years, months, or days for comparing data over time.

The height of the column corresponds to the amount being compared. You can combine both positive and negative values; negative values appear as columns extending below the horizontal axis.



Grouped column graph

Entering data for stacked column graphs

For grouped stacked column graphs, follow the same guidelines as for a grouped column graph. Numbers must be all positive or all negative.

Entering data for line graphs

For line graphs, enter numbers representing quantities along the y axis; enter numbers representing time along the x axis. Each column of data corresponds to one line in the line graph. You can combine positive and negative values in a line graph.

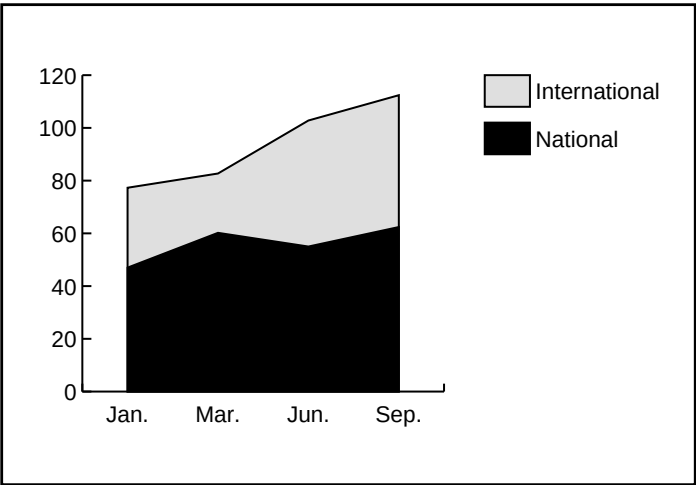


Entering data for pie graphs

For pie graphs, plot only one row of data, either all positive or all negative values. If you plot additional rows of data, a separate pie graph is created for each additional row. You cannot combine positive and negative values. The size of the individual pie graphs is proportional to the total of each graph's data.

Entering data for area graphs

For area graphs, plot at least two rows of data; values must be all positive or all negative. Each row of data entered corresponds to a filled area on the area graph. Area graphs add each column's values to the previous column's totals. Therefore, even if area graphs and line graphs contain the same data, they appear substantially different.



Area graph

	National	International
Jan.	47.00	30.30
Mar.	60.20	22.50
Jun.	55.00	47.80
Sep.	62.40	50.00

Graph data

Entering data for scatter graphs

For scatter graphs, enter one column of data each along the y axis and the x axis. A scatter graph differs from the other kinds of graphs because both axes measure values; there are no categories. If the first column contains labels, it is ignored, and the second column produces values for the y coordinates.

Importing Data from Another Application

If you first save data files in other applications as text, you can import the data files into Adobe Illustrator. In the text files, each cell must be separated by a tab and each row must be separated by a carriage return.

You can also cut and paste data from a spreadsheet application such as Lotus 1-2-3 using the Cut and Paste commands in the Edit menu.

You can also subscribe to data that is updated interactively, from the original source, using the [Publish and Subscribe feature](#).

To import data from another application:

- 1 [Create a new graph](#). Make sure that the graph is selected.
- 2 If the Graph Data dialog box is not already open, choose Graphs/Data from the Object menu.
- 3 Click to select the cell that will be the top left cell of the data that you import.
- 4 Click Import. The Open dialog box appears.
- 5 Open the file that you want to import. The data is imported and entered into the worksheet in the Graph Data dialog box.
- 6 Click OK. The graph is updated with the imported data.

Copying and Pasting Data from Other Applications

You can also copy data from another application and paste it into the Graph Data dialog box by using the Clipboard.

To copy and paste data from another application:

- 1** Open the application and file containing the data you want to copy, and use the Copy command to copy the data to the Clipboard.
- 2** Open the Adobe Illustrator program.
- 3** Create a new graph. Make sure that the graph is selected.
- 4** If the Graph Data dialog box is not already open, choose Graphs/Data from the Object menu.
- 5** Click to select the cell that will be the top left cell of the data you will paste.
- 6** Choose Paste from the Edit menu. The data is pasted into the cells in the Graph Data dialog box.
- 7** Click OK. The graph is updated with the pasted data.

Editing Graphs

You can easily edit data you have entered in the Graph Data dialog box. The Cut and Copy commands move data to the Clipboard; the Paste command moves data from the Clipboard into a worksheet. The Clear command erases the entire selection, either within the text or as a set of cells. The Delete key functions as both a delete and a backspace key for a single cell.

To edit existing data:

- 1 Click to select the cell you want to edit. The cell is highlighted, and the cell's data are shown in the entry line.
- 2 Choose one of the following options for editing data:
 - Enter a value in the selected text box.
 - Position the pointer in the entry line, and click to set an insertion point. Type new information in the entry line.
 - Press Delete to delete an entire cell entry.
 - Use the Cut, Copy, Paste, or Clear command in the Edit menu to edit the data. You can cut and paste any cell or group of cells to another selected cell or group of cells.
- 3 Click OK.

See the following topics for more information on editing graphs:

- [Transposing Rows and Columns of Data](#)
- [Switching the Axes in Scatter Graphs](#)
- [Adjusting Cell Column Width](#)
- [Adjusting Decimal Precision](#)
- [Selecting Graph Options](#)
- [Customizing Graphs](#)

Transposing Rows and Columns of Data

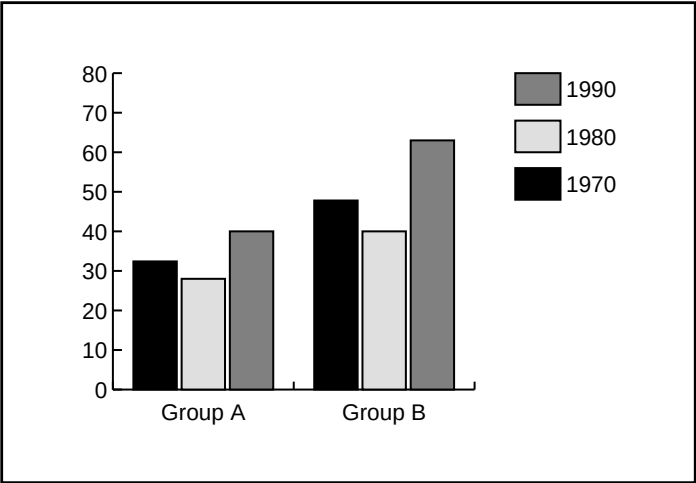
In case you accidentally enter graph data backwards (i.e., in rows instead of columns or vice versa), you can use the Transpose command to switch the columns and rows of data. The Transpose command reverses the categories and legends, and reenters all the data accordingly.

To transpose rows and columns of data:

- 1 Choose Graphs/Data from the Object menu. The Graph Data dialog box appears.



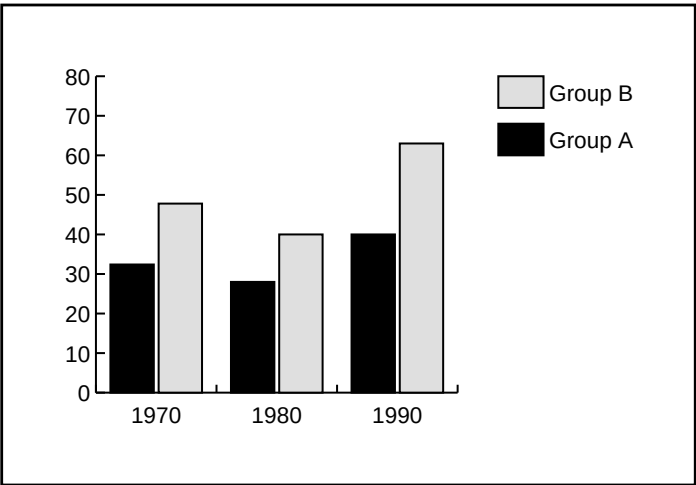
2 Click Transpose. Labels and data that were listed across the top row are now listed along the left column.



Before transposing

	"1970"	"1980"	"1990"
Group A	32.40	28.00	40.00
Group B	47.80	40.00	63.00

Graph data



After transposing

	Group A	Group B
"1970"	32.40	47.80
"1980"	28.00	40.00
"1990"	40.00	63.00

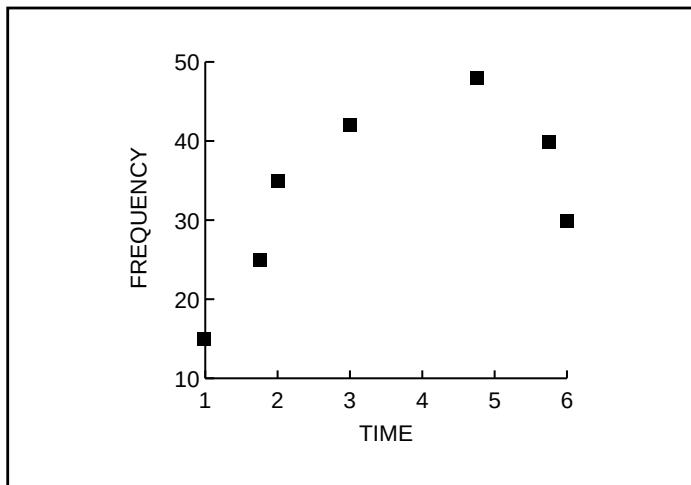
Graph data

Switching the Axes in Scatter Graphs

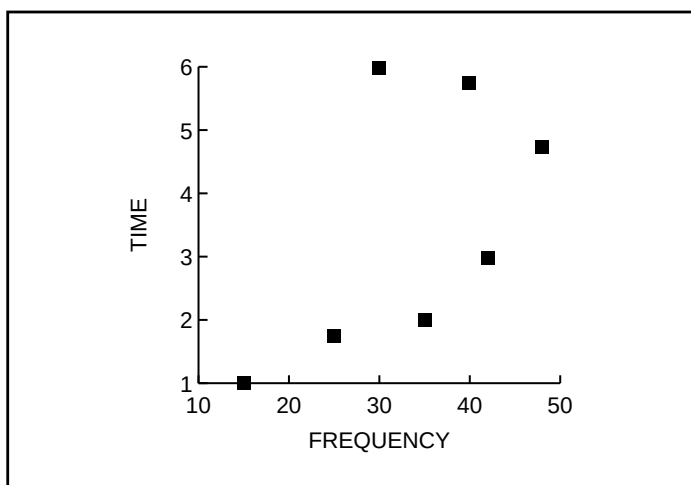
You can reverse the x and y axes to better display data on scatter graphs using the Switch XY option. This command is available only for scatter graphs because only scatter graphs plot values on both axes.

To transpose the x and y axes in a scatter graph:

- 1 Choose Graphs/Data from the Object menu. The Graph Data dialog box appears.
- 2 Click Switch XY to reverse the data columns.



Before switching x and y axes. The "Time" and "Frequency" labels were entered manually in the artwork using the type tool.



After switching x and y axes. The "Time" and "Frequency" labels were switched and rotated manually in the artwork.

Adjusting Cell Column Width

In the Graph Data dialog box, the default cell column width is seven digits. The actual width varies according to the selected typeface. You can change the default column width either manually by dragging the column boundary to make one column wider or narrower, or by entering a new value in the Cell Style dialog box.

To adjust a cell's column width manually:

- 1 In the Graph Data dialog box, position the pointer at the top of the column you want to adjust. The cursor changes to a double arrow.
- 2 Hold down the mouse button and drag the handle to the desired position.

To reset the column width, you must drag the column width again; you cannot use the Cell Style dialog box. If you change the column width to zero, the column will revert to the column width set in the Cell Style dialog box.

To change the width of columns you have not previously changed manually:

- 1 Click the Cell Style in the Graph Data dialog box. The Cell Style dialog box appears.
- 2 Enter a value between 3 and 20 in the Column Width text box. Click OK.

Changing the value in the Column Width text box changes the width of the column in the Graph Data dialog box only; it has no effect on the column width of the graph.

Adjusting Decimal Precision

You can define the number of decimals in which you want numbers displayed using the Number of Decimals text box in the Cell Style dialog box. The default is 2. This means that if you enter the number 4, it will appear in the Graph Data dialog box as 4.00; if you enter the number 1.55823 with the Number of Decimals text box set to 2, the cell will display 1.56. The program keeps the original data in memory; so, if you reset the Number of Decimals text box to 5, the cell will display 1.55823. Changing the decimal precision does not alter the display of the graph.

To adjust decimal precision:

- 1** Click Cell Style in the Graph Data dialog box. The Cell Style dialog box appears.
- 2** Enter a value between 0 and 10 in the Number of Decimals text box. Click OK.

Selecting Graph Options

Depending on the graph style you have selected, you can choose additional options.

Note: Area graphs have no associated graph options.

To select graph style options:

1 Choose Graphs/Style from the Object menu. The Graph Style dialog box appears.

2 Select options for the selected graph style, as described in the following sections.

3 See the following topics for more information:

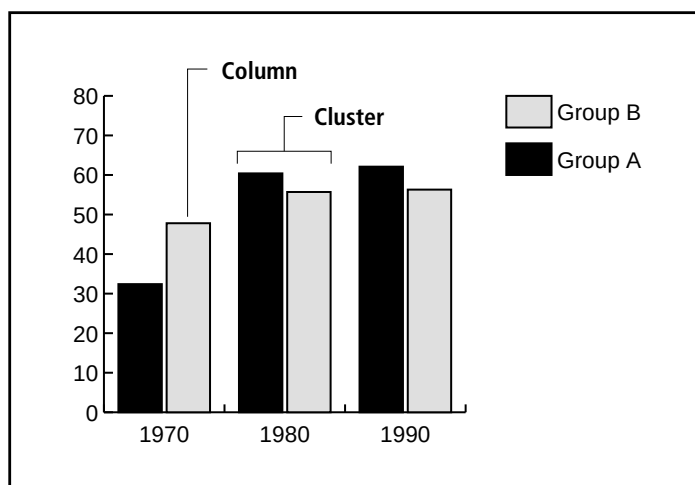
- [Selecting Grouped Column Graph Options](#)
- [Selecting Stacked Column Graph Options](#)
- [Selecting Line Graph Options](#)
- [Selecting Scatter Graph Options](#)
- [Specifying the Axis Position](#)
- [Setting Axis Tick Mark and Label Position](#)
- [Adding a Drop Shadow to a Graph](#)
- [Displaying Legends at the Top of a Graph](#)
- [Controlling How Columns of Data Overlap](#)
- [Changing Graph Styles](#)

Selecting Grouped Column Options

Grouped column graph options include

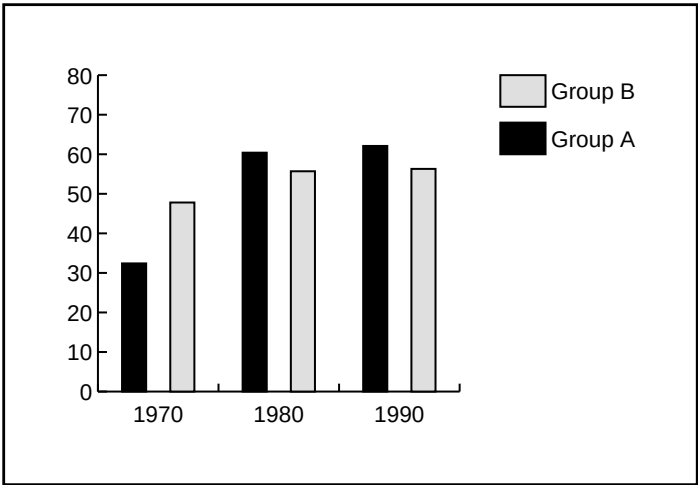
- **Column Width.** By default, the column width is 90 percent.
- **Cluster Width.** A *cluster* is a group of columns corresponding to a row of data in the worksheet. *Cluster width* is the total width of all columns in a cluster. The default cluster width is 80 percent.

Both column width and cluster width values can range from 1 percent to 1000 percent. These values allow space between columns and between clusters. A value of 100 percent moves both columns and clusters flush against each other. A value above 100 percent causes the columns and clusters to overlap one another. To change these options, you must select the entire graph.



Column width 90%, cluster width 80%

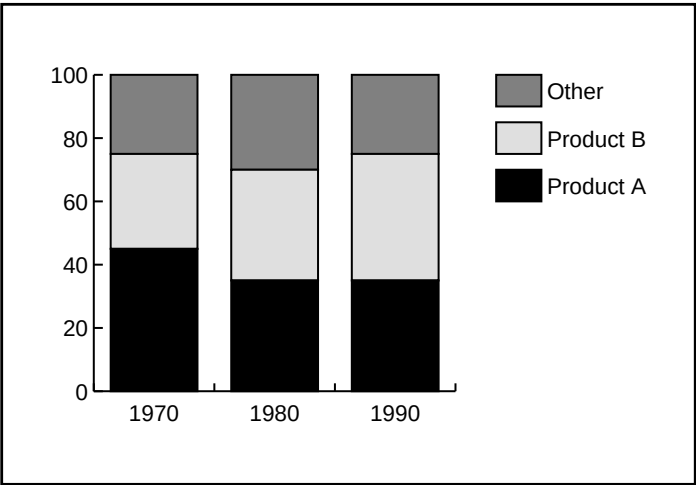




Column width 50%, cluster width 80%

Selecting Stacked Column Graph Options

The graph style options for stacked column graphs are the same as those for grouped column graphs. If you are using stacked column graphs exclusively, it is recommended that you set the cluster width to 100 percent, and use only the Column Width option to adjust the width.



Stacked column graph

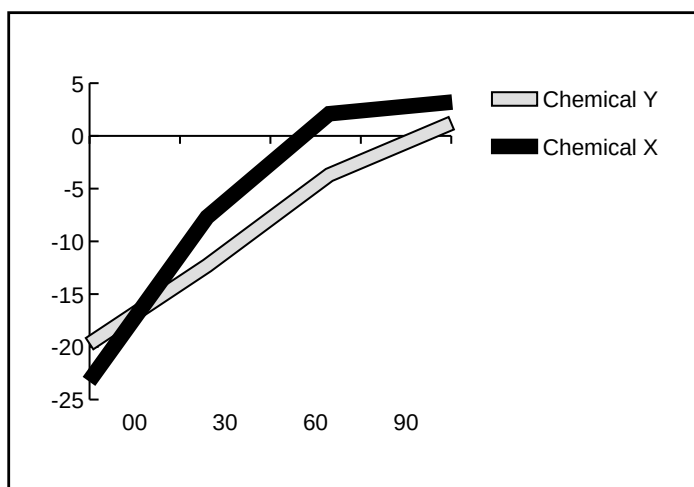
	Product A	Product B	Other
"1970"	45.00	30.00	25.00
"1980"	35.00	35.00	30.00
"1990"	35.00	40.00	25.00

Graph Data

Selecting Line Graph Options

You can select four style options for line graphs:

- The *Mark Data Points option* places square markers at each data point.
- The *Connect Data Points option* draws lines that connect the data points and makes it easier to see relationships between data.
- The *Fill Lines option* becomes available when you select the Connect Data Points option. The Fill Lines option creates a wider line according to the value you enter, and fills the line with paint according to the specifications for that series of data. When you choose the Fill Lines option, a check mark appears in its check box; if you then deselect the Connect Data Points option, the Fill Lines option is dimmed. The check mark indicates that you can recall the line width value without having to specify it again in the Connect Data Points option.
- The *Edge-to-Edge Lines option* draws lines that extend across the graph, from left to right along the horizontal (x) axis.



Line graph with edge-to-edge, 3-point lines, and Connect Data Points option selected; Marked Data Points deselected

	Chemical X	Chemical Y
"00"	– 23.23	– 19.70
"30"	– 7.70	– 12.30
"60"	2.10	– 3.70
"90"	3.20	1.20

Graph data

Selecting Pie Graph Options

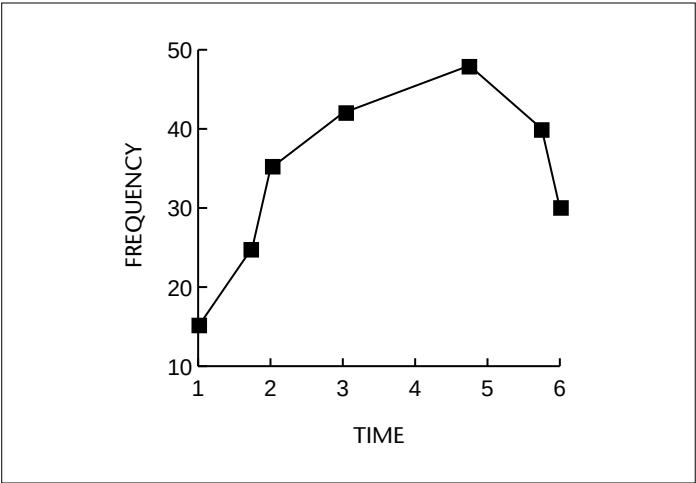
Four graph style options let you choose how to display legends with pie graphs:

- The *Standard Legends option* places column labels outside the graph; this option is the default. When you combine pie graphs with other kinds of graphs, you should select the Standard Legends option.
- The *Legends in Wedges option* inserts labels in the corresponding wedge.
- The *No Legends option* omits legends entirely.

Percentages and legends are painted black by default. If a pie wedge with a dark background obscures a legend, you should repaint the dark background. To do so, use the [group-selection tool](#) to select the dark pie wedges, and paint the wedge using the Paint Style palette.

Selecting Scatter Graph Options

The graph style options for scatter graphs are the same as those for line graphs except that the Edge-to-Edge option is not available. The default options for scatter graphs are Mark Data Points and Connect Data Points.



The "Time" and "Frequency" labels were entered manually in the artwork using the type tool. Data points are marked and connected.

15.00	1.00
25.00	1.75
35.00	2.00
42.00	3.00
48.00	4.75
40.00	5.75
30.00	6.00

Graph data

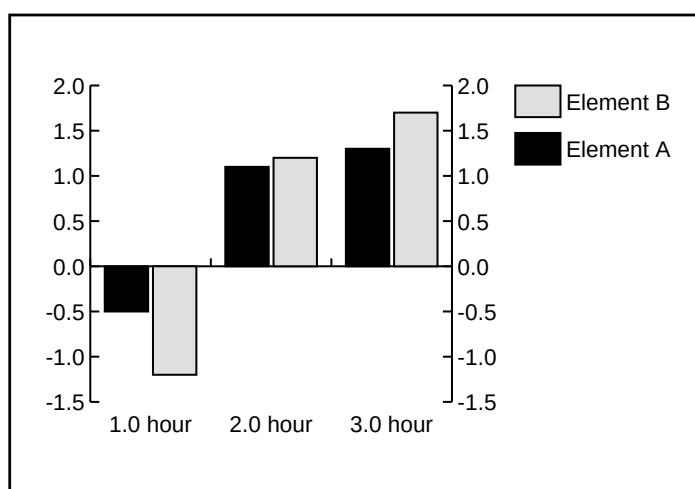
Specifying the Axis Position

You can specify whether to have the vertical (y) axis displayed on the left side, the right side, or both sides of the graph. The default is Use Left Axis. You must select the entire graph to use the Same Axis Both Sides option.

For information on changing axis attributes in a graph that contains more than one graph type, see [Combining Graph Styles](#).

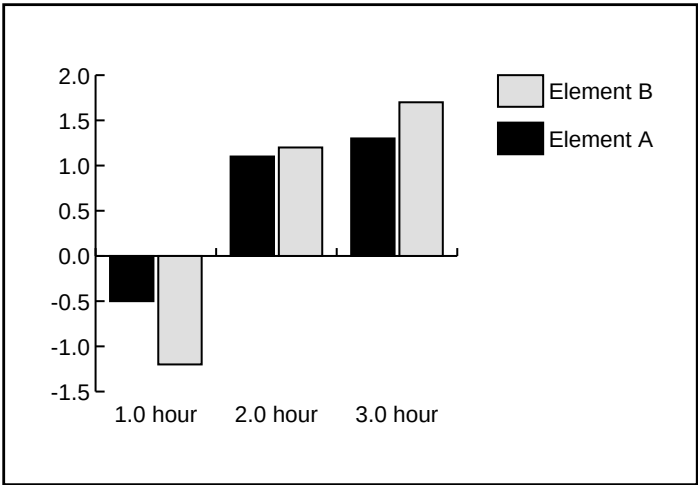
To specify the axis position:

- 1 Select the entire graph.
- 2 Choose Graphs/Style from the Object menu. The Graph Style dialog box appears with axis options in the lower left corner.
- 3 Click to select the Use Left Axis, Use Right Axis, or Same Axis Both Sides options. Click OK.

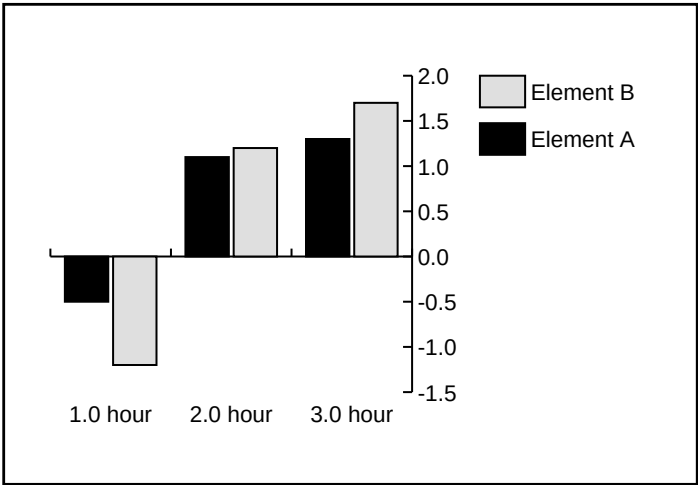


Grouped column graph with same axis both sides





Grouped column graph with left axis



Setting Axis Tick Mark and Label Options

You can add tick marks to show units of measurement and better delineate data series in a graph, and you can add information to labels including units of measurement such as “\$.” The entire graph must be selected to specify axis tick mark and label options.

Tick marks are the lines placed perpendicular to the axes to show the units of measurement. They can be used either horizontally or vertically or both to set categories apart in a line graph, for example, or to separate categories in a column or scatter graph.

For information on changing axis attributes in a graph that contains more than one graph type, see [Combining Graph Styles](#).

To set horizontal tick mark and label options for either the left or right y axis:

- 1 Select the entire graph.
- 2 Choose Graphs/Style from the Object menu. The Graph Style dialog box appears.
- 3 Click either Use Left Axis or Use Right Axis. To apply the changes to both axes, also select the Same Axis Both Sides checkbox.
- 4 Click Left or Right to correspond to the axis you selected in step 3. (Bottom appears if the graph type is Scatter). The Graph Axis Style dialog box appears.
- 5 Click Use Manual Axis Values to manually calculate placement of the horizontal tick marks along the left or right y axis.

You can use this option, for example, to display very large numbers for the tick marks. Changing the y axes individually also lets you specify different options for the x and y axes or for the right and left y axes when you combine different graph types.

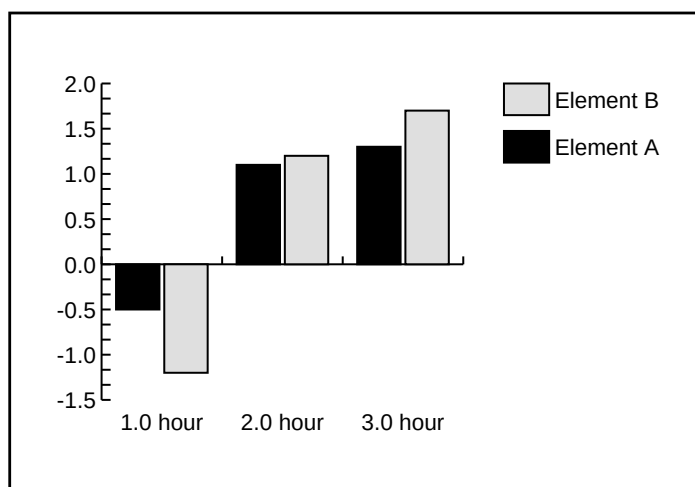
- 6 Either accept the values set automatically when you created the graph, or enter a minimum value, a maximum value, and the value between labels. To prevent numbers from appearing on an axis, enter 0 in the Value Between Labels text box. To have the axes start with a higher number and end with a lower number, enter a negative number in the Value Between Labels text box.



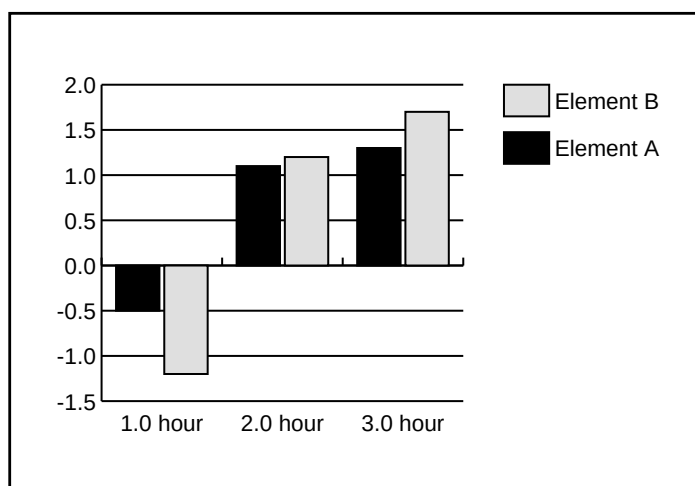
7 Specify one or more of the following options:

- In the Labels Before/After text box, enter characters in either text box to add more information before or after the y -axis values, such as a dollar sign before a number or the word *units* or a percent sign after the values.
- To add horizontal tick marks to the graph, click either Short Tick Lines or Full Width Tick Lines to extend tick lines across the graph.
- If desired, enter a value in the Draw Tick Marks Per Tick Line to specify how many tick lines to draw.

8 Click OK. Click OK again to apply the changes.

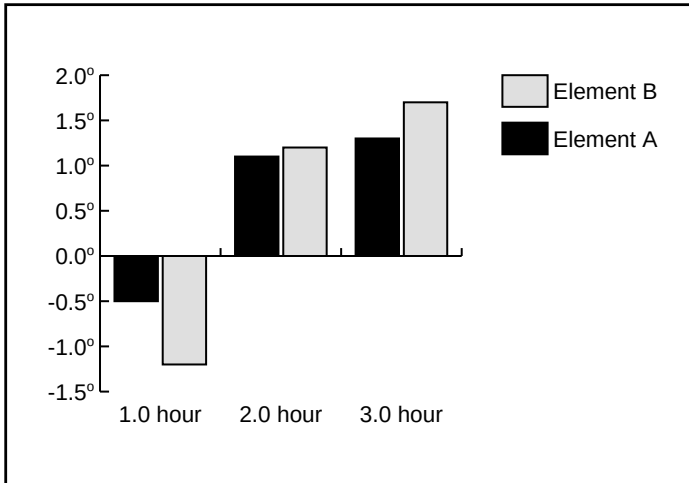


Left axis column graph: short tick lines with 3 tick marks per tick line



Left axis column graph: full width tick lines





Left axis column graph: short tick lines with degree sign entered in Labels After text box

To place vertical tick marks on the x axis:

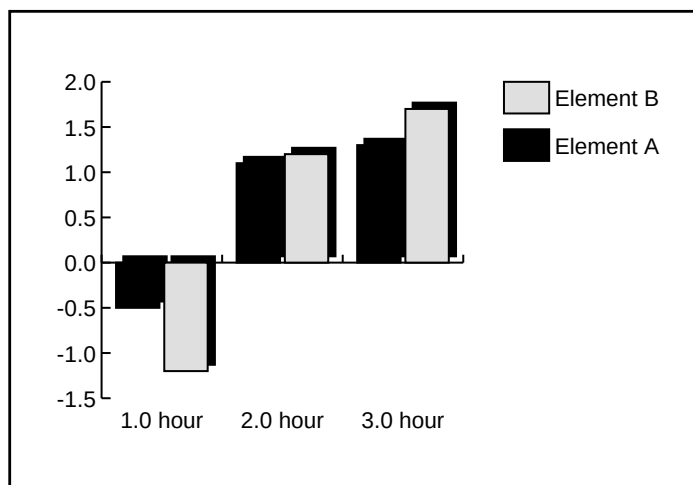
- 1** Select the entire graph.
- 2** Choose Graphs/Style from the Object menu. The Graph Style dialog box appears.
- 3** Click Bottom if you selected a scatter graph; otherwise, click Category. The Graph Axis Style dialog box appears.
- 4** Choose one or more of the following options:
 - To add vertical tick marks to the graph, click either Short Tick Lines or Full Width Tick Lines to extend tick lines across the graph.
 - Click Draw Tick Lines Between Labels to draw tick lines on either side of the labels or columns, or deselect the option to center tick lines over the labels or columns.
 - If desired, enter a value in the Draw Tick Marks Per Tick Line text box to specify how many tick lines to draw.
- 5** Click OK.

Adding a Drop Shadow to a Graph

You can add drop shadows to give a graph a three-dimensional effect. To do so, select the Drop Shadow option in the Graph Style dialog box. This option may not be appropriate for some graph styles, such as a line or scatter graph.

To add a drop shadow:

- 1 Select the entire graph.
- 2 Choose Graphs/Style from the Object menu. The Graph Style dialog box appears.
- 3 Select the Drop Shadow check box.
- 4 Click OK. Click OK again.



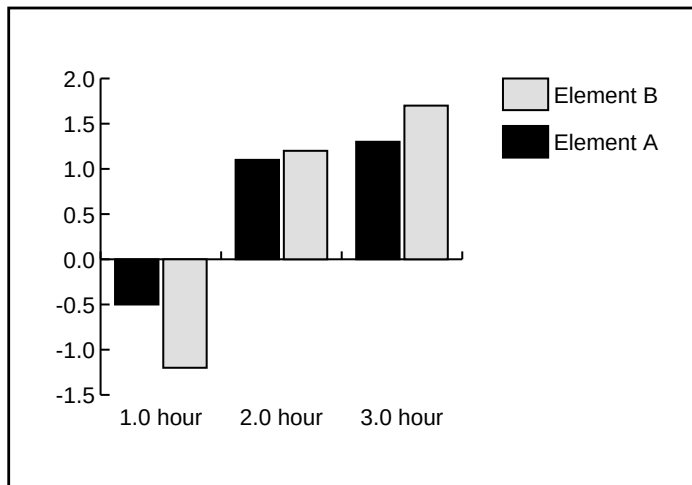
Drop shadows

Displaying Legends at the Top of a Graph

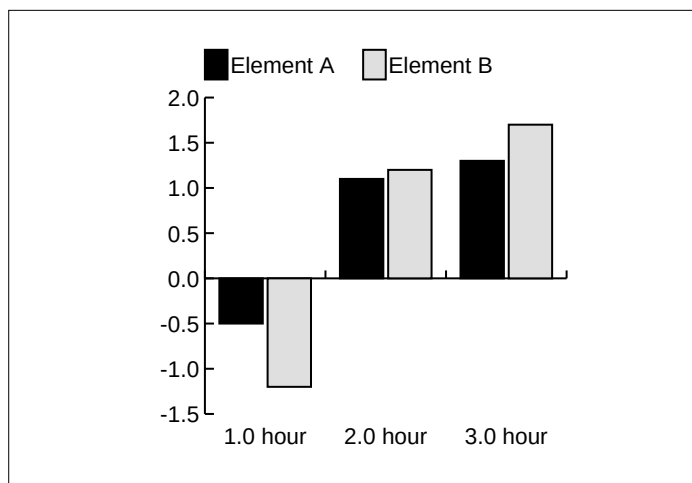
By default, legends are displayed to the right of the graph. You can choose to display them horizontally across the top of the graph.

To display legends across the top of a graph:

- 1 Select the entire graph.
- 2 Choose Graphs/Style from the Object menu. The Graph Style dialog box appears.
- 3 Select the Legends Across Top check box.
- 4 Click OK. Click OK again.



Default legends



Legends across top

Displaying Overlapping Columns of Data

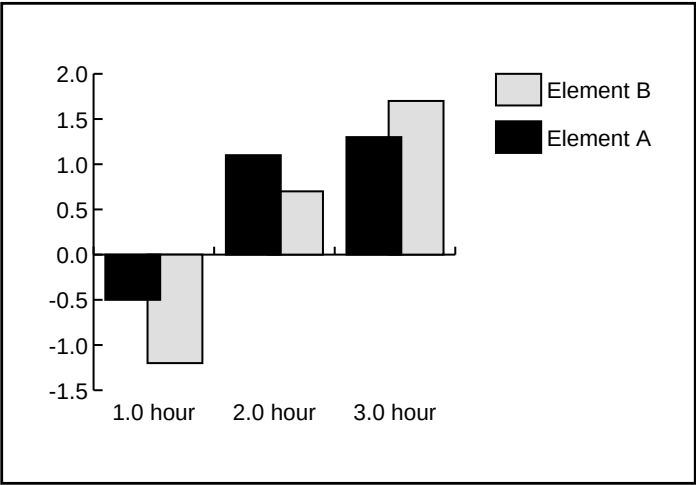
When using graphs such as a grouped column or area graph, you can control the order in which columns of data overlap.

To specify the order in which columns overlap:

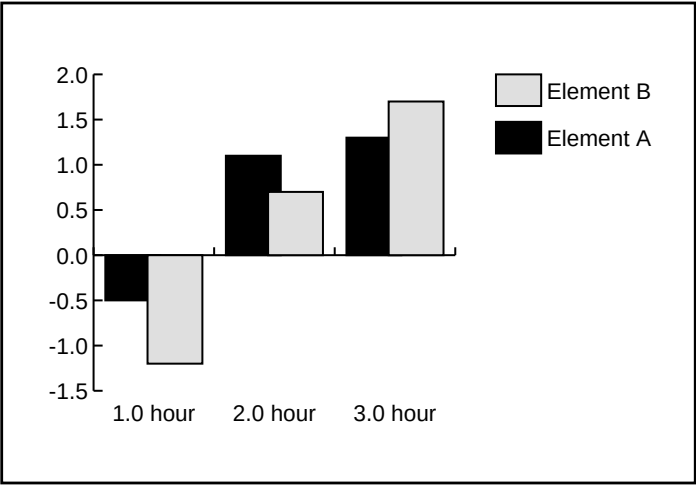
- 1** Select the entire graph.
- 2** Choose Graphs/Style from the Object menu. The Graph Style dialog box appears.
- 3** Select the First Row in Front check box to place the first row of data in the worksheet frontmost in the graph.
- 4** Select the First Column in Front check box (the default) to place the first column of data in the worksheet frontmost in the graph. You must always select this option for an area graph; if you do not, some areas may not appear.



5 Click OK. Click OK again.



First Column in Front option selected



First Column in Front option not selected

Changing Graph Styles

Once you have created a graph, you can easily change to another graph style to illustrate the data more effectively. To do so, you use the Graph Style dialog box.

To change the graph style of an individual series of data, use the group-selection tool to select the data series. Be sure to include the legend in the selection. For more information, see [Combining Graph Styles](#).

***Note:** Once graph objects are painted with gradient fills, changing graph styles will cause unexpected results. To prevent this, use the direct-selection tool to select each object and paint those objects with black; then reapply the original gradient fills.*

To change the graph style:

- 1 Select the graph, if it is not already selected.
- 2 Choose Graphs/Style from the Object menu. The Graph Style dialog box appears.
- 3 Click to select the desired graph style. The options for the particular type of graph you have selected appear to the right of the graph type. (No options are associated with the area graph.)
- 4 Click to select the desired graph options.

Customizing Graphs

Once you have created a graph, you can customize it in numerous ways. You can change the colors of shading in a graph; change the typeface and type style; and move, reflect, shear, rotate, or scale any or all of the graph. You can also use customized column and marker designs or combine different graph styles.

When you customize a graph, it's important to keep in mind that a graph is a grouped object that is related to its data. If you ungroup the graph, you can no longer change the graph and automatically update. To edit a graph, you select the parts you want to edit without ungrouping the graph, using either the direct-selection tool or the group-selection tool.

See the following topics form more information:

- [Selecting Parts of a Graph](#)
- [Using Graph Designs](#)
- [Combining Graph Styles](#)

Selecting Parts of a Graph

All elements of a graph are related. The entire graph with its legends is one group. All the data series are a subgroup of the graph; in turn, each data series with its legend box is a subgroup of all the data series. Each value is a subgroup of its data series, and so on.

You can see the hierarchy of grouping within a graph by creating a grouped column graph with two or more columns of data. The first column in the first cluster of columns is grouped with the first column in the next cluster of columns. In addition, the group of the first columns is grouped with the first legend.

If you want to select objects in a graph and send them to the back or front of other objects, it's important that you send only objects that represent an entire data series or individual numbers. You can select individual columns, lines, pie wedges, or series of any of these, and move these to the front or back. Do not, however, select and send individual category labels, individual legend labels, individual axis tick lines, individual axis tick labels, or vertical or horizontal axis lines. Also, never ungroup or regroup objects that are within the group.

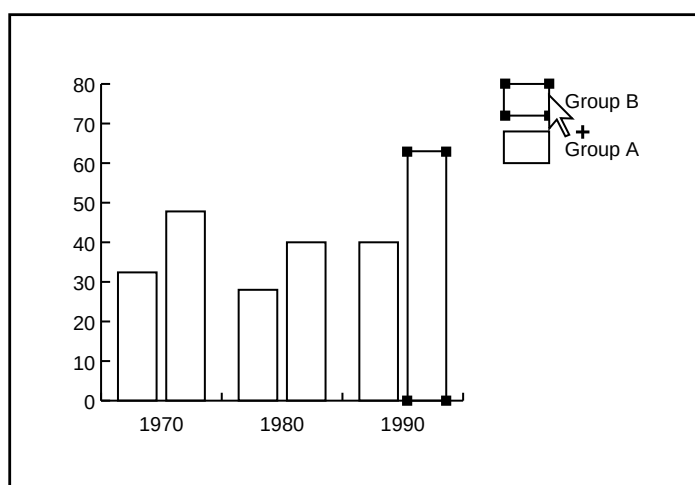
If you want to move a series in a line graph in front or in back of other series, you must select the entire series, including the legend.

To select an entire path in a graph:

- 1 Select the [group-selection tool](#).

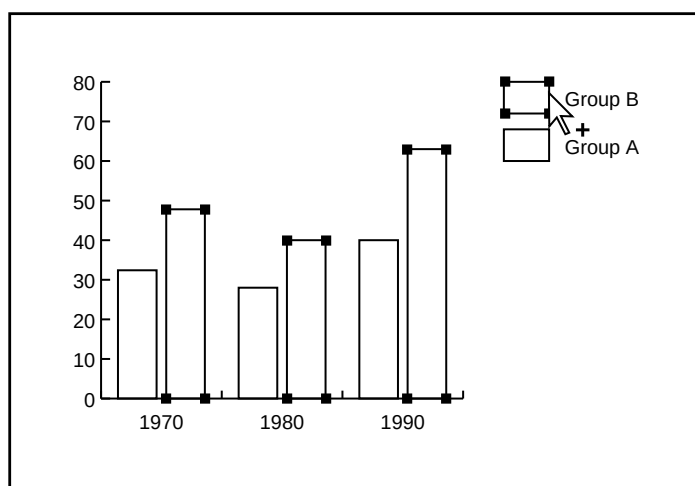


2 Position the pointer on the legend of the columns you want to select (for example, Group B), and click to select the legend.



First click selects a legend

3 Without moving the group-selection pointer from the legend, click the mouse button. All of the columns grouped with the legend are selected.



Second click adds columns to selection

You can also select a group by clicking one of its parts, clicking again to select columns grouped with it, and clicking a third time to select the legend.

Each click adds another layer of grouped objects to the selection, beginning with the next group up in the hierarchy. You can click as many times as the number of groups to add to a selection.



To deselect part of a selected group:

- 1 Select either the direct-selection tool or the group-selection tool and position the tool on the path you want to deselect.
- 2 Hold down the Shift key, and click to deselect the path.

To change part of the type in a graph:

- 1 Select the group-selection tool.
- 2 Click once to select the baseline of the text object you want to change; click twice to select all of the type.
- 3 Choose the Character from the Type menu or Paragraph from the Type menu. The Character palette or the Paragraph palette appears.
- 4 Set the type attributes you want to change. Changes you make apply only to the selected type.

Using Graph Designs

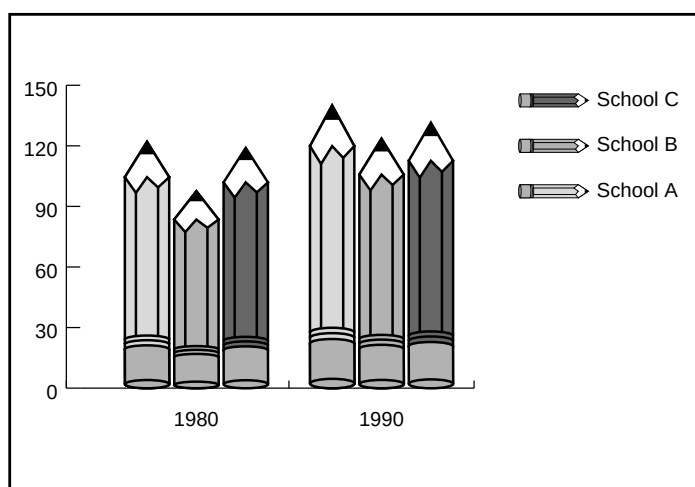
You can create custom markers or columns to represent data in graphs. You can also use the designs located in the Gallery folder included with the Adobe Illustrator program. You may want to use a simple drawing, logo, or other symbol to represent values in a graph. Graph designs can be a single object, such as a bicycle or a computer; they can also be complex objects that contain patterns, guide objects, and text.

Using a graph design is different from painting a column with a pattern. Graph designs are scaled so that the entire design fits within the column. Once the design is used in the graph, the design can be selected and modified.

You can use a graph design in a grouped column or stacked column graph. You can also use a graph design to replace markers in a line or scatter graph.

When you use a graph design with one of the column graphs, you have several options for how the design appears in the columns:

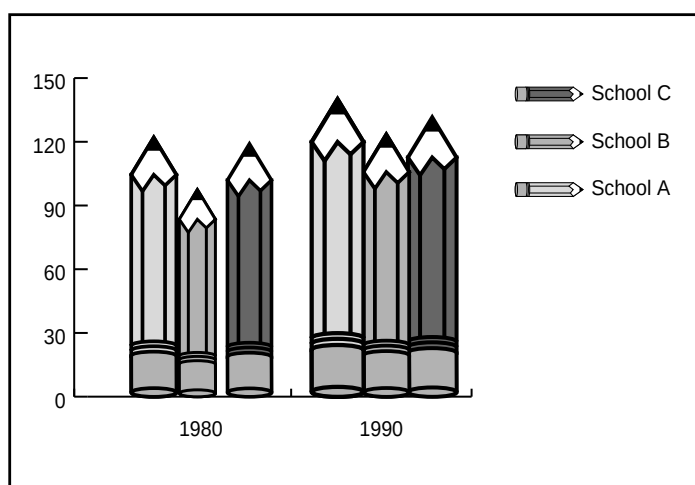
- A *vertically scaled* design is stretched or compressed vertically. Its width does not change.



Vertically scaled graph design

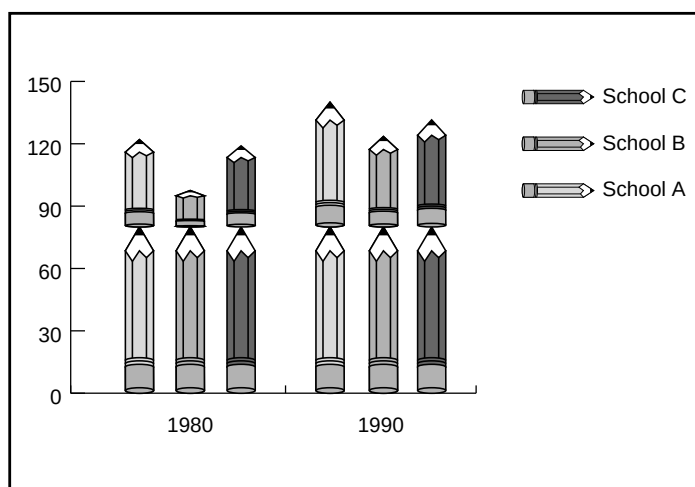


- A *uniformly scaled* design is scaled both vertically and horizontally. The horizontal spacing of the design does not change.



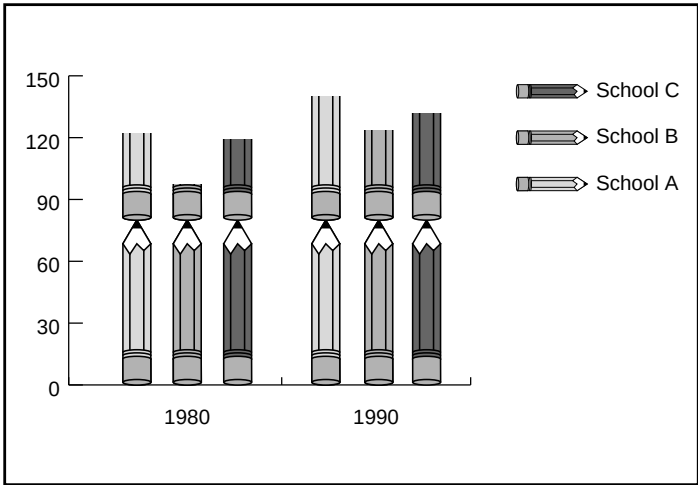
Uniformly scaled graph design

- A *repeating design* stacks a design to fill the columns. When you choose the Repeating Design option, you must enter a value for each design in the Each Design Represents text box. This assigns a value to each symbol. You also choose whether you want the program to chop or scale designs that represent fractions.



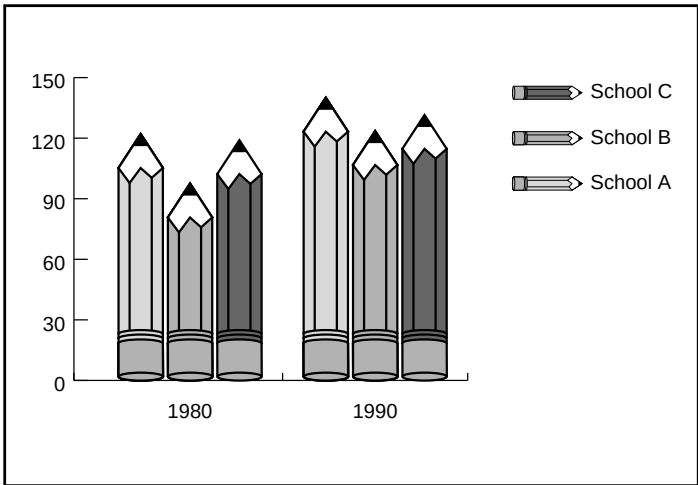
Repeating graph design using the Scale option. Each design represents 80 units.





Repeating graph design using the Chop option. Each design represents 80 units.

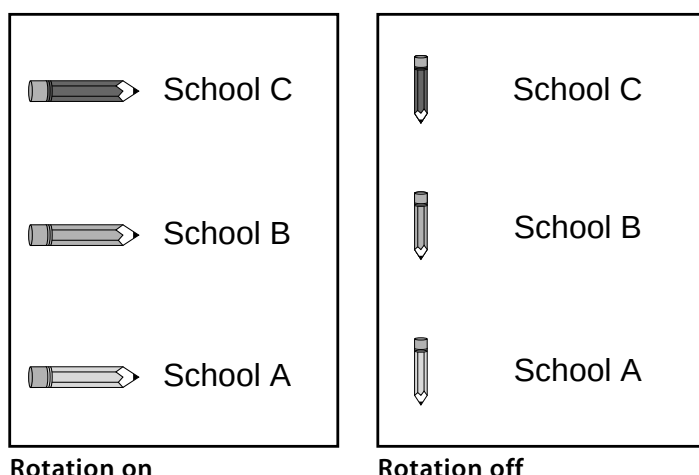
• A *sliding design* is similar to a vertically scaled design except that you can specify a place in the design around which you want the design stretched or compressed. For example, if you were using a pencil to represent data, you might want to stretch or compress only the wooden part of the pencil, but not the point and the eraser. If you used the Vertically Scaled option, the entire pencil would be scaled.



Sliding graph design with only wooden part of pencil image scaled



You also have the option of rotating the design in the legend box. By default the design is rotated so that it appears horizontally in the legend box. You can turn this option off so that the design appears vertically in the legend box.



When you create a graph design, you add a total of the data values to a column or to a data point. You do this by using the type tool in the graph design to enter a percent sign (%) followed by two digits.

To create a graph design:

- 1 Select the [group-selection tool](#).
- 2 Position the group-selection tool on the smallest column or a marker from the graph, and click to select it.
- 3 Choose Copy from the Edit menu and Paste from the Edit menu to copy and paste a copy of the column or marker into the graph; drag the copy to reposition it as needed.

Copying and pasting the column or marker first makes the column or marker rectangle the backmost object in the design.

- 4 Paint the rectangle as desired, or fill and stroke it with None so that it is invisible.
- 5 Create the design using any of the drawing tools, or position an existing design in front of the rectangle.
- 6 Using the selection tool, select all parts of the design, including the rectangle.



7 Choose Graphs/Design from the Object menu, and click New. A preview of the selected design appears. (Only the portion of the design that fits inside the backmost rectangle will appear, but the whole design will appear when used in the graph.)

8 Name the design and click OK.

To create a sliding graph design:

1 Create a rectangle as the backmost object in the design.

2 Create the design using one of the drawing tools or place an existing design in front of the rectangle.

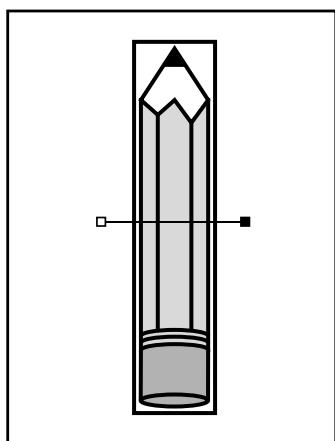
3 Use the pen tool to draw a horizontal line to define where the design will be stretched or compressed.

4 Select all parts of the design including the horizontal line.

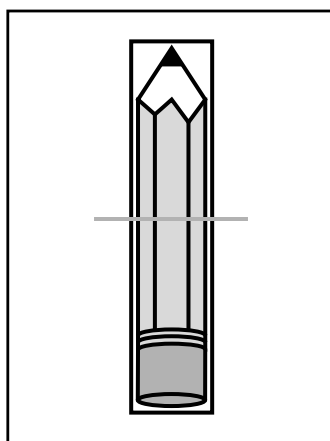
5 Choose Group from the Arrange menu.

6 Use the direct-selection or group-selection tool to select the horizontal line. Be sure to select only the horizontal line.

7 Choose Guides/Make from the Object menu.



Draw a horizontal line to act as the guide object . . .



and use the line as a guide to adjust graph element.

8 Use the selection tool to select the whole design.

9 Choose Guides/Lock from the Object menu to remove the checkmark next to Lock and unlock the guides. Move the design around to make sure that the guide moves with the design.

10 Choose Graphs/Design from the Object menu. The Design dialog box appears.



- 11 Click New. A preview of the selected design is displayed.
- 12 Type a name for the design and click OK.
- 13 To make the guide invisible when previewing the artwork, choose Hide Guides from the View menu.

To display column totals with the graph design:

- 1 Create the graph design, following steps 1 through 5 of the previous procedure.
- 2 Select the type tool. Position the pointer near or in the rectangle that defines the design at a point where you want the value to appear.

For example, you can place the value in the design, above, below, to the left, or to the right of the design.

- 3 Click the mouse button and type a percent sign (%) followed by two digits from 0 to 9. The digits control how the data is displayed.

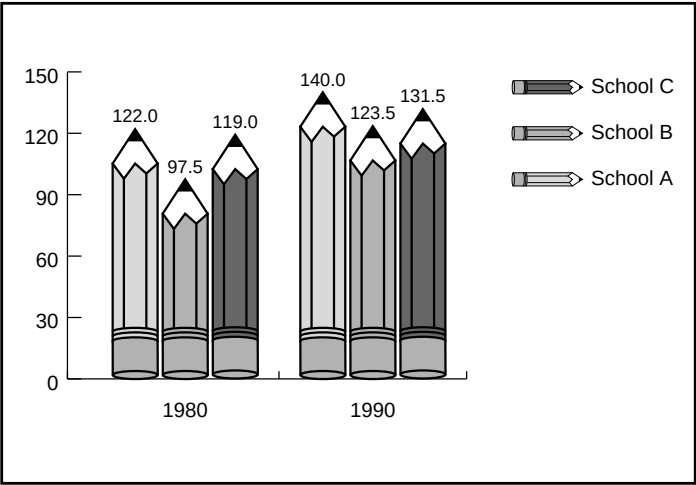
The first digit determines how many places appear before the decimal point. For example, if your total was 122, a digit of 3 would display 122. (If you enter 0 for the first digit, the program will use the number of places necessary for the value.)

The second digit determines how many places appear after the decimal point. Zeros are added as necessary, and values are rounded up or down as necessary. You can vary these numbers depending on how many digits you need.

- 4 To change the type attributes, use the Character palette in the Type menu. To align the decimal points, choose Paragraph from the Type menu and select the Right Alignment option.
- 5 Choose Group from the Arrange menu to group the design.
- 6 Choose Graphs/Design from the Object menu, click New in the Design dialog box, name the design, and click OK.



To apply the design to a graph, see [Applying Graph Designs](#).



Sliding graph design with data totals above, %01 typed in design

Applying Graph Designs

Once you have created a graph design, you can use it either in a column in a column graph or as a marker in a line or scatter graph. You can also reuse graph designs and edit them to create a new design.

When you create a new design, the design is stored with the document in which it was created. If you want to use that design in another document, you must either open the document in which you created the design or use the [Import Styles command](#) to import the design. As with patterns, when you use a design in a document, that design is saved with the document.

Note: You can customize your graph design menu by adding graph designs to the [Adobe Illustrator Startup file](#). The graph designs in the startup file will appear automatically in the graph design list.

Using a graph design in a column graph

When you use a graph design in a column graph, you can choose to scale the design vertically or uniformly, repeat the design in each column, or enlarge or reduce the design to fit each column.

To use a graph design in a column graph:

- 1 Use the group-selection tool to select the column or columns you want to fill with the design, or select the entire graph.
- 2 Choose Graphs/Column from the Object menu. The Graph Column Design dialog box appears, listing all of the designs you have created.
- 3 Select a column design type. If you choose the Repeating column type, enter a value in the Each Design Represents text box for what each design represents—for example, if each design should represent 100 units, enter 100 in the Each Design Represents text box; also select whether to chop or scale any fractions of the design.
- 4 Select the design you want to use; a preview of the selected design appears.
- 5 Click OK.

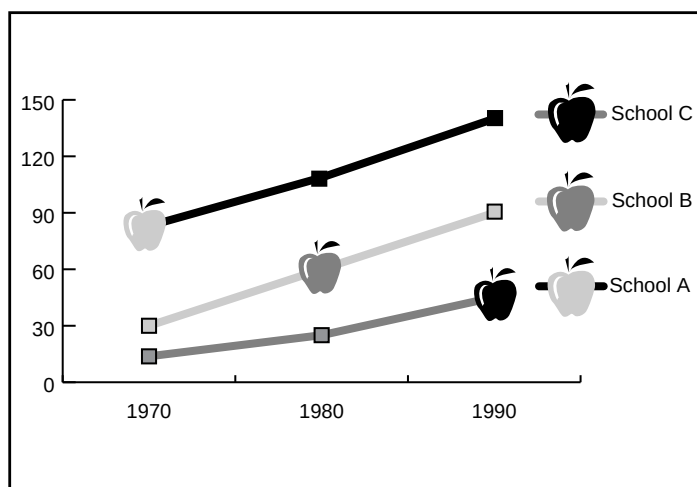


Using a graph design as a line or scatter graph marker

You can use any graph design you have created to mark the data points in a line or scatter graph. Keep in mind that the entire design is scaled so that the backmost rectangle in the design is the same size as the default square marker on the line or scatter graph. This means that the larger the rectangle, the smaller the design will appear in the graph; the smaller the rectangle, the larger the design will appear in the graph. Also, if the backmost rectangle is not square, it will be nonuniformly scaled. The easiest way to create the rectangle for the marker design is to drag a copy of the original square marker, and use that as the backmost rectangle.

To use a graph design as a line or scatter graph marker:

- 1 Use the direct-selection tool to select the markers and the legends in the graph you want to replace with a design. Make sure that you select the markers and legends, and not the lines.
- 2 Choose Graphs/Marker from the Object menu. The Graph Marker Design dialog box appears.
- 3 Click the On Data Point option; then click the design you want to use, and click OK.



Three markers and legends are replaced with marker designs



Reusing a graph design

You may want to use a graph design that you have already created and edit it to create a new design. If you have the original artwork, you can alter it, then rename the design using the Graph Design dialog box. For more information, see [Creating a Graph Design](#).

However, you may not have the original artwork that you defined as a graph design. You can retrieve the graph design's original artwork by pasting the graph design into your artwork document using the Paste option in the Graph Design dialog box. You can then make any changes to the design, and define it as a new graph design.

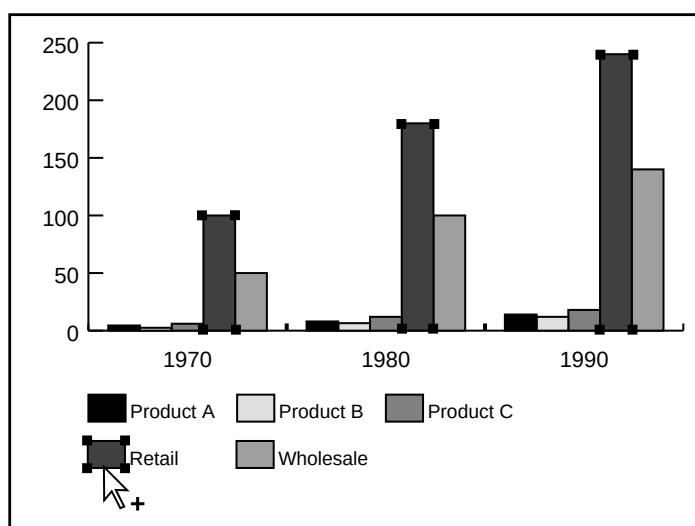
To paste an existing graph design into your artwork:

- 1** Choose Select None from the Edit menu to deselect all of the artwork.
- 2** Choose Graphs/Design from the Object menu. The Design dialog box appears.
- 3** Select the graph design that you want to paste into your artwork, and click Paste.
- 4** Click OK. The graph design is pasted into your artwork document. You can now edit it and define it as a new graph design.

Combining Graph Styles

You can combine different graph types in one graph. For example, you may want one or more data series to appear as a grouped column graph, and other data series to appear as a line graph. You can combine any type or graph with another, with the exception of scatter graphs. Scatter graphs cannot be combined with any other graph type.

To combine different graph types in the same graph, you use the [group-selection tool](#) to select the data series. You can easily select the data series by clicking one element of the data series, for example, the legend box, and then clicking again to select the entire group.



To select an entire data series, click the legend box with the group-selection tool; click again to add the data series

For more information on selecting parts of a graph, see [Selecting Parts of a Graph](#). Once you have selected the series, you change the graph style in the Graph Style dialog box.

When you have more than one graph style in a graph, you may want one graph style along the right axis and the other graph style along the left axis. In this way, each axis will measure different data.

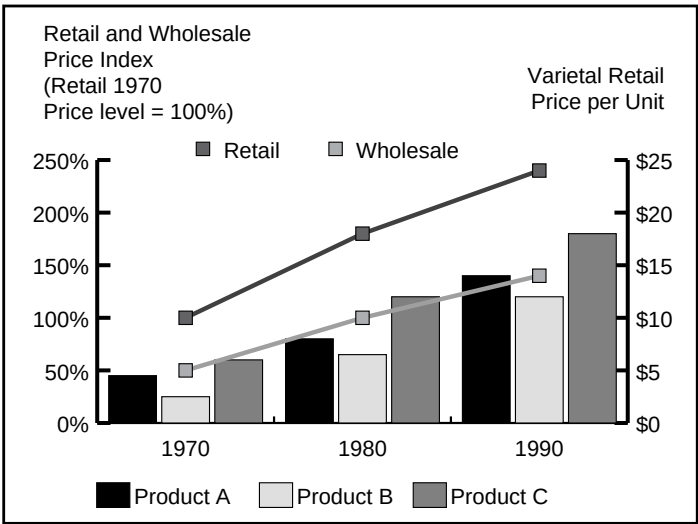


***Note:** Although you can use two axes, you can set the axis style only by selecting the entire graph. If you have only part of a graph selected, the Axis options in the Graph Style dialog box are dimmed and unavailable.*

If you use stacked column graphs with other graph styles, be sure to use the same axis for all data series that are represented by stacked column graphs. If some series use the right axis while other series use the left axis, the column heights may be misleading or may overlap.

To combine different graph styles:

- 1 Use the group-selection tool to select a data series and its legend box or legend line.
- 2 Choose Graphs/Style from the Object menu. The Graph Style dialog box appears.
- 3 Select the graph type and options you want.
- 4 Specify which axis to use for this series, and click OK.



	Product A	Product B	Product C	Retail	Wholesale
"1970"	4.50	2.50	6.00	100.00	50.00
"1980"	8.00	6.50	12.00	180.00	100.00
"1990"	14.00	12.00	18.00	240.00	140.00

Graph data

Printing Documents

Before you print a document, make sure that you have selected the View options you want in the Document Setup dialog box. The View options may determine the number of pages that print. The View options also determine whether patterns are printed.

To print a document:

- 1 Choose Print from the File menu. The Print dialog box appears.
- 2 Indicate which pages you want printed. (If you have selected the Single Full Page option in the Document Setup dialog box, only one page will print.)
- 3 Click OK to start printing.

***Note:** If you have turned the printing options on or off on different layers in your artwork, only those layers with the printing option turned on will be printed. (For more information on printing layers, see [Printing Layers and Displaying Placed Images](#).)*

For more information on printing, see the following topics:

- [Setting Crop Marks](#)
- [Printing Gradient Fills](#)
- [Splitting Paths to Print Large, Complex Shapes](#)
- [Annotating Objects](#)
- [Setting Output Resolution](#)
- [Tips for Efficient Printing](#)

Setting Crop Marks

Crop marks define where your artwork will be trimmed after it is printed. Crop marks will print from the Adobe Illustrator program or from the Adobe Separator program.

If you plan to separate your color Adobe Illustrator documents using the Adobe Separator program, you should first set crop marks using the Adobe Illustrator program. If you want to reposition the crop marks later, you can do this either by deleting the first set of crop marks and then setting new crop marks, or by using the Adobe Separator program. You cannot create more than one set of crop marks in a file; however, you can create multiple trim marks inside your artwork using the [Trim Marks filter](#).

Once you set crop marks, you cannot select them. You can, however, release them using the Release Cropmarks command in the Object menu. You can also set new crop marks without releasing the old ones; the new crop marks replace the old ones. For more information on using crop marks, see [Step 5: Place Crop Marks around the Image to Be Separated](#).

To set crop marks:

- 1 Draw a rectangle to define the boundaries of where you want the crop marks to appear.
- 2 Select the rectangle.
- 3 Choose Cropmarks/Make from the Object menu. This command is available only when a rectangle is selected. Crop Marks replace the selected rectangle.

***Note:** If you have selected the Single Full Page option in the Document Setup dialog box, you can use the Make Cropmarks command without first creating and selecting the bounding rectangle. The crop marks will be set at the outer corners of the page.*

To eliminate crop marks:

Choose Cropmarks/Release from the Object menu. The original rectangle reappears to define the bounding area of your artwork.

Printing Gradient Fills

Some older Level 1 imagesetters may have difficulty printing gradient fills. In these cases, files containing gradient fills may take excessively long to print, or may print only partially or not at all. The Compatible Gradient Printing option enables such imagesetters to print your files.

Note: You should use this option only with files that contain gradient fills and that will be printed on imagesetters that have difficulty printing gradient fills. This option can slow printing on printers that don't have problems with gradient fills.

To improve gradient printing:

- 1 Choose Document Setup from the File menu. The Document Setup dialog box appears.
- 2 Select the Compatible Gradient Printing option. Click OK.

Splitting Paths to Print Large, Complex Shapes

If you are printing Adobe Illustrator documents containing overly long or complicated paths, you may receive limitcheck error messages from your printer.

To eliminate printing delays, you can split long, complex paths into two or more separate paths. This feature is controlled by the Split Long Paths option in the Document Setup dialog box. The Split Long Paths option has no effect on stroked paths, compound paths, or masks; for information on splitting these paths, see [Splitting Stroked Paths, Compound Paths, and Masks](#).

Note: You should always keep a copy of your original artwork if you plan to use the Split Long Paths option. That way, you will still have the original, unsplit document to work with if needed. When you save your document, be sure to save a copy of your document with the Split Long Paths option turned off.

By default, the Split Long Paths option is turned off. Unless you experience problems printing complicated shapes, you should leave the option off. If you know that your artwork contains long, complicated paths, you can turn on the option by choosing Document Setup from the File menu and selecting the Split Long Paths option.

When the Split Long Paths option is selected, the Adobe Illustrator program checks the path length whenever you save or print an image. If the path length exceeds what the printer's memory can handle, the Adobe Illustrator program breaks the path into pieces represented on-screen by lines through the path. These lines only appear in Artwork view; they will not preview or print. The image will preview and print as if the paths were joined.

If an object contains both filled and stroked paths, the Split Long Paths option will create two new paths: one filled path that has been split into pieces, and an overlying stroked path that has not been split; the stroked path should be split manually. (See [Splitting Stroked Paths, Compound Paths, and Masks](#).)



Keep in mind, however, that splitting paths affects future changes you make to the artwork. The Adobe Illustrator program treats the separate paths in the artwork as discrete shapes. To change your artwork once paths have been split, you must either work with the separate shapes, or rejoin the paths to work with the image as a single shape. See [Overriding Split Paths](#) for information on how to rejoin split paths.

Splitting stroked paths, compound paths, and masks

The Split Long Paths option has no effect on stroked paths, compound paths, or masks. If you are having problems printing an image containing these elements, you must take special steps to split the paths manually.

- Stroked paths should be split manually, using the [scissors tool](#).
- Compound paths should be simplified by decreasing the number of points in the path, or by breaking the image into smaller compound paths. Choose Compound Paths/Release from the Object menu to remove the compound path; then break the path into pieces using the scissors tool, and create redefine the pieces as compound paths.

Overriding split paths

You will find it easier to work on artwork free of split paths. If the paths within your artwork have been split, you can rejoin them using the Unite filter.

To rejoin sections of a split path using the Unite filter:

- 1 Delete the horizontal lines from the split object by selecting them and pressing the Delete key.
- 2 Select all the split paths that made up the original object.
- 3 Choose Pathfinder/Unite from the Filter menu. The path will be rejoined, with anchor points placed at each intersection where a split path was reconnected.

Annotating Objects

You can use the Note text box in the Attributes dialog box to annotate objects in the PostScript file that corresponds to your artwork. This feature is sometimes useful for service bureaus or other professionals trying to troubleshoot printing problems.

To annotate an object:

- 1 Select the object you want to annotate.
- 2 Choose Attributes from the Objects menu. The Attributes dialog box appears.
- 3 In the Note text box, type the annotation. You can enter up to 240 characters.
- 4 Click OK. The annotation is associated with the object.

When you save the artwork, the object is annotated in the PostScript language program with your text preceded by the text string `%AI3_Note`.

Setting Output Resolution

Adobe Illustrator produces optimal printing quality and print speed by using a default output resolution setting of 800 dots per inch (dpi). However, in some cases you might want to change the output resolution, for example, if you draw a very long curved path and receive a limitcheck error message from your PostScript printer, telling you that the program cannot handle such a long path; or if objects are not being printed at an adequate resolution.

To avoid or correct the limitcheck error, you can split long paths (see [Splitting Paths to Print Large, Complex Shapes](#)), or you can set the output resolution for that object to a lower value. If objects are not being printed at an adequate resolution, you can increase the output resolution for the object.

Output resolution for all new objects is automatically set at the value in the Output Resolution text box in the Document Setup dialog box.

***Note:** Changing the Output Resolution value in the Document Setup dialog box affects only objects created after the setting has been changed—existing objects are not affected.*

To change the output resolution of an existing object, use the Output Resolution text box in the Attributes dialog box. When you change output resolution for the object, you set the *flatness* for that object. Flatness determines the number of straight line segments that are used to define a given curve and is based on the resolution of the printing device and the output resolution set for the object in Adobe Illustrator:

$$\text{Flatness} = \frac{\text{Printing device resolution}}{\text{Output resolution setting}}$$

The flatness value will be greater than 1 if the printer resolution is greater than the output resolution set for the artwork. For example, if the printer resolution is 2400 dpi, and the output resolution for an object is set at 800 dpi, the flatness value will equal 3. If the calculated flatness value is smaller than 1.0, a flatness value of 1.0 will be used.



To set the output resolution for an object:

- 1** Select the object for which you want to adjust the output resolution.
- 2** Choose Attributes from the Object menu. The Attributes dialog box appears.
- 3** Enter the output resolution for the object. Click OK.

Additional Tips for Efficient Printing

You may receive other error messages besides a limitcheck error when printing, including rangecheck error or VMerror (virtual memory error). The printer may simply quit, without issuing a message. Many of these errors are caused by overly complex paths in your artwork. If your image takes a long time to print, consider simplifying the file using the following guidelines:

- Decrease the number of points on the shape's path.

The most efficient images and the fastest to print are simple. When you are using the freehand or auto trace tool, you can simplify your paths by increasing the freehand tolerance value or the auto trace gap distance in the General Preferences dialog box before you create a path. A higher value decreases the number of points on a path and, thus, decreases memory requirements.

- Reduce the number of segments a printer uses to print paths.

Before printing, set the flatness for your image to lengthen segments and decrease memory needs. You do this by decreasing the [Output Resolution value](#) in the Attributes dialog box.

- Use simple shapes.

Build your illustration as a collection of simple shapes, rather than as a single complex object. This is especially important if you are masking shapes or using patterns. Also, before creating a pattern from a complex drawing, remove any detail too small to appear in your final printed output.

- Limit the number of downloadable typefaces you use in the artwork file.
- Limit the complexity of patterns, masks, and compound paths you use in the artwork file.

See the following topics for more information:

- [Splitting Stroked Paths, Compound Paths, and Masks](#)
- [Masking](#)
- [Using Compound Paths](#)

Producing a Color Separation

Producing a color separation in the Adobe Illustrator and Adobe Separator programs involves the following steps:

- 1 Calibrate your color monitor.
- 2 Assign colors to your artwork.
- 3 Select overprint options for colors you want to appear transparent.
- 4 Create trap for your artwork to avoid potential misregistration problems on press.
- 5 Place crop marks around the image.
- 6 Save the file for separation.
- 7 Open the file in Adobe Separator and set separation options.
- 8 Print or save the separations.

To use the Adobe Separator program, you should be familiar with basics concepts of printing, including line screen, resolution, process colors, and custom colors. It is also recommended that you work closely with your local print shop, consulting its experts before beginning each job and during the process.

Step 1: Calibrate Your Color Monitor

To produce the full spectrum of color, video monitors mix the three basic colors of light—red, green, and blue (or RGB)—whereas, the printed page mixes the four basic ink colors (or process colors) of cyan, magenta, yellow, and black. Because of the fundamental differences in these two color models, a perfect match between the two is almost impossible.

This section describes the process of calibrating your color monitor to achieve the best possible match to your final printed piece. Even if you used calibration software, such as a gamma device, to calibrate your system, follow this procedure to calibrate your monitor.

Calibration allows you to select a device-independent color model for converting RGB display colors to CMYK printing colors to compensate for factors affecting the monitor display, and to compensate for the ink and paper stock you plan to use to reproduce your image. If you use the Adobe Photoshop™ program with Adobe Illustrator, you can have artwork displayed in or printed from either program match by using the same calibration settings.

You can achieve the most accurate color calibration on a 24-bit monitor. On monitors that have a lower bit display, many colors are *dithered*—that is, simulated, by the addition of black or white or another color—and therefore a broader spectrum of color can only be approximated.

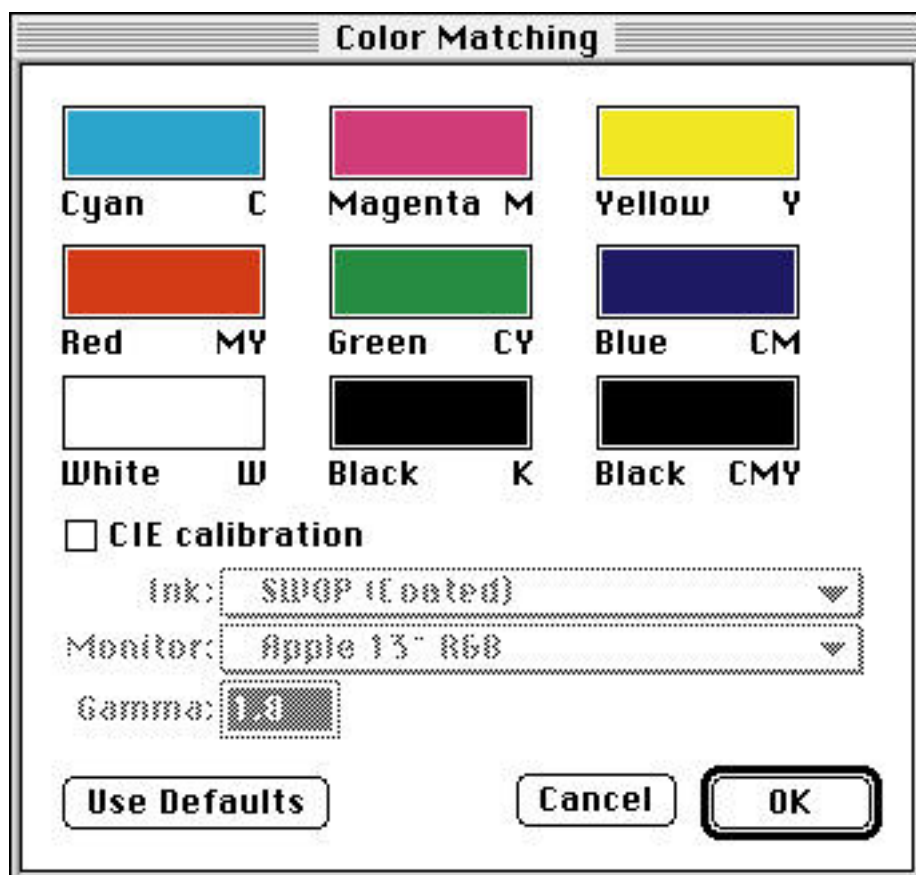
Before you calibrate your color monitor, obtain a sample progressive color bar from your print shop with separate squares showing the following process colors and all their combinations: cyan, magenta, yellow, and black, magenta/yellow, cyan/yellow, cyan/magenta, cyan/magenta/yellow, white, and a four-color black.

To calibrate your color monitor:

- 1 Start the Adobe Illustrator program.



2 Choose Preferences/Color Matching from the File menu. The Color Matching dialog box appears, showing the colors and color combinations that appear on a progressive color bar.



3 If you are using Adobe Illustrator with the Adobe Photoshop application, select the CIE calibration checkbox.

This option improves the on-screen simulation of printed colors, and instructs Adobe Illustrator to match the Adobe Photoshop settings used to convert RGB color to CMYK color.

Adobe Photoshop uses a color model developed by the Centre International d'Eclairage (CIE) to convert images between RGB and CMYK modes. The CIE color models are international color definition standards that are device-independent. This means that CIE color values do not vary with different, properly calibrated monitors or printers. The CIE standard is supported by PostScript Level 2.



If you use the same settings in the Color Matching dialog box as you use in the Monitor Setup and Printing Inks Setup dialog boxes in Adobe Photoshop, you can expect that the same image displayed on-screen in either program and printed from either program will match.

4 Choose an ink that matches the printer you will use.

The default color values used in the color separation calculations are designed to produce quality separations using SWOP (standard web offset proofing) inks on coated paper. These inks differ slightly from those used in Europe, as well as from the pigments used in color wax transfer printers such as the QMS ColorScript printer. Similarly, the color and ink absorption qualities of the paper stock affect the final printed result. You can think of this information as telling the program what printed magenta looks like, for example, given a certain set of inks and paper stock.

The Ink pop-up menu reflects calibrations of some of the most commonly used ink sets and color printers. If your printer is not listed, contact your printer manufacturer to find out whether a set of Adobe Illustrator color patch values for your printer is available.

5 Choose your monitor from the Monitor pop-up menu. This option controls how the monitor converts an RGB image to CMYK colors and how the CMYK colors are displayed on-screen by compensating for the different red, green, and blue phosphors used by monitors to display color.

6 In the Gamma field, enter the same target gamma setting you used in Adobe Photoshop to calibrate your monitor. (To check the value, double-click the Gamma icon in the Control Panels folder of the System Folder.)

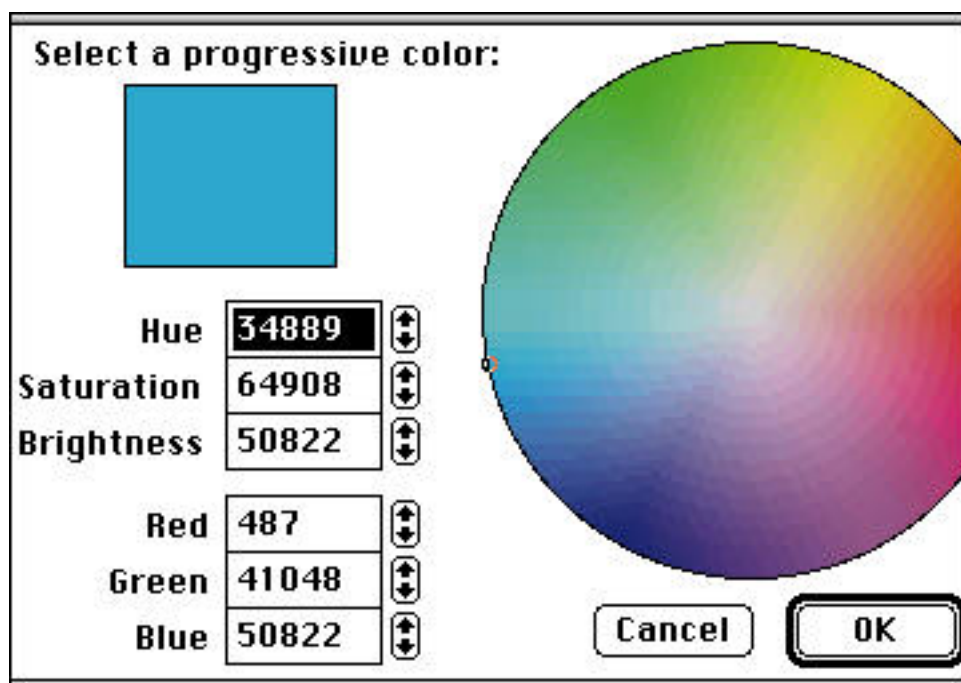
7 Compare the on-screen color chart to the printed color bar.

- If the colors displayed on the monitor closely match the colors on the printed sample, no calibration is necessary.
- If the colors do not match, adjust the colors using the Apple Color Picker to match the printed sample.



To adjust colors using the Apple Color Picker:

1 In the Color Matching dialog box, click the color swatch that does not match the printed sample. The Color Picker appears.



The color swatch in the upper left of the box displays an ink simulation, or CMYK approximation, of the color for you to match to your printed sample.

2 Adjust the screen color in one of the following ways:

- Drag the circle in the middle of the main color field to a new location.
- Drag the slider up or down on the luminosity bar that appears to the right of the color display box.
- Enter new values in the Hue, Saturation, and Luminosity fields, or in the Red, Green, and Blue fields. You can type decimal percentages in these fields, or you can scroll through nondecimal percentages by clicking the scroll arrows to the right of the entry field.

3 When the color in the swatch matches the printed sample, click OK.

4 Repeat this procedure for each of the colors in the Color Matching dialog box that do not match your printed sample.



Step 2: Assign Colors to Your Artwork

You can paint artwork you create in the Adobe Illustrator program with process colors, custom colors, or a combination of both. The process colors of cyan (C), magenta (M), yellow (Y), and black (K—to avoid confusion with blue) are the basic ink colors that reproduce a full spectrum of color you see on the printed page. Custom colors are premixed inks, such as those in the [PANTONE MATCHING SYSTEM \(PMS\)](#).

Every ink color, whether process or custom, is printed as an individual separation. When printing separations, you can convert custom colors to their process color equivalents; for more information, see [Converting Custom Colors to Process Colors When Printing](#).

Step 3: Make Inks Print Transparently by Overprinting

Overprinting makes printing inks appear transparent. Overprinting is apparent only on the final separation negatives, and is intended solely for use with the Adobe Separator program.

By default, both fills and strokes in the Adobe Illustrator program appear opaque because the top color *knocks out*, or cuts out, the area underneath. As an option, you can prevent knock-out to make overlapping printing inks appear transparent; to do so, you select the Overprint option in the Paint Style palette.

You can use the Overprint option on any painted object. Overprinting affects only objects beneath the overprinted layer. Artwork layered or pasted in front of the overprinted object can knock out layers underneath unless that artwork is also set to overprint.

Use the following guidelines to help determine when to overprint:

- Overprint black lines against a color background when the design contains many different color tints and the illustration style allows.
- Overprint black lines against a four-color black background when the illustration or type is reversed out of a four-color black background.
- Overprint when the artwork contains shared color. When overprinting process color mixes that share common ink colors, the percentage of the topmost layer's shared color prints where the shared colors overlap. The overprint feature does not affect common colors that overlap; the topmost common color appears to knock out the common color underneath. However, the separate color plates will overprint.



- Overprint when the artwork contains uncommon colors.

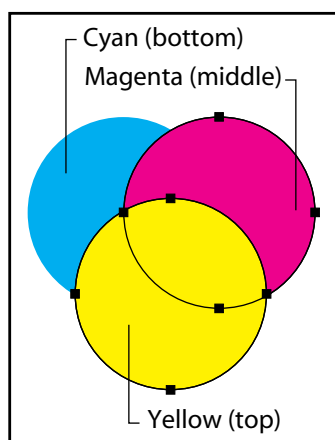
When overprinting process color mixes or custom colors that do not share common ink colors, the overprint color is added to the background color. For example, if you print a fill of 100-percent magenta over a fill of 100-percent cyan, the overlapping fills will appear violet, not magenta.

Note that you cannot preview the Overprint feature when printing black-and-white or color composites, or when printing directly from the Adobe Illustrator program; objects appear the same whether or not you select Overprint. On-screen, you can approximate the colors on overprinted objects using the Pathfinder/Mix Hard filter. However, it is important that you carefully check overprinted colors on separated artwork using integral or overlay proofs.

For illustrated examples of overprinting, see *Design Essentials*, published by Adobe Press.

To print colors transparently by overprinting:

1 Select the object or objects that you want to overprint. This example shows the yellow and magenta fills selected.



2 Choose Paint Style from the Object menu. The Paint Style palette appears.

3 In the color selection options, select the Overprint Fill checkbox.



If you use the Overprint option on a 100-percent black stroke or fill, the black ink may not be opaque enough to prevent the underlying ink colors from showing through. To eliminate the problem of show-through, you should use a four-color black instead of a 100-percent black. Consult with your print shop about the exact percentages of color you should add to your black.

The preview on-screen will appear the same as before, but the selected colors will overprint when printed as a separation.

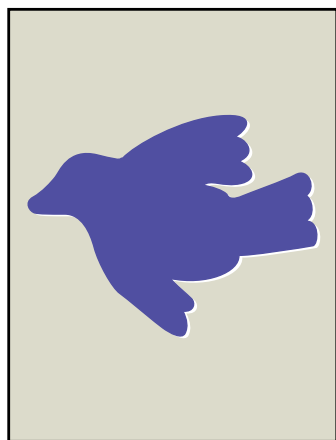
Step 4: Create Trap to Compensate for Misregistration On-press

You can control how colors print in relation to each other by selecting the Overprint option in the Paint Style palette. This optional step compensates for *misregistration* of colors on-press. Misregistration is the unintentional gap between colors that occurs on the final output when colors printed from separate plates overlap or butt against one another.

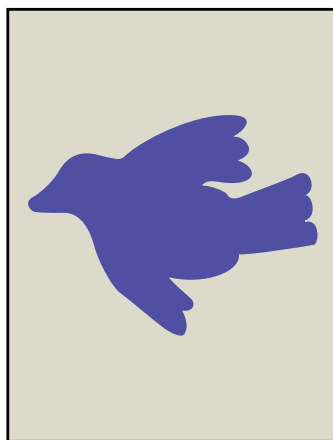
To compensate for potential gaps, print shops traditionally have used a technique called *trapping* to create a small area of overlap (called *trap*) between two adjoining colors. In Adobe Illustrator, to create the trap needed for a particular printing press, you set some elements in the artwork to overprint.

Important: In addition to the method explained in this section, you can use the [Pathfinder Trap filter](#) to create traps.

The following illustrations show art with and without trap. Notice that the illustration without trap shows a tiny bit of white along the edge between the background color and the bird. The bird is the correct size to fill the background; however, it is exactly the correct size. In the illustration with trap, the bird slightly overlaps the background to cover up the white.



Artwork without trap



Artwork with trap

For more illustrations of trap and overprinting, see Chapter 15 of your *Adobe Illustrator User Guide*.



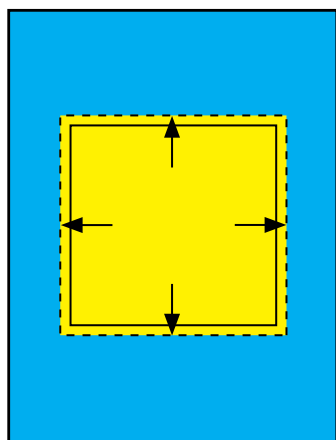
When overlapping painted objects share a common color, trapping may be unnecessary if the color that is common to both objects creates an automatic trap.

Keep in mind that overprinting appears only on the final separation negatives and cannot be previewed on-screen. If you use the Overprint option, carefully check your separated artwork using integral or overlay proofs.

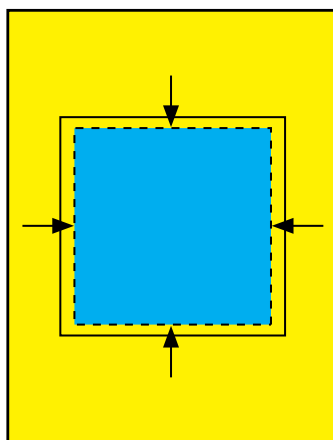
Constructing artwork with trap

Traditionally, print shops create trap either by overexposing the image onto intermediate film, or by using special vacuum frames designed specifically for creating trap.

There are two basic types of trap: a spread trap, in which a lighter object overlaps a darker background and seems to expand into the background; and a choke trap, in which a lighter background overlaps a darker object that falls within the background and seems to squeeze or reduce the object.



Spread trap: object overlaps background



Choke trap: background overlaps object

You can create both spread and choke trap in the Adobe Illustrator program. To do so, you select the artwork that will overlap or *trap into* the object or background, and set the artwork to overprint by selecting the Overprint option in the Paint Style palette. Typically, the lighter artwork—whether it's the object or background—overprints (traps into) the darker artwork (either the background or object).



Determining whether to create spread or choke trap

Before creating a trap, you must decide whether you want to spread or choke the image.

For best results, you should trap (overprint) the lighter area into the darker area. For example, if the background is darker than the image, you would use a spread trap (the lighter object overprints and spreads into the darker background); if the background is lighter than the image, you would use a choke trap (the lighter background overprints and visually squeezes the darker object).

If you are unsure which type of trap is appropriate, examine the following examples. These show how the choice of a spread trap or a choke trap can affect your results. Each type of trap was applied as a 1.5-point stroke.

In some cases, the topmost object and the bottom object may have similar color densities, so that one color is not obviously darker than the other. If so, you should work closely with your print shop to determine how to trap the objects.

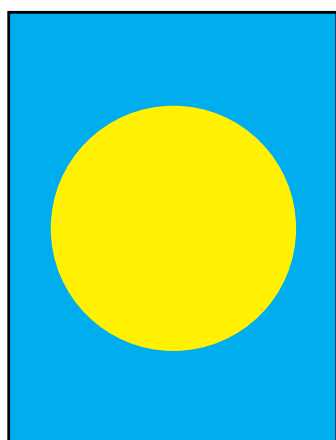
Determining the amount of trap

The amount of trap required for a piece of artwork depends on the accuracy of the registration of the press that will be used to print your piece, and so varies by printing press. For this reason, you need to consult your print shop for the amount of misregistration expected. You then double the line weight your print shop recommended for the trap; this is because the Adobe Illustrator program strokes both sides of a line equally. If your print shop recommends a trap of 0.5 point, give the object a stroke of 1.0 point and set it to overprint. In general, trap values are not less than 0.3 point or greater than 1.0 point.

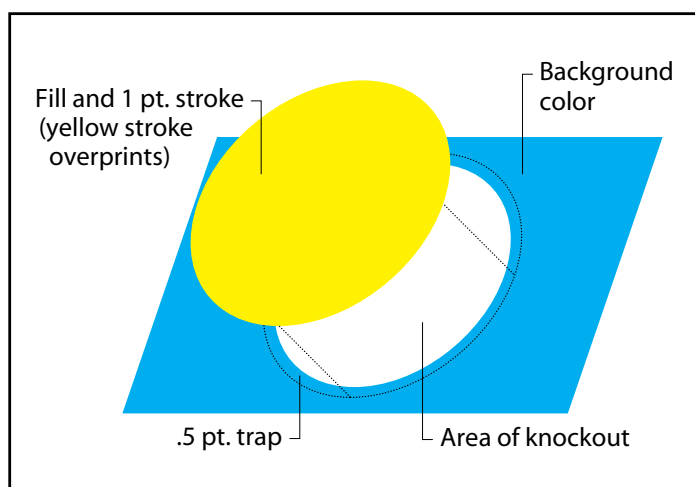
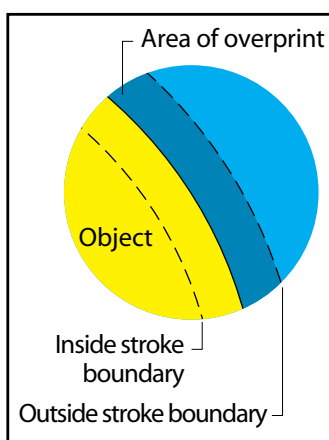


Creating a spread trap

To create a spread trap in Adobe Illustrator, you assign the same color values to both the fill and the stroke, and set the stroke to overprint.



**Object stroked with
1-point stroke of fill color**



To create a spread trap:

- 1 Select the topmost object of the two objects that must trap into each other.
- 2 Choose Paint Style from the Object menu. The Paint Style palette appears.
- 3 Enter the same color values for the Stroke as appear in the Fill options.

This enlarges the object by stroking its boundaries with the same color as the object's fill.



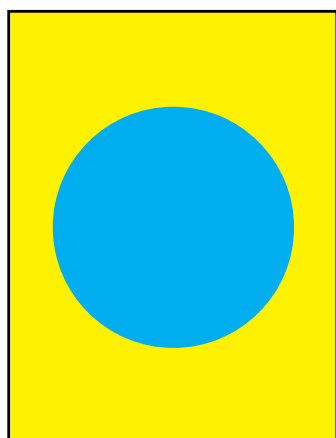
4 In the Weight field, enter a stroke width of between 0.6 and 2.0 points.

***Note:** A stroke weight of 0.6 point creates a trap of 0.3 point; this is a thin trap. A stroke weight of 2.0 points creates a trap of 1.0 point; this is a thick trap. You should check with your print shop to determine what value you should use.*

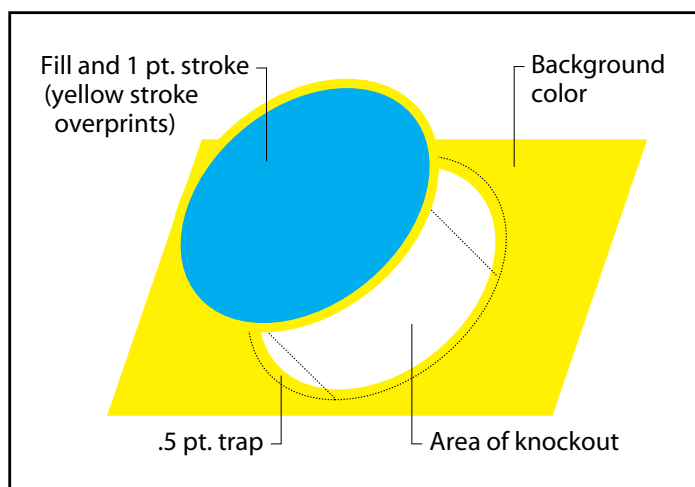
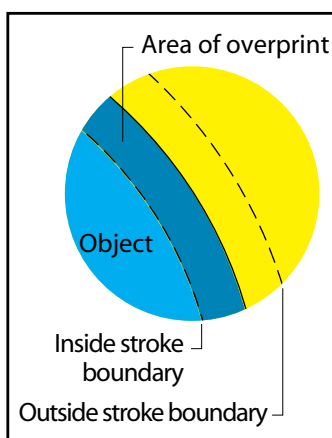
In the color selection options, select the Overprint Stroke checkbox. The lighter object will trap into (overprint) the darker background.

Creating a choke trap

To create a choke trap in Adobe Illustrator, you stroke the darker object with the same color as the (lighter) background you are trapping into, and set the stroke to overprint.



Object stroked with 1-point stroke of background color



To create a choke trap:

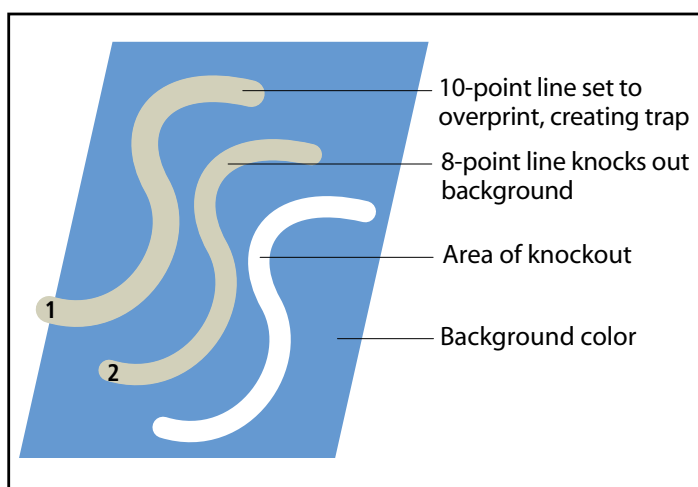
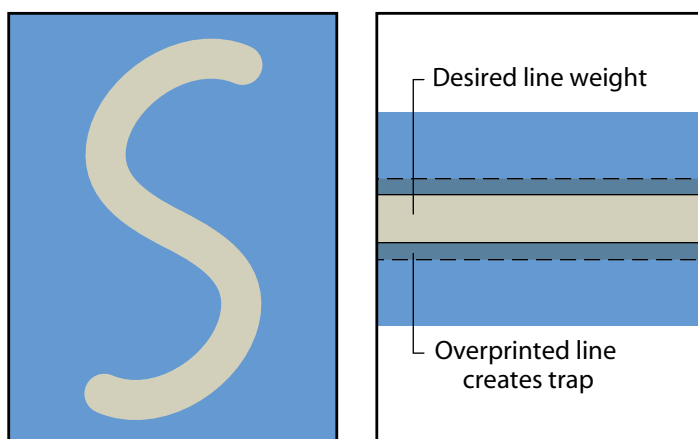
- 1** Select the topmost object of the two objects that must trap into each other.
 - 2** Choose Paint Style from the Object menu. The Paint Style palette appears.
 - 3** Enter color values for the Stroke that exactly match the color values of the lighter background; the Stroke and Fill values will differ.
- This visually reduces the darker object by stroking its boundaries with the lighter background color.
- 4** In the Weight field, enter a stroke width of between 0.6 and 2 points.
 - 5** In the color selection options, select the Overprint Stroke checkbox.

Overprinting the stroke causes the lighter background to trap into the darker object.



Trapping lines

To trap a line, you paste two lines on top of each other, and set the top line to overprint. The top line is slightly heavier than the desired line weight, and creates a spread trap; the bottom line is the desired line weight. For example, if the desired line weight is 8 points, you set the trapping line (the top line) to 10 points; this creates a trap of 1 point on either side of the bottom line.



To trap a line:

- 1 Select the line to be trapped.
- 2 In the Paint Style palette, stroke the line with white and select the desired line weight.
- 3 Copy the line and choose Paste in Front from the Edit menu. The copy is used to create a trap.

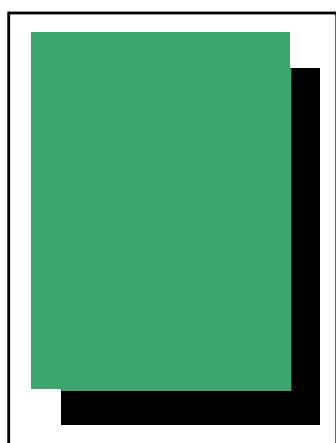


4 In the Paint Style palette, stroke the copy with the desired color and choose a line weight that is wider than the bottom line.

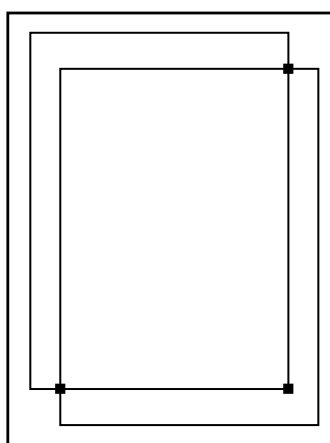
5 Select the Overprint option for the top line.

Trapping portions of an object

You can also create a choke trap or spread trap on just a portion of overlapping objects. To do so, you first examine the color values of the two overlapping objects to determine which type of trap is more appropriate. You then draw a line just at the intersection of the two objects, and set the line to overprint.



Drop shadow with trap



Line drawn at intersection of the two shapes creates a trap

To trap a portion of an object:

- 1 Draw the portion of the object that you want to trap.
- 2 Choose Paint Style from the Object menu. The Paint Style palette appears.
- 3 Select a color value for the Stroke to create either a spread or a choke trap.
- 4 If you are uncertain about what type of trap is appropriate, see [Determining Whether to Create Spread or Choke Trap](#).
- 5 Select the Overprint option for the stroke.

Note: When trapping portions of an object in complex images, you can achieve more accurate results by using a copy of a line common to the two objects rather than drawing a new one.

Step 5: Place Crop Marks around the Image to be Separated

You can place crop marks around the image to be separated either in Adobe Illustrator or in the Adobe Separator program. Crop marks indicate the area that will be imaged.

Keep these points in mind when creating crop marks in Adobe Illustrator:

- If you are setting crop marks in Adobe Illustrator and want the artwork to contain *bleed*, a margin added to the image so that it can be trimmed after printing, make sure that you extend the artwork past the crop marks to accommodate the bleed.
- If the artwork you plan to separate is small, you may want to create several sets of crop marks in a file. You might do so, for example, if the file contained several business cards that you planned to separate. To create more than one set of crop marks, you must draw or place the crop marks in Adobe Illustrator, or use the [Trim Marks filter](#).
- If you want to create several sets of crop marks, you can use the Trim Marks filter to draw the first set of crop marks. Use the Copy and Paste in Front commands to paste as many copies of the crop marks as there are processes or custom colors in your artwork. Set each set of crop marks to overprint using the Overprint option in the Paint Style palette. Note that Adobe Separator treats crop marks created by the Trim Marks filter as artwork and not as a crop marks.

For instructions on how to place crop marks in Adobe Illustrator, see [Setting Crop Marks](#). For instructions on how to place crop marks in Adobe Separator, see [Setting Crop Marks Using Adobe Separator](#).

Step 6: Save the File for Separation

Before you can separate a file in the Adobe Separator program, you must save the file as an Encapsulated PostScript (EPS) file. If you want to preview the file in Adobe Separator, when saving the file, select either the Color Macintosh Preview option or the Black & White Macintosh option (to create a smaller file) in the EPS dialog box.

You can save a file as an Adobe Illustrator 3, Adobe Illustrator 88, or Adobe Illustrator 1.1 document to use on an earlier version of the program. However, if you save a file in an Adobe Illustrator version other than version 5.0 or higher, custom colors will be converted to process colors, and any attributes specific to later versions of the program, such as gradient fills, will be lost.

Step 7: Set Separation Options

Setting up a separation involves opening a color file to separate in the Adobe Separator program, choosing the separation options, and then printing or saving the file.

Running the Adobe Separator program

The Adobe Separator program is installed in the Separator & Utilities folder of the Adobe Illustrator folder. For installation instructions, see the Adobe Illustrator Getting Started Guide.

To run the Adobe Separator program:

1 Double-click the Adobe Separator icon to start the program. The Open dialog box appears.

2 Open the Adobe Illustrator file to separate.

Note: Although you may be able to select and open an incompatible (non-Encapsulated PostScript file) in the Open dialog box, the Adobe Separator program may not print separations of the file unless it has been saved in the proper format.

3 Choose one of two options:

- If you are starting Adobe Separator for the first time, select a PPD file that corresponds to your printer or imagesetter; see [Selecting a PPD File](#) for instructions.
- If you have already run the Adobe Separator program, use the [Separator window](#) to set up your separation.

Selecting a PPD file

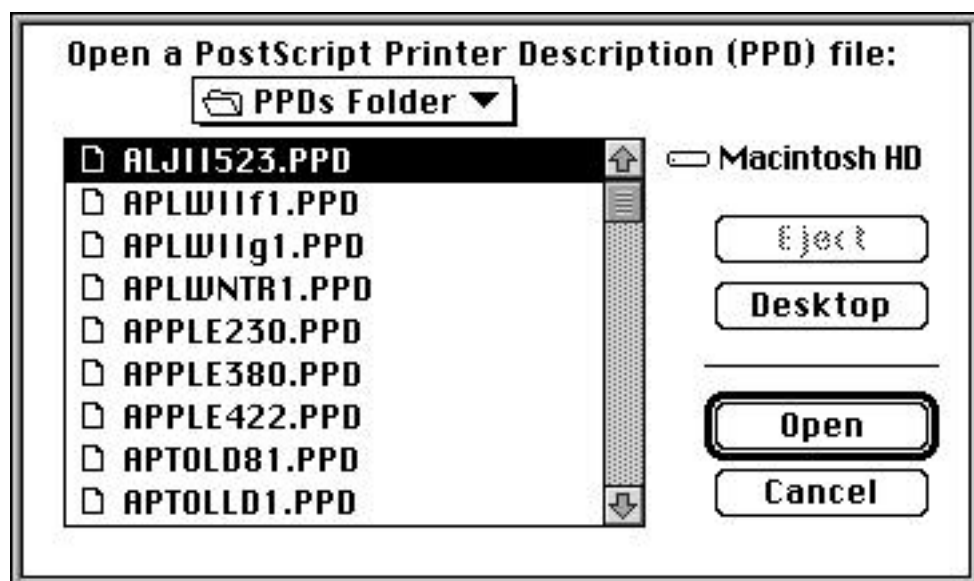
When you start Adobe Separator for the first time, you are prompted to select a PostScript Printer Description (PPD) file. For best results, use the PPD file that corresponds to your printer or imagesetter. To obtain PPD files not included with the program, see the Read Me–PPD files in the Separator & Utilities folder.

A PPD file contains information about your output device, including its resolution, available page sizes, line screen rulings, and screen angles.



To select a PPD file:

1 In the Separator window, click Open PPD. The Open dialog box appears.



2 Locate the PPD folder, which was placed in the Separator & Utilities folder when you installed the Adobe Illustrator program.

If you did not install the PPD folder when you installed Adobe Illustrator, install the folder now; see *Adobe Illustrator Getting Started Guide* for instructions. If you installed the PSPrinter driver, the program automatically finds the PPD files in the Printer Descriptions folder, located in the Extensions folder in the System Folder.

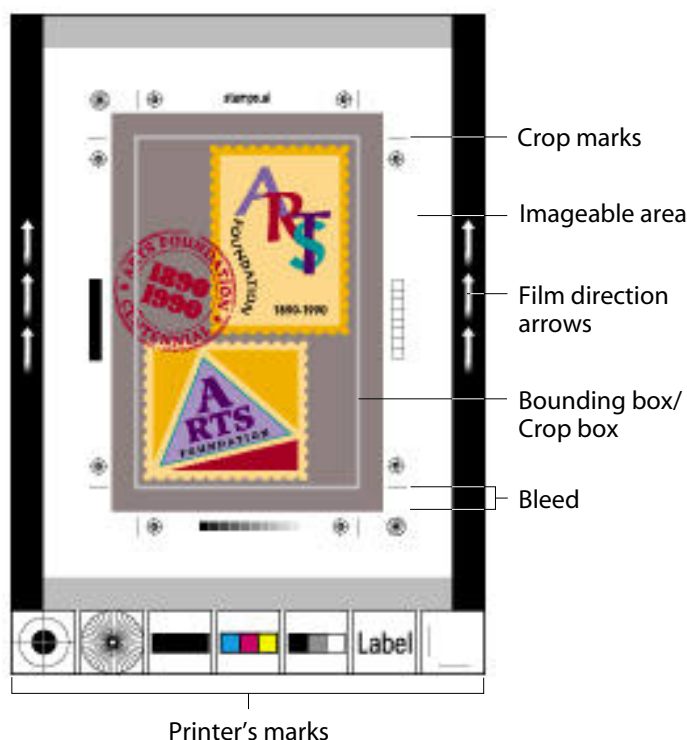
3 Select a PPD file that corresponds to the output device you will use to print your separations, using the scroll bar as needed. The filenames correspond to the printer or imagesetter's name and model and have a *.ppd* file extension.

4 Click Open. The PPD file you select appears as its printer's name in the PPD field in the Separator window.

To restore the default settings for the PPD file, choose Use Default Settings from the Settings menu.

Using the Separator Window

Preparing a file for separation includes specifying the printer you will use (and selecting the appropriate PPD file, if necessary); and selecting the page size, image orientation, emulsion side, halftone screen ruling, and any tint adjustments for your separation. In addition, you can change your artwork's imageable area, specify bleed, or a border around the artwork, and add or reposition register marks, color bars, gradient tint bars, and crop marks.



You use the Separator window to specify separation settings for your Adobe Illustrator file.

When you start the Adobe Separator program and open an Adobe Illustrator file to separate, the Separator window appears with the default settings. The selected file appears in the preview window on the left of the dialog box if you saved the file with a preview; if you did not save the file with a preview, the file appears as a gray box. The Separator default settings appear on the right.



When you modify the settings for a particular file, those settings are saved with the EPS file. If you open a file that has never been separated in Adobe Separator, the program will use the settings that were used on the last file opened.

To restore the default settings for the PPD file, printer, page size, orientation, emulsion, halftone screen, image, and transfer options, choose Use Default Settings from the Settings menu.

Selecting a Printer and Page Size

The Adobe Separator program uses the currently selected printer. The name of the printer is displayed in the Separator window. If you want to select a different printer, you must change the printer selection using the Chooser. For specific instructions, see your Macintosh documentation.

The Adobe Separator program normally uses the page size default in the PPD file for the selected printer. However, you can change the page size to any of the sizes listed in the PPD file. Page sizes are listed by a familiar name (such as “Letter”) and by dimensions in points. The dimensions shown in parentheses after the page size are the limits of the imageable area. The imageable area is the total page size less a border used by the printer or imagesetter to feed the media through the printer. No printer can print to the exact edge of a page.

Note: The imageable area varies by PPD file even for the same page size (e.g., letter). This variance corresponds to how different printers and imagesetters define the size of their imageable area.

If you select a different page size (for example, change from letter to legal), the size of your artwork in the preview window changes. This is because the white area in the preview window reflects the imageable area for the page size you have chosen.

Make sure that your page size is large enough to contain your artwork as well as crop marks, register marks, and other necessary printing information. To conserve imagesetter film or paper, however, you should select the smallest page size that will still accommodate your artwork and necessary printing information.

Selecting a custom page size

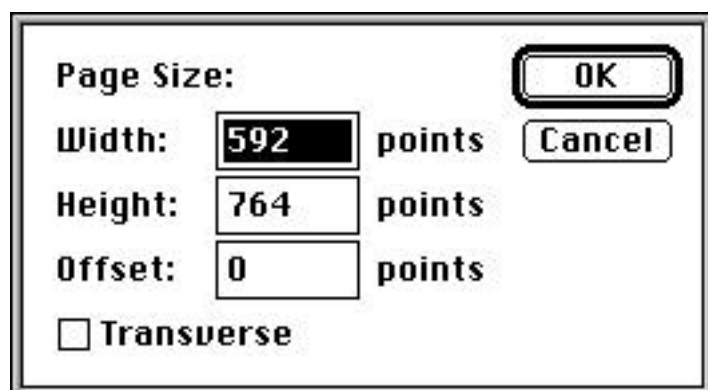
You can specify a custom page size using the Other option in the Page Size pop-up menu. This option appears only if you are using a printer that accommodates various page sizes, such as a high-resolution imagesetter. The PPD file for a laser printer, for example, does not contain this option.



The largest custom page size you can specify depends on the maximum imageable area of your imagesetter. Consult the documentation on your specific printer for more information.

To specify a custom page size:

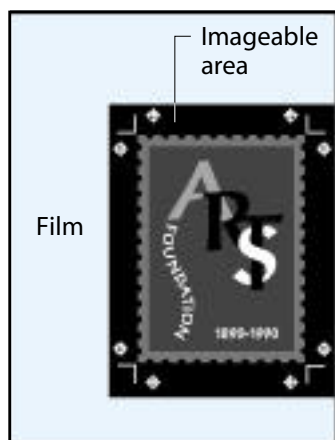
1 Choose Other from the Page Size pop-up menu. The Page Size dialog box appears.



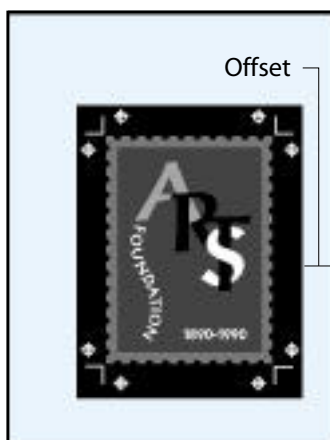
2 Choose one of the following options:

- To specify the smallest page size needed for your artwork and printer's marks, click OK to accept the default values.
- To specify a larger page size than the default, enter a new width and height in points in the Width and Height fields. Be sure to increase the values; if you decrease the default values, you may cause your artwork to be clipped.

3 If desired, change the placement of the page by entering a value in points in the Offset field.



Offset off



Page move to left with
Offset on



The Offset value specifies the amount of space along the right side of the imageable area. For example, entering a value of 30 points in the Offset option will move your page 30 points to the left.

4 To rotate your page 90 degrees, select Transverse and click OK. Note that the vertical arrows in the margins of the preview window are displayed horizontally, indicating that the imageable area has been rotated.



Transverse off



**Page rotated 90 degrees
with Transverse on**

If the media in your imagesetter is wide enough to accommodate the longest side of your imageable area, you can conserve a considerable amount of imagesetter film or paper by using the Transverse option in conjunction with the Offset option.



Compare the following examples of an image printed by the Adobe Separator program with the Transverse option on and off:



Transverse off



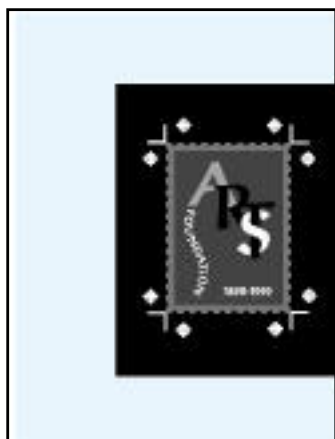
Film saved with
Transverse on

When both the Offset and Transverse options are selected, the Offset option controls the amount of space between the separations.

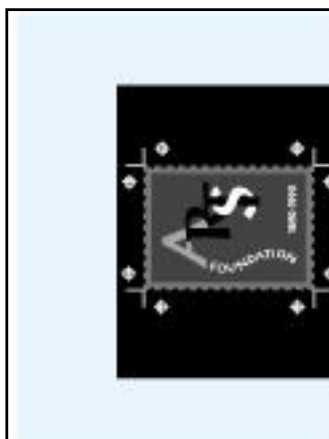
Specifying Image Orientation

The Orientation option determines the placement of an image within the imageable area. To change the orientation of the image within the imageable area, choose Portrait or Landscape from the Orientation pop-up menu.

In Portrait mode, the top of the image is printed parallel to the short edge of the page; the arrow direction is vertical. In Landscape mode, the top of the image is printed parallel to the long edge of the page; the arrow direction is horizontal.



**Portrait orientation
of image**



**Landscape orientation
of image**

Do not confuse orientation with the [Transverse option](#). The Transverse option changes the orientation of the page on the imagesetter's media; the Orientation option changes the orientation of artwork on the imageable area.

Specifying Emulsion

Emulsion refers to the photosensitive layer on a piece of film or paper. Emulsion Up means that type in the image is readable (that is, “right reading”) when the photosensitive layer is facing you. Emulsion Down means that type is readable when the photosensitive layer is facing away from you. Normally, images printed on paper are printed Emulsion Up, whereas images printed on film are often printed Emulsion Down. Check with your print shop to determine which emulsion direction it prefers.

To tell whether you are looking at the emulsion side or the non-emulsion side (also referred to as the *base*), examine the final film under bright light. One side will appear shinier than the other. The dull side is the emulsion side; the shiny side is the base.

To specify emulsion:

Choose either Down (Right Reading) or Up (Right Reading) from the Emulsion pop-up menu.

Specifying the Halftone Screen Ruling

The Halftone field displays the line screen (the lines per inch, or *lpi*) and the resolution (the dots per inch, or *dpi*) of the printer or imagesetter that will be used to print the color separations.

A high line screen ruling (e.g., 150 lpi) spaces the dots used to create an image closely together to create a finely rendered image on press; a low screen ruling (60 lpi to 85 lpi) spaces the dots farther apart to create a coarser image. The size of the dots is also determined by the line screen. A high line screen ruling uses small dots; a low screen ruling uses large dots. The most important factor in choosing a line screen ruling is the quality of the printing press on which your job will be printed. Ask your print shop how fine a line screen its press can hold, and make your choices accordingly.

In general, the higher the line screen ruling you use, the better quality your image will have. The PPD files for high-resolution imagesetters offer a wide range of possible line screen rulings paired with various imagesetter resolutions. The PPD files for lower resolution printers typically have only a few choices for line screens, and they are coarser screens of between 53 lpi and 85 lpi. The coarser screens, however, give optimum results on the lower resolution printers. Using a finer screen of 100 lpi, for example, will actually decrease the quality of your image when a low-resolution printer is used for final output.

To specify the halftone screen ruling:

- 1 Choose the desired screen ruling from the Halftone pop-up menu.

Make sure that the line screen ruling you choose is followed by the appropriate resolution for your printer. For example, if you are printing to an imagesetter set to a medium resolution and want to use a halftone screen of 133 lpi, select the option labeled 133 lpi/1200 dpi.

For information on changing the screen ruling and angle for selected separations, see [Printing Selected Separations](#).

Specifying Image Type

The Image option determines the image exposure: negative or positive. Typically, print shops require negative film in the United States, and positive film in Europe and Japan. If you are unsure of the image type you should use, consult your print shop.

To specify the image type:

Choose either positive or negative from the Image pop-up menu.

Setting the Transfer Adjustment

The Transfer option lets you compensate for discrepancies between the tint values specified in your artwork and the values actually printed by your imagesetter. The condition of the chemicals used to process the film can also cause these variances.

If you plan to have a service bureau produce your image, you do not need to set the transfer adjustment. Most service bureaus calibrate their imagesetters daily; thus, you would not need to make additional transfer adjustments.

The Transfer option allows you to adjust the Adobe Separator output using unadjusted densitometer readings you take from your imagesetter. The readings you take measure the amount of light transmitted through the imagesetter's film, from unexposed film (0.0) to the densest black (4.4). You compare these readings against a second set of readings taken from your separation negatives.

Note: The densitometer chart is logarithmic and varies according to the density of black set on the imagesetter (where 3.0 represents the maximum black as 0.1 percent of transmitted light; 4 represents the maximum black as 0.01 percent of transmitted light; and 5 represents the maximum black as 0.001 percent of transmitted light).

Using the Transfer option involves three separate procedures. First, you must print a separation negative of the *Densitometer Control Chart* file included with the Adobe Separator program. Then, using a transmission-type densitometer, you take a density reading of each percentage square on the negatives, and note the readings on a sheet of paper. Finally, you enter the densitometer readings in the Unadjusted Tint Densities chart in the Adjust Tints dialog box.

To use the Transfer Adjustment option:

- 1 If necessary, close the Separator window.
- 2 Open the *Densitometer Control Chart* file located in the Separator & Utilities folder.



This file was copied into the folder when you installed the Adobe Illustrator program. If you cannot locate the file, install the file now following the instructions in the *Adobe Illustrator Getting Started Guide*.

3 In the Separator window, make sure that the Image field is set to Negative, and that the Transfer field is set to Unadjusted.

Note: If you print the Densitometer Control Chart file as a positive, the order of the densitometer readings will appear backwards, with the smaller numbers at the bottom of the list and the larger numbers at the top.

4 Choose Print All Separations from the File menu.

5 After the film is processed, use a transmission-type densitometer, and take a density reading from one of the separations of each percentage square on the Densitometer Control Chart negative. Record the readings on a sheet of paper, so that you can enter them in the Unadjusted Tint Densities chart in the Adobe Separator program.

6 In the Separator window, choose Adjust Tints from the Transfer pop-up menu. The Adjust Tints dialog box appears and displays the Unadjusted Tint Densities chart.

7 Starting with the 0-percent field, enter the densitometer readings you recorded earlier, beginning with the C (cyan) column. The numbers represent the density of black set on the imagesetter, and should range from 0 at 0 percent to either 3, 4, or 5 at 100 percent, depending on your imagesetter.

8 Press Tab to move from field to field in the chart. Continue entering values in the appropriate fields until you have completed the chart.

9 Click Save. Enter the name of the imagesetter for which you just recorded the tint adjustment values in the Save As field. You should include the current date in the name as a reference to when the tint values were last adjusted. Click OK.



If you do not save the tint adjustment values, your tint adjustments will remain in effect as long as the Adobe Separator program is running. As soon as you quit the program, however, you will lose your tint adjustments.

To use existing tint adjustment values:

- 1** In the Separator window, choose Adjust Tints from the Transfer pop-up menu. The Unadjusted Tint Densities chart appears.
- 2** Click Open. The Open dialog box appears.
- 3** Open a tint adjustment file with the values you want to use. Click OK.



Setting Crop Marks Using Adobe Separator

You can place crop marks around your artwork either in Adobe Illustrator or using the Adobe Separator program. Crop marks define where the printed artwork will be trimmed. If the artwork won't be trimmed—for example, if you plan to place the artwork on another page—you do not need to set crop marks.

If you have not set crop marks in Adobe Illustrator, the Adobe Separator program places crop marks by default at the edges of the artwork's bounding box. The bounding box sets the position of the crop marks on your artwork; it shows the printable boundaries of the artwork and non printable boundaries such as direction lines.

For best results, you should place the crop marks in Adobe Illustrator using the [Make Cropmarks command](#) before you open the artwork in the Adobe Separator program.

In addition, if you want to include bleed in your artwork as a margin for use when the printed image is trimmed, you should extend the artwork to compensate for the bleed and set crop marks to include the bleed in Adobe Illustrator. For more information about bleed, see [Specifying the Bleed Area](#).

If you use the [Trim Marks filter](#) in Adobe Illustrator to create crop marks, Adobe Separator treats them as artwork, not as a crop marks.

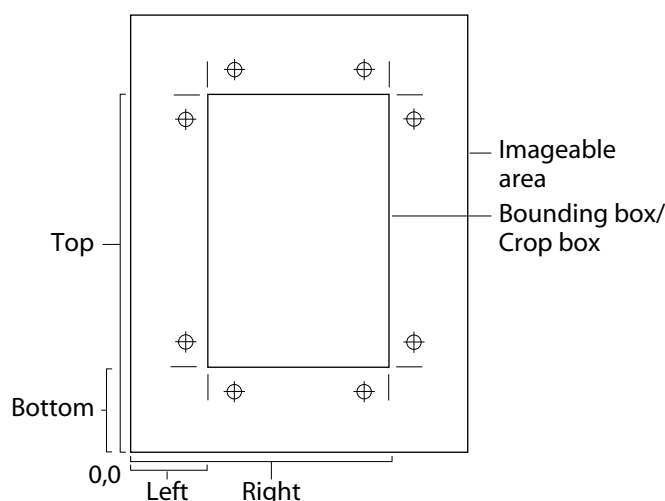
About the crop mark placement and the bounding box

The bounding box is represented as a light gray rectangle surrounding the artwork in the Adobe Separator program preview window; this rectangle coincides with the crop marks you set in Adobe Illustrator.



The numbers in the Bounding Box fields show where the image lies within the page. These numbers measure the distance from the 0, 0 point in the imageable area to the edges of the bounding box. When you save a file in Adobe Illustrator, the ruler position is saved with the file. The Adobe Separator program sets the 0, 0 point from this ruler origin. If you did not change the ruler origin in Adobe Illustrator, the 0, 0 point is in its default position at the bottom left corner of the page boundary.

If you select a different page size, the Bounding Box numbers change as the Adobe Separator program calculates the distance of the bounding box from the edge of a new page size.



***Note:** The Bounding Box numbers for a given page size (such as Letter) may vary by PPD file. This is because printers and image-setters may differ in how they define the size of an imageable area.*

Adjusting the bounding box in Adobe Separator

If you correctly set crop marks for printing in Adobe Illustrator, you do not need to adjust the crop marks or bounding box.

You adjust the crop marks in Adobe Separator by adjusting the bounding box; doing so overrides any crop marks set the Adobe Illustrator.

If you need to adjust how your artwork is cropped in Adobe Separator, you can:

- change the size of the bounding box



- move the artwork to a new location in the bounding box
- move the entire bounding box to a new location on the artwork

To adjust how your artwork is cropped by resizing the bounding box:

1 In the preview window, move the pointer to the side or corner of the bounding box that you want to adjust. The pointer turns into a two- or four-directional arrow, depending on whether you've chosen a side or a corner of the bounding box, respectively.

Note: If the pointer turns into a hand, you've gone too far and are inside the image area. Move the cursor back to the edge of the bounding box.

2 Change the size of the bounding box using either of two methods:

- Drag the bounding box to a new location.
- Enter new values in the Bounding Box fields.

To adjust how your artwork is cropped by moving your artwork:

1 Move the pointer inside the bounding box in the preview window. The pointer changes into a hand.

2 Drag your artwork to crop it as desired.

To adjust how your artwork is cropped by moving the entire bounding box:

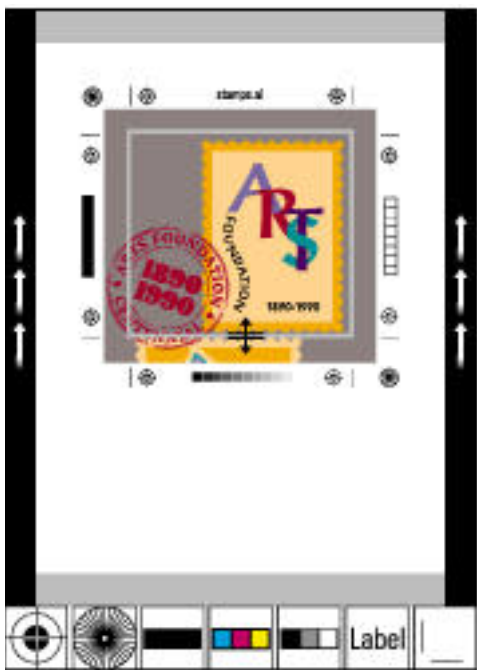
In the preview window, hold down the Shift key and click a corner of the bounding box; then drag the bounding box to the desired position.



These examples show the results of adjusting the crop marks in various ways:



Original position and cropping

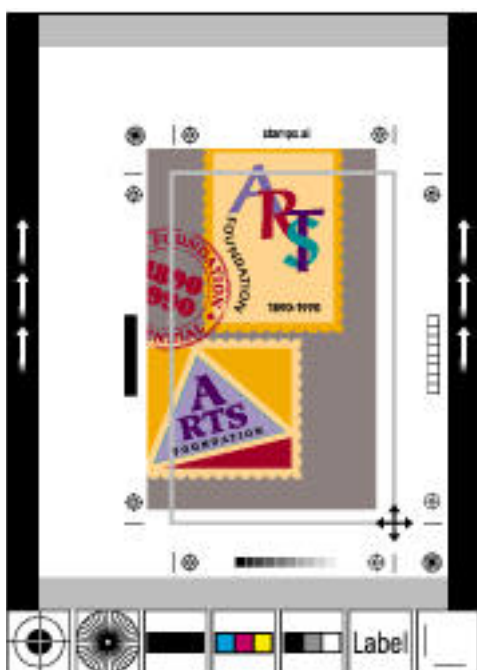


Artwork cropped by adjusting bounding box





Artwork cropped by moving artwork in bounding box



Artwork cropped by moving entire bounding box

To remove crop marks:

- 1 Position the pointer on a crop mark and drag it out of the preview window.
- 2 Repeat the step for the remaining crop marks.

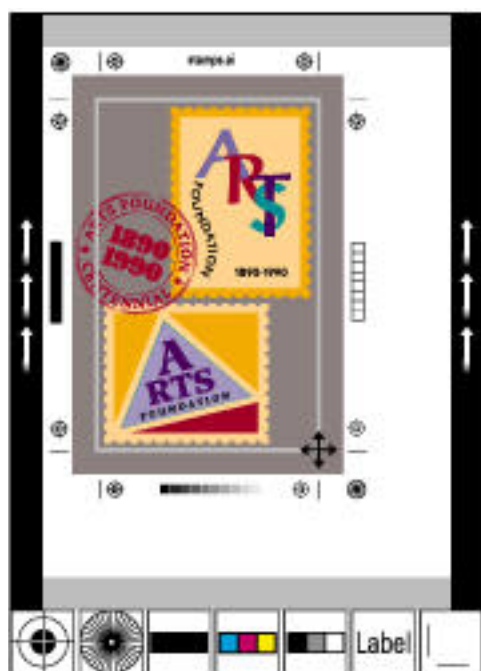


Moving the artwork on the imageable area

By default, the Adobe Separator program places artwork in the center of the imageable area. You can reposition the artwork anywhere on the imageable area.

To move the artwork and crop marks simultaneously:

- 1 In the preview window, position the pointer over one of the corners of your bounding box. The pointer turns into a four-directional arrow.
- 2 While holding down the Command and Shift keys, click the corner of the bounding box, and drag the artwork and the bounding box.



Artwork and bounding box moved

Restoring the default artwork and bounding box position

To restore the default artwork and bounding box position, choose one of the following options:

- Choose Use Default Bounding Box from the Settings menu.
- If your printer can accommodate custom page sizes, choose Other from the Page Size pop-up menu and click OK to accept the default values.



Specifying the Bleed Area

Bleed is the amount of artwork that falls outside of the bounding box. You include bleed in your artwork as a margin of error—to ensure that the ink will still be printed to the edge of the page after the page is trimmed or to ensure that an image can be stripped into a keyline in a document.

By default, the Adobe Separator program applies a bleed of 18 points. This means that the artwork will extend 18 points beyond the crop marks on your film. The maximum bleed you can set in the Adobe Separator program is 72 points; the minimum bleed is 0.

The size of the bleed you use depends on its purpose. Your print shop can advise you on the size of bleed necessary for your particular job. A press bleed (that is, an image that bleeds off the edge of the printed sheet) should be at least 18 points. If the bleed is to ensure that an image fits a keyline, it needs to be no more than 2 or 3 points.

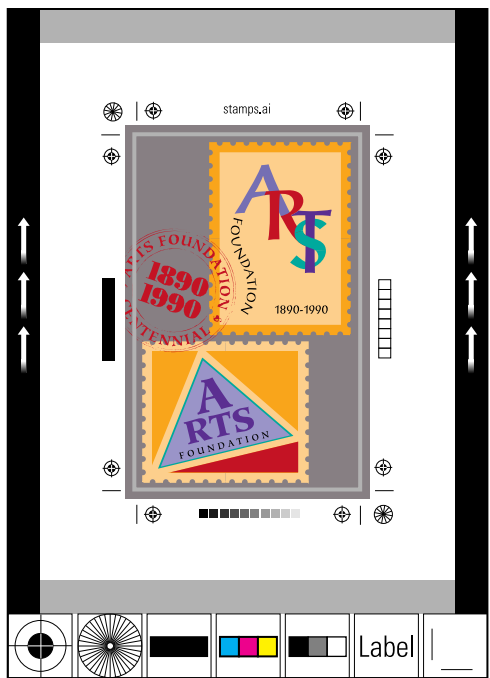
If you set crop marks in the Adobe Illustrator program, changing the bleed affects only how much of your artwork shows beyond the crop marks; it does not change how your artwork is cropped.



If you set crop marks in the Adobe Separator program, changing the bleed moves the crop marks farther from or closer to the image; the crop marks still define the same size bounding box, however.



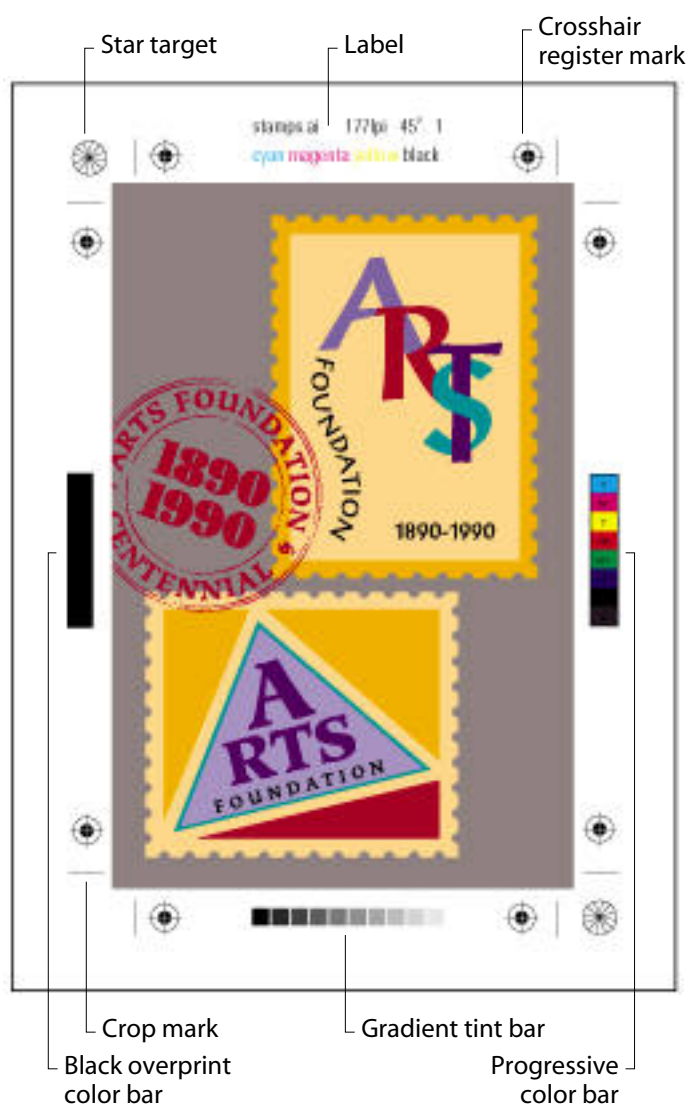
50-point bleed



8-point bleed

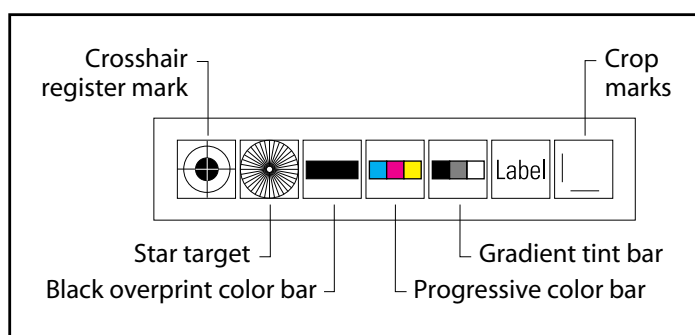
About Printer Marks

When you prepare artwork for printing, a number of marks are needed for the printer to precisely register the artwork elements and verify correct color. These marks include such elements as registration marks, crop marks, color bars, and gradient tint bars. Adobe Separator allows you to customize these marks on your artwork.



Creating your own test strip

The preview window includes a row of icons at the bottom. You can use these icons to create printer marks on your separations and customize printing information.



All of the test strip icons, with the exception of crop marks, can be placed wherever you want in the preview window; crop marks always snap to the dimensions of the bounding box.

You follow the same procedure to add, remove, or move the printer mark icons.

To add a printer mark from the printer mark icons:

Click the icon below the preview window and drag the icon into the preview window. The cursor turns into the chosen icon.

***Note:** When you drag a black overprint bar, color bar, or gradient tint bar onto the page, the icon will automatically reorient itself to the proper vertical or horizontal position, depending on whether you place it on one of the sides or on the top or bottom of the page.*

To move a printer mark icon:

In the preview window, click the printer mark icon for the printer mark you want to move, and drag it to the desired position on the page.

To remove a printer mark icon:

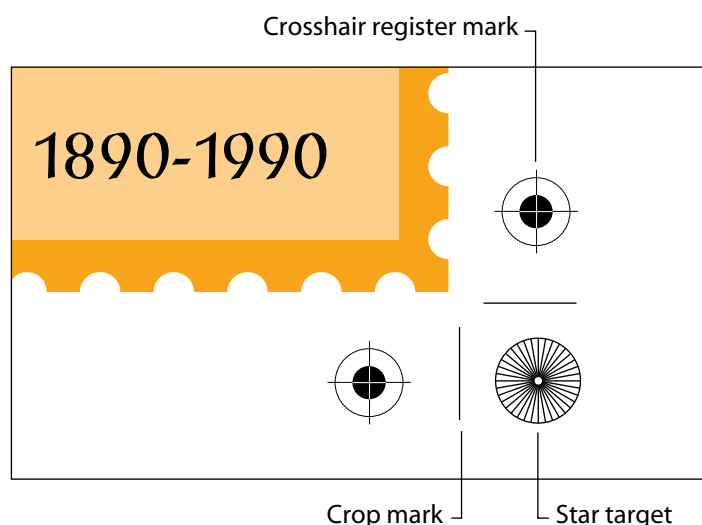
In the preview window, click the printer mark icon for the printer mark you want to remove, and drag it off the preview page.

To restore the default printer's marks:

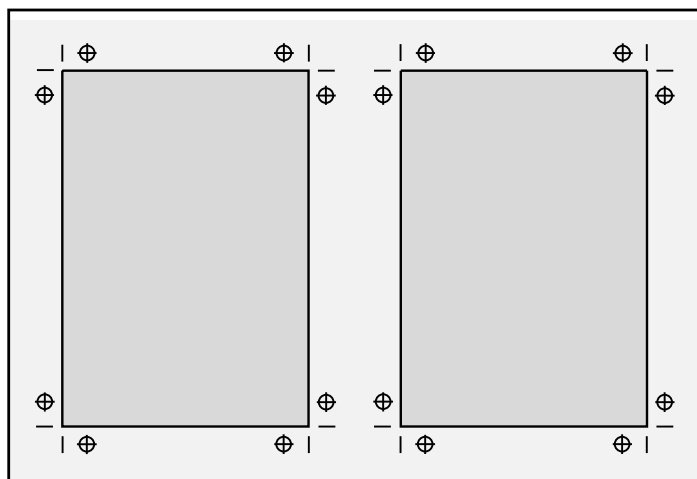
Choose Use Default Marks from the Settings menu.

Using Register Marks

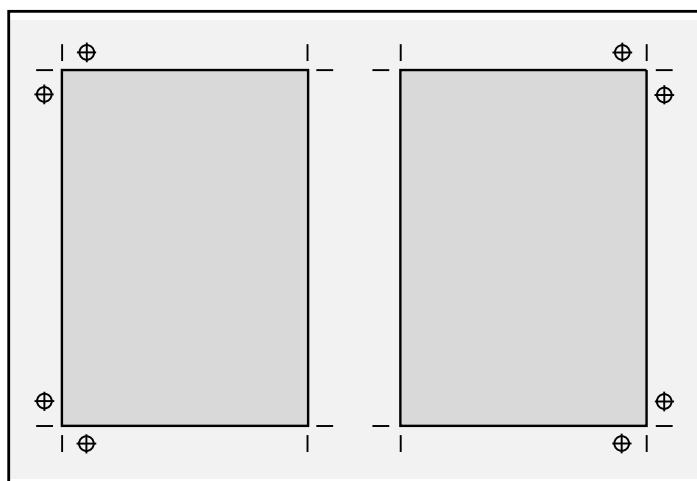
After a file is separated and printed, the print shop uses the register marks that appear on the negatives to align the separations to create proofs and plates. By default, the Adobe Separator program places two types of register marks around your artwork, *cross hair register marks* and *star targets*. Cross hair register marks are the most commonly used marks in printing because they are easy to line up accurately. Star targets are harder to align than cross hair register marks, but they are extremely accurate.



Ideally, each image should have at least four cross hair register marks, or two cross hair register marks and two star targets. If you place several illustrations in one file to conserve film and separate the images all at once, remember to add register marks for each image. Otherwise, when the print shop cuts apart the film, the register marks will be lost.



Correct



Incorrect

Note: You can add only one set of crop marks in Adobe Separator. To add additional sets of crop marks, use Adobe Illustrator. See [Setting Crop Marks](#) for more information.

Using Color Bars

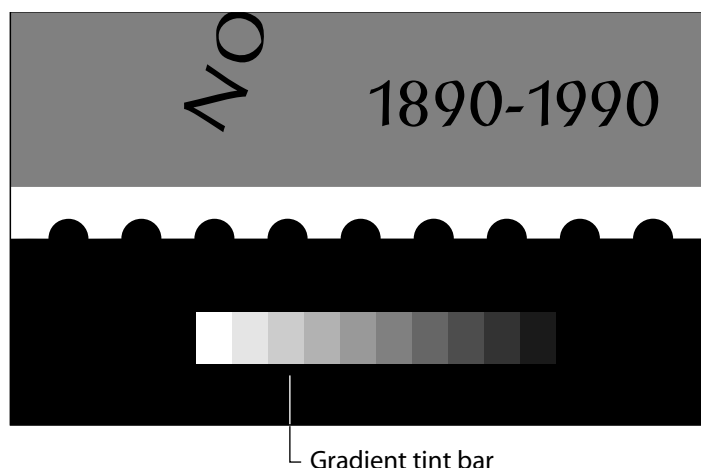
Color bars are used by the print shop to check the color consistency during the press run. There are two types of color bars: progressive color bars and black overprint color bars.

The progressive color bar consists of a solid color square of cyan, magenta, and yellow, as well as the various combinations of these three colors. By default, it is placed on the right side of your artwork. The black overprint color bar prints the various combinations of cyan, magenta, and yellow, with a solid swatch of black over the color combinations to check for show-through of underlying inks.

Print shops often use their own set of color bars, so check with your print shop first before adding or removing the color bars on your separation negatives.

Using Gradient Tint Bars

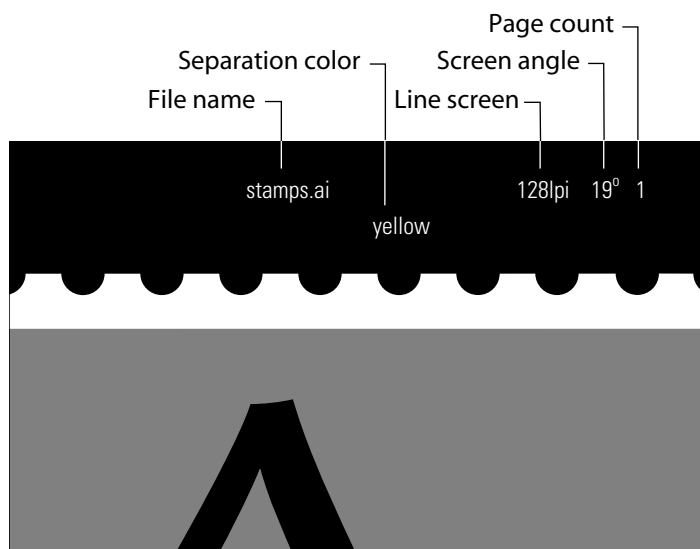
Gradient tint bars let you check for consistent tint values in your separations and alert you to sudden shifts in tint quality. By default, the Adobe Separator program places a gradient tint bar below your artwork on every separation. The tints range from 10 percent to 100 percent, in 10-percent increments.



***Note:** Once you have adjusted the transfer settings in the Adobe Separator program, you may encounter slight variations in the gradient tint bar values throughout the day. This is normal. The gradient tint bar should not be used to set the transfer adjustments. To set the transfer adjustments, use the procedures described in [Setting the Transfer Adjustment](#).*

Using Labels

The Adobe Separator program labels your film with the name of your file, the line screen you used, the screen angle for the separation, and the color of each particular plate. By default the labels appear at the top of your image; you can move them to wherever you want. In addition, if you want the label on your separation to be different from the name of your artwork file, you can change it.



Important: Do not remove the labels from the separations before printing. Doing so may make it impossible for the stripper to determine which separation belongs to which color.

To change a label:

- 1 Click the Separations button in the Separator window. The Separations dialog box appears.
- 2 In the Label field, type a new label for your separation; close the Separations dialog box.

Step 8: Print and Save Separations

When you have completed setting up the separations, you are ready to print your separations. You have a choice of printing all color separations, printing selected separations, or printing a composite image. If you choose to print (or save) selected separations, you can also overprint black. You can also convert custom colors to process colors and print them. You access these choices from the Separations dialog box in the File menu or by clicking Separations in the Separator window.

***Note:** The printer or imagesetter you plan to use to print separations must match the PPD file you specified when setting up the separations. If the output device and PPD file don't match, you will receive an error message, and the separations won't print.*

See the following topics for more information:

- [Printing All Separations](#)
- [Overprinting Black and Printing Selected Custom Colors on the Same Plate](#)
- [Printing Composites](#)
- [Converting Custom Colors to Process Colors When Printing](#)
- [Viewing and Printing File Information](#)
- [Saving Color Separations](#)

Printing All Separations

If you want to print all of the process colors and custom colors in the file as individual separations, you don't need to select all of the colors first. The Adobe Separator program prints all of the colors by default.

To print all separations:

Choose Print All Separations from the File menu. A progress bar appears as the separations print.

The program labels each printed separation with the color name assigned it in Adobe Illustrator.

To cancel printing in progress, click Cancel or press Command-period.

Printing Selected Separations

To print selected separations, you first select the process or custom color separations you want to print.

To print selected separations:

1 Choose Separations from the File menu or click Separations in the Separator window. The Separations dialog box appears.

☐

Separation: cmyk.eps

Label:

cmyk.eps

Color	Print	Convert To Process	Frequ
ProcessCyan	No	n/a	108.
ProcessMagenta	No	n/a	108.
ProcessYellow	No	n/a	115.
ProcessBlack	No	n/a	128.

2 Choose the following options:

- In the Print column, select the separations to be printed by clicking Yes or No.
- In the Convert to Process column, click Yes to print a custom color as an individual separation, or click No to convert the custom color to its process color equivalents. For more information about this option, see [Converting Custom Colors to Process Colors When Printing](#).
- To change the halftone screen frequency and angle, click the Frequency or Angle you want to change; in the dialog box that appears, enter the new values; click OK. The default frequencies and angles are determined by the selected PPD file. Be sure to check with your print shop for the preferred frequency, angle, and dot settings before creating your own halftone screens.



3 If desired, enter a new label for the file in the Label field.

4 Choose Print Selected Separations from the File menu. A progress bar displays the name of the separations as they print. The program labels each printed separation with the color name assigned it in Adobe Illustrator.

To cancel printing in progress, click Cancel or press Command-period.

Overprinting Black and Printing Selected Custom Colors on the Same Plate

It can be less expensive and easier to have the print shop overprint black on press. You can choose whether to overprint black when printing or saving selected separations. By default, Adobe Illustrator versions 3.2 and lower overprinted black and required you to specify a four-color black to knock out black.

You may want to print selected custom colors on the same plate if you have artwork containing several custom colors that you want to produce as a single piece of film. You can use this option instead of reassigning color in your artwork.

Printing selected custom colors on the same plate is not the same as printing a composite image. Printing a composite image yields a grayscale or color representation of the artwork; printing multiple custom colors on one plate produces the true color percentages used in the file. For example, if your artwork contains two 100-percent values, both colors will print as a solid when you use this option.

To overprint black and to print selected custom colors on the same plate:

- 1** Choose Separations from the File menu or click Separations in the Separator window. The Separations dialog box appears.
- 2** In the Separations dialog box, select the colors you want to print on the same plate.
- 3** Hold down the Option key and choose one of two options:
 - Choose Print Selected Separations from the File menu.
 - Choose Save Selected Separations from the File menu.

Holding down the Option key as you choose the Print Selected Separations or Save Selected Separations command makes additional options available.

- 4** When an alert appears asking whether you want 100-percent black to overprint, click Yes to overprint the black or click No to knock out the black.



5 When an alert appears asking whether you want multiple custom colors on a single plate, click Yes to print (or save) selected custom colors on the same plate, or click No to print (or save) the colors as separate plates.

The program labels each printed separation with the color name assigned it in Adobe Illustrator.

To cancel the operation in progress, click Cancel or press Command-period.

Printing Composites

You may want to print a color or grayscale composite proof to check your work or to send to the print shop with each set of separations. A composite image can help you design and proof your artwork and check your separation setup before actually printing final separations. As with color monitors, color printers vary greatly in color reproduction quality; therefore, composites from a color printer should never substitute for proofs made from your print shop.

When the Adobe Separator program prints a composite, it prints all colors used in the file, regardless of whether any are selected, with all of the printer's marks in place. Keep in mind that overprinting you have specified in your artwork won't appear on the composite from most printers.

To print a composite to a color laser printer:

1 In the Separator window, choose Up (Right Reading) from the Emulsion pop-up menu and Positive from the Image pop-up menu.

2 Choose Print Composite from the File menu. A progress bar displays the name of the file as it prints.

To cancel the printing in progress, click Cancel or press Command-period.

Converting Custom Colors to Process Colors When Printing

You can convert custom colors to process colors in your artwork for printing only, without affecting your original artwork. The conversion occurs only when printing selected separations; the colors in your original artwork are not affected. However, if you save your separations in the Adobe Separator program, any color conversion will be saved in the separation files. For more information on saving separations, see [Saving Your Color Separations](#).

If you have converted custom colors to process colors, you can reconvert them to custom colors.

To convert custom colors to process colors:

1 Choose Separations from the File menu or click Separations in the Separator window. The Separations dialog box appears.

2 In the Convert to Process column, click No to convert the custom color to its process color equivalents, or click Yes to print a custom color as an individual separation.

- To reconvert process colors to custom colors, click No.

When you print your artwork, the Adobe Separator program converts and prints the selected colors.

***Note:** You can use the conversion feature on custom colors such as those in the [PANTONE MATCHING SYSTEM \(PMS\)](#). However, your results usually will not match the original custom colors exactly.*

Viewing and Printing File Information

The Get Info option lets you print a list of specific information about your file. This feature is useful if you plan to have a service bureau print your files or when troubleshooting color separation files.

The Get Info command displays information about your document, including the file name, the program and version number of the program in which the art was created, creation and modification dates, bounding box size, preview style, fonts used in the file, titles of any placed EPS files, names of patterns used in the file, and other information.

To print information about artwork files:

1 Choose Get Info from the File menu.

The Get Info dialog box appears with four windows:

- General, listing all information about the file
- Fonts, listing typefaces, and styles used in the document
- Patterns, listing pattern files used in the document
- (EPSF) Files, listing EPS and other files placed in the document

2 If necessary, use the scroll bar to find and display all information about the file.

3 Click Print. A progress bar appears as the document information sheet prints.

***Note:** The Get Info document will always print in landscape mode.*

Saving Color Separations

You can save the separation setup, PPD information, and any color conversions you have specified in the Separations dialog box by saving the file in the Adobe Separator program.

To save separations:

1 If you want to save selected separations, in the Separations dialog box select the process color and custom color separations you want to save.

2 Choose one of the following options from the File menu:

- Save Selected Separations to save only the separations you selected in step 1. (When you choose this option, you can also choose to overprint black or save selected custom colors on the same plate. To do so, hold down the Option key before choosing Save Selected Separations from the File menu. For more information, see [Overprinting Black and Printing Selected Custom Colors on the Same Plate.](#))
- Save All Separations to save all separations.

The Save As dialog box appears.

3 Accept the default file name, or enter another name for the separation. If you use the default file name, the Separator program will append the file name with its color. For example, the cyan separation will be named *stamps.cyan*, the magenta separation will be named *stamps.magenta*, and so on.

4 Click OK.

5 If you selected more than one separation to save, repeat steps 2 and 3 for each separation.

Troubleshooting

This section contains troubleshooting tips for using the Adobe Illustrator program.

Anchor points cannot be selected.

The object is locked, or there is another anchor point on top of the anchor point you want to select.

If you think that the object might be **locked**, choose Unlock All from the Arrange menu. (Make sure that you unlock each layer individually; Unlock All only unlocks objects on the current layer.) If you still can't select the anchor point, select the path that is on top of the path containing the anchor point you want to select, and lock it. Select (and adjust as necessary) the anchor point you have been trying to work with. When you have finished, choose Unlock All again. Another solution is to select both anchor points by dragging, hold down the Shift key, and click to deselect the front point.

As you try to position them, anchor points jump to a nearby anchor point.

The Snap to Point option in the General Preferences dialog box is selected. When this option is turned on, an anchor point that you are dragging will snap to any anchor point that is within two pixels of its position.

To prevent anchor points from snapping to another anchor point, choose Preferences/General from the File menu, and deselect the Snap to Point option. Click OK to return to your document. If you prefer to leave the Snap to Point option on, use the zoom-in tool to magnify your document so that you have greater control as you edit your artwork.

Unexpected blank pages appear in printed output.

You are drawing too close to the Adobe Illustrator program's page border. A direction point in one of your curves may extend to another page.



When you are ready to print, choose Print from the File menu. Then click the From button and specify the pages you want to print. Another option is to use the [page tool to adjust the page grid](#) so that the artwork is farther away from the edge of the page. If you want to print just one page, select the Single Full Page option in the Document Setup dialog box.

Stroked shapes that appear to be aligned do not line up when you preview or print. Sharp spikes appear in stroked letters, such as M and W, in printed output.

The [miter line join style](#) is causing the corner points to extend beyond the actual anchor points. When you specify this style of line join, the outer edges of two lines that form a corner are extended until they meet. If the lines form a sharp angle or are stroked with a heavy line weight, the outer corner can extend farther than you had anticipated.

To line up corners properly, select the path that has the jutting corners, and choose Paint Styles from the Object menu. Change the line join style by selecting either the bevel (flat) join or the round join option. Another solution is to specify a lower miter limit for mitered corners. A lower miter limit causes the program to use a shorter path (and smaller angle) when determining at what point to switch from a bevel join to a miter join.

The screen display is blank in Preview view.

The [mask attribute](#) is set for a small object in your document, such as a line or a single anchor point, and it is causing all of the objects in front of it to be masked.

To correct the masking, choose Select All from the Edit menu; then choose Release Mask from the Object menu.

Banding or shade-stepping occurs on printed blends or gradient fills.

The blends or gradient fills are too long, or there are too many steps in the blend.



The maximum number of gray levels that can be printed by an imagesetter is 256. If the blend is too long, or the number of steps too many, the image may exhibit bands when printed. To prevent banding, shorten the length of the blend to less than 7.5 inches, use lighter colors or shorten the length of dark blends, or increase the percentage of change in the blend (less than 50 percent change can result in banding.)

A rotated, reflected, or sheared object disappears.

You have rotated, reflected, or sheared the object off the screen. To redisplay the object, scroll or zoom out to display the object in its new location, or choose Undo from the Edit menu.

Rectangles, ovals, and graphs appear drawn at an angle.

You have rotated the x and y axes. When you draw rectangles, ovals, or graphs, their sides are placed parallel to the current axes.

To reset the axes, choose Preferences/General from the File menu. The value in the Constrain Angle field shows the current angle of the x axis. You can either change this value to 0, delete any rectangles you've drawn at an angle, and redraw them so that they are straight; or you can use the rotate tool to rotate the rectangles to the correct position.

Patterns or custom colors are unavailable in the Paint Style palettes.

No patterns or custom colors are available. You can create one or more [patterns](#) or [custom colors](#) for the document. You can also import custom colors and patterns using the [Import Styles](#) command. A variety of patterns can also be found in the Palettes, Gradients, and Patterns folder.

The program won't draw a long path and displays an error message.

If the program displays a message telling you to shorten a path you are drawing, you have exceeded the amount of memory needed to draw the path. The PostScript interpreter limits the number of anchor points in a single path based on the amount of memory available.



You must simplify the path by splitting it into smaller units. For information on how to split the path, see [Splitting Paths to Print Large, Complex Shapes](#).

The document will not print, or a limitcheck error message appears when you attempt to print.

Objects in the image are too complex to print. This generally occurs with very complex objects such as blends, masks, compound paths, patterns, multiple groupings, and so on. You can either increase the memory on your printer, or simplify the artwork. To simplify the artwork, decrease the amount of patterns, gradient fills, compound paths, anchor points, and so on. You should also split any complex paths, either using the Split Long Paths option in the Document Setup dialog box, or using the techniques described in [Splitting Paths to Print Large, Complex Shapes](#). You can also choose to print at a lower resolution. See [Additional Tips for Efficient Printing](#) for more information.

A streak appears in a filled object when you preview or print it. The path is not closed. To close the path, find the anchor points that are not connected (zoom in to magnify the artwork if necessary); use the [Average and Join commands](#), or the [Unite filter](#), to close the path.

The Make Wrap command under the Type menu doesn't work. There are several possible causes and solutions for this problem.

- The text object is in front of the wrapping object; it must be *behind* the wrapping object. To place the text object in back of the wrapping object, select the wrapping object and choose Bring to Front from the Arrange menu.
- The text object is grouped with another object. To ungroup the text object, use the selection tool to select the text object; if other objects are selected, the text object is clearly grouped. Choose Ungroup from the Arrange menu.
- You did not select both the text object and the graphic object. Select both the text object and the graphic object, and again choose the Make Wrap command from the Type menu.



The axis options in the Graph Style dialog box are not applied to the graph.

You have not selected the entire graph. Use the selection tool to select the entire graph; then set the axis style in the Graph Style dialog box.

All of an area graph appears in Artwork view, but only part of the graph previews and prints.

The area graph does not have the First Column in Front option turned on in the Graph Style dialog box. In the Graph Style dialog box, select the First Column in Front option.

Changing the graph type for a single data series doesn't change the series.

You have not selected the entire data series. You must select every object in the data series including the legends. To do this, use the group-selection tool and click one of the elements of the data series (such as a column or a legend) to select it, and then click again to select the entire series.

No values appear on the graph axis.

Either the Value Between Labels in the Graph Axis Style dialog box is set to 0, or you have used manual axis values to create more than 30,000 tick marks.

To make values appear on the graph axis, enter a positive or negative value in the Value Between Labels field in the Graph Axis Style dialog box, or click the Calculate Axis Values From Data option in the Graph Axis Style dialog box.

An error message states that a relatively small graph exceeds the available memory. An error message states that a pattern exceeds available memory.

You may receive an error message stating that you're running out of memory if you set too many tick marks on a graph axis, or if you use an overly complex graph or pattern complex.

Set fewer tick marks in the Graph Axis Style dialog box, or simplify your graph design.



The object's center point does not appear in the exact center of the object.

The center point of an object is defined by the center of an object's bounding box. Since the direction lines on a given point are considered part of the object, they can make the bounding box larger than the actual object if they extend beyond the visual edge of the object. (See [Drawing Curves with the Pen Tool](#) for more information about direction lines.) When a point's direction lines extend beyond the visual edge of an object, the center point will not appear in the visual center of the object, but will be offset to one side.

Outline Stroke and Offset Path filters leave overlaps and extraneous points.

The Outline Stroke and Offset Path filters may leave triangular overlaps or extraneous points at corner points of the original object. To remove the triangular overlaps you should use the [Unite filter](#) in the Pathfinder submenu. The Unite filter will separate the triangular overlaps into individual objects, which can then be selected and deleted. To remove extraneous points, use the [delete-anchor-point tool](#).

Adjoining objects appear to overlap in Preview mode or appear to overlap when printed to low resolution printers.

Adjoining objects can appear to overlap due to PostScript's overscan conversion rule. The Illustrator previewer, and PostScript rasterizers in printers, overscan the edges of the shapes by one device pixel to prevent gaps appearing between the objects. The issue is resolved as the output device resolution increases. On imagesetters at high resolution, there will not be any visible overscan. Also, changing the stacking order of the objects may resolve this issue. (See [Stacking Objects](#) for more information about changing the stacking order.)

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