USER GUIDE

Adobe Illustrator 88™

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User Guide

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Adobe Illustrator 88™

Part No: User Guide ACO6004

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Before You Begin

Welcome to the Adobe Illustrator 88™ program, a program that combines the ease and speed of a computer with the control of fine detail formerly possible only when drawing by hand.

Before you start using the program, be sure to read the next few pages. They tell you what this package includes and the equipment you need to use the software.

The Adobe Illustrator 88 program package

Here is what your Adobe Illustrator 88 program package should include:

- The "Adobe Illustrator 88 Video Demonstration"
- The Adobe Illustrator Program disk
- The Adobe Illustrator Tutorial/Utilities disk (including the Adobe Separator™ utility and the DrawOver™ utility)
- The *Adobe Illustrator 88 Tutorial*
- The *Adobe Illustrator 88 User Guide*
- The *Adobe Illustrator 88 Color Guide*
- The registration card

If you are missing any of the above items, see your dealer.

Registration

Adobe Systems wants to hear from you. Please fill in the enclosed registration card and mail it back to us.

What you need

To use the Adobe Illustrator 88 program, you need one of the following three configurations, in addition to the Program disk:

- A Macintosh® Plus, with either a hard drive or an 800K external drive
- A Macintosh SE, with either a hard drive
- A Macintosh II, with either a hard drive

You will also need the Apple® System software version 4.2 or later.

To print Adobe Illustrator 88 program documents, you use one or more of the following printers:

- An Apple ImageWriter® (for draft-quality printing only)
- An Apple LaserWriter® or any other laser printer that contains a PostScript® interpreter. Such laser printers are currently available from Agfa-Gevaert, Apollo Computer, AST Research, Dataproducts, Diconix, Digital Equipment Corporation, ITT Qume, The Laser Connection, Linotype, NBI, NEC Information Systems, QMS, Sun Microsystems, Texas Instruments, Varityper, and Wang Laboratories.

  You can produce color documents with any Macintosh, and you can print these documents on any laser printer that prints in color and that contains a PostScript interpreter. However, if you will be printing many copies, it is more efficient to produce color-separation negatives with the Adobe Separator utility and then have them printed by a professional printer. If you have a Macintosh II with a color monitor, you will be able to preview your illustrations in color. Color illustrations appear in appropriate shades of gray on a black-and-white monitor. For complete information about printing in color, see the *Adobe Illustrator 88 Color Guide*.

  With the Adobe Illustrator 88 program, you can trace over scanned images to create your artwork. Any scanner that saves images in either MacPaint® or MacDraw® PICT format can be used. For more information, see "Using Scanned Images" in Chapter 1, "Getting Started with the Adobe Illustrator 88 Program."

Learning the Adobe Illustrator 88 program

Although the Adobe Illustrator 88 program is easy to learn and use, it gives you more control over the creation of artwork than any other graphics program on the market. In order to provide this control, the program works somewhat differently than other drawing and painting applications with which you may be familiar. Even if you are an experienced user of other graphics applications, you will need to learn how to take advantage of all of the possibilities the Adobe Illustrator 88 program places in your hands.

This package includes everything you need to make learning the program easy and enjoyable. It assumes that you are already familiar with Macintosh usage and conventions. We recommend that you use the materials provided in the following order.

First, watch the videotape. It demonstrates the fundamentals of the program. Watching the videotape is bound to help you master the Adobe Illustrator 88 program more quickly.

Second, go through the tutorial. It takes you step by step through each of the basic techniques you will need to use the program successfully. It also provides examples with which you can practice what you've learned so that you can become a more proficient user.

Third, use the program to create your artwork. If you need help as you work, refer to this guide. If you are working in color, also refer to the *Adobe Illustrator 88 Color Guide*.

The Adobe Illustrator 88 program and the PostScript language

One of the distinctions of the Adobe Illustrator 88 program is its ability to take full advantage of the resolution or print quality of the PostScript language to create crisper, sharper artwork than can be created using programs like MacPaint. Here's why that is possible.

When you scan an image, or when you use MacPaint to create an image, the image is defined by the arrangement of dots (pixels) on the screen. When you create artwork with the Adobe Illustrator 88 program, you create an image that consists not of dots but of a collection of lines and curves, each of which has its own mathematical definition. It is this ability to translate images into mathematical constructs that makes it possible for this program to create high-quality artwork.

A PostScript language program comprises all of the definitions that make up a piece of artwork. The PostScript language is a computer language that conveys information to a printer about the appearance of text and

graphics on a page. Each time you print your artwork, you execute the PostScript language program that defines that artwork. However, you don't need to know anything about PostScript language programming to use the Adobe Illustrator 88 program.

The PostScript language program that defines the artwork is resolution independent, meaning that the resolution of the printed artwork is based entirely on the resolution of your printer. This means that artwork printed on a LaserWriter will have a resolution of 300 dots per inch, artwork printed on a Linotronic™ 300 will have a resolution of up to 2540 dots per inch, and so on.

Section 2: *Using Adobe Illustrator 88*

Chapter 1: *Getting Started with the Adobe Illustrator 88 Program*

This chapter describes how to start the Adobe Illustrator 88 program, open new or existing documents, name documents, close and save documents, and quit the program. It also tells you how to plan your work, use scanned images, and correct mistakes.

Starting a work session

Before you start to use the program, turn on your computer and check to be sure you have everything you need. See "Before You Begin," earlier in this guide, for a description of the requirements.

Make a backup copy of the Program disk that you can work with. If you need help making a backup copy, see your Macintosh user's guide for instructions.

If you have a hard disk, use the backup copy to install the Adobe Illustrator 88 program on your hard disk.

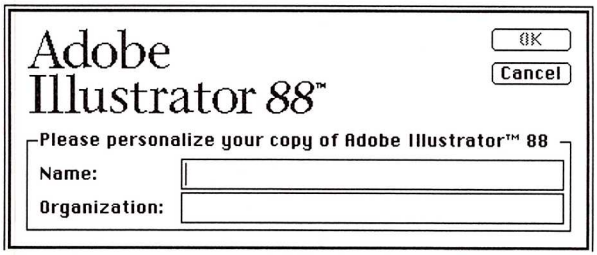
If you do not have a hard disk, insert the backup copy of your Program disk into your internal drive. If you have an external drive, you can save your documents to a data disk in that drive. If you do not have an external drive, you will have to eject and remove the Program disk each time you want to save a file to a data disk.

NOTE: The Program disk does not include a System Folder. If you have a hard disk, it must already have a system installed on it. If you do not have a hard disk, you must insert a disk that contains a system into one of your two drives before inserting the Adobe Illustrator 88 Program disk in the other drive.

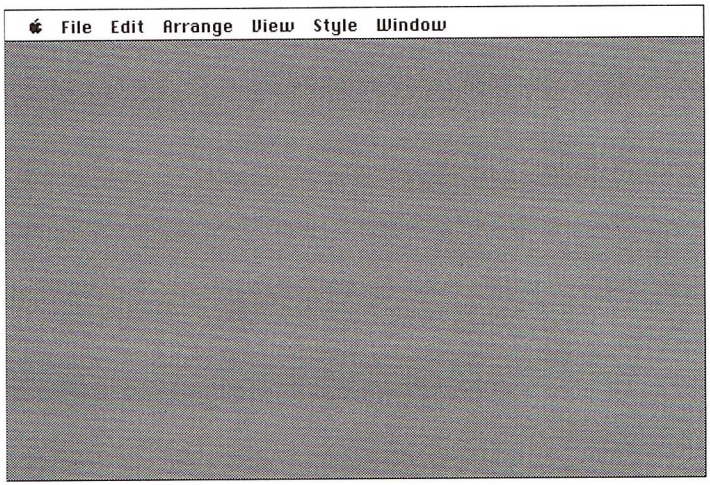
Adobe Illustrator 88™

Double-click on the Adobe Illustrator 88 program disk icon on the desktop. Then double-click on the program icon, a large, curved *A* with *88* to the right of it.

The first time you start the program, a dialog box appears asking you to personalize your copy of the program.



Enter your name and the name of the organization you work for, if applicable, and click OK. The Adobe Illustrator 88 program startup screen appears, followed by the program's desktop, which looks like this.



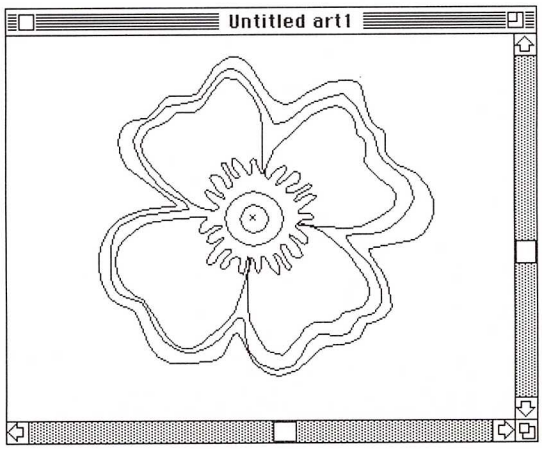
You are ready to open a document and start working.

Working with templates and artwork

Artwork documents

Whenever you use the Adobe Illustrator 88 program you open an Adobe Illustrator 88 artwork document. You open either a new artwork document to create a new drawing or an existing artwork document to revise or print a drawing.

You can open a new artwork document and just start drawing, as you would on a blank piece of paper. The line art and type that you create with the program are referred to as your *artwork*.

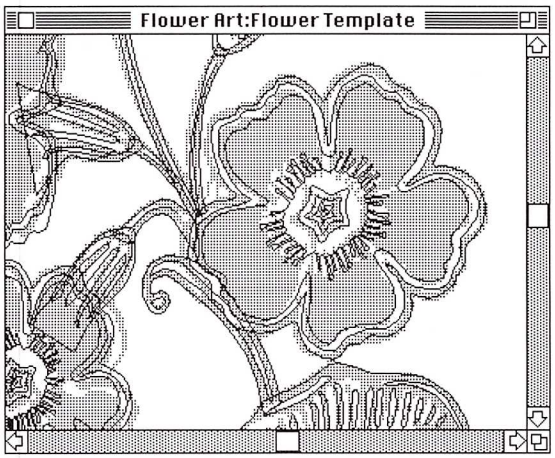


Template documents

In addition to opening an artwork document, you may or may not also open a template document. The program displays template documents on the screen as background *bitmaps*.

You use the *template* as a tracing guide for creating finished artwork. The template appears less distinct than the artwork you will create. You can make the template visible or invisible, but you cannot change the template in any way.

You can start new artwork by tracing the template, and then refer to the template at any time to revise your artwork.



Usually, when you open an existing artwork document, the corresponding template document is displayed automatically. You can use a different template, or none at all, by forcing the program to prompt you to choose a template.

Any MacPaint file or any MacDraw file saved in PICT format can be opened as a template.

You create a template either by scanning an existing image or by converting a document created with another application. The next section, "Using Scanned Images," gives you more information about scanning. Chapter 16, "Working with Other Applications," provides more information about the use of images created with other programs.

As you work in the Adobe Illustrator 88 program, you can choose to see the artwork only, the template only, or both the artwork and the template at any time. For more information about ways of looking at your document, see Chapter 2, "Viewing Documents."

Procedures later in this chapter show you how to open both new and existing documents with and without templates.

Using scanned images

If you have a *scanner*, you can create an Adobe Illustrator 88 program template 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 procedures that come with your equipment. You must save the image in either MacPaint format or MacDraw PICT format in order to use it as a template when you open an Adobe Illustrator 88 program document.

IMPORTANT: Please remember that existing art or images that you may desire 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 you obtain any permission required from such authors.

Opening documents

With the program started, you can open a blank (new) document with a template, a blank document without a template, or an existing artwork document, with or without a template.

To simplify the opening of documents, it is a good idea to keep corresponding artwork and template documents in the same folder.

To open a new document with a template:

1. Choose New from the File menu, or press ⌘-N.

   A dialog box appears, asking you to choose the template you want to open.

2. Double-click on the name of the template you want to open.

   A window opens with the name *Untitled art1: template* in its title bar, where *template* is the name of the template document. The template appears at its actual size.

   The number after *Untitled art* refers to the number of the open window, in this case, 1. Each time you open another window, the name in its title bar automatically provides a new window number.

   You are ready to start creating your artwork.

To open a new document without a template:

1. Choose New from the File menu, or press ⌘-N.

   A dialog box appears, asking you to choose the template you want to open.

2. Click None.

   A window opens with the name *Untitled art1* in its title bar. You are ready to start creating your artwork.

To open existing artwork:

1. Choose Open from the File menu, or press ⌘-O.

   A dialog box appears, asking you to choose an illustration (an artwork document) or a template.

2. Double-click on the name of the artwork you want to open.

   NOTE: Don't double-click on a template name. If you do, the program will open it with a blank artwork document.

   A window opens, with the name of the artwork in its title bar. The new window overlaps any other document windows open on the desktop. For more information about viewing several windows at the same time, see "Displaying Multiple Views of One Document" in Chapter 2, "Viewing Documents."

   The artwork appears at its actual size. You can resume working on it.

To use no template or a different template:

1. Hold down the Option key, and choose Open from the File menu, or press ⌘-O.

   A dialog box appears containing a list of artwork documents.

2. Double-click on the name of the artwork document you want to open.

   Another dialog box appears, asking you to specify the template document you want to open, if any.

3. Double-click on the name of the template document you want to open with the artwork document.

   If you don't want a template, click None.

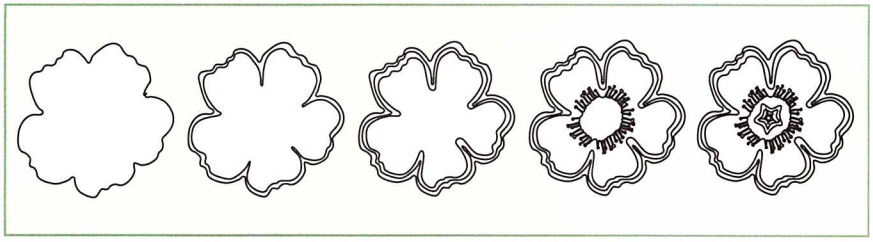
   If you specify a different template, that template will automatically correspond to the artwork document in the future. To have the original template correspond to the artwork again, repeat the above procedure, selecting the original template name.

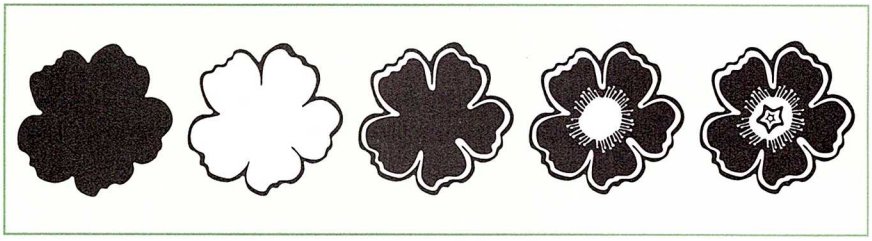
Planning your artwork

Before you start drawing, think about how you want your final artwork to look. Then take into consideration that the easiest and most efficient way to work in the Adobe Illustrator 88 program is to create your drawing in *layers*.

Unlike many other graphics applications, the Adobe Illustrator 88 program does not regard all of the objects you draw as occurring on the same plane; *successively drawn objects are placed in front of one another* (although they do not necessarily overlap). You can use several techniques to change the layering order of objects in the drawing at any time, but you may find that your work progresses more smoothly if you learn to take advantage of this layering ability.

The layering order of objects corresponds to their *painting order*. As you will see from studying the example that follows, the best way to approach your artwork, when possible, is to create the background first, place large shapes in front of it, place smaller shapes in front of those, and put details in last.





The Adobe Illustrator 88 program is very flexible. You can always change the layering order of objects after you have drawn them to create the final effect you want.

For more information about changing the order of objects in your artwork, see Chapter 5, "Selecting Objects," Chapter 8, "Moving Objects," Chapter 9, "Copying Objects," and Chapter 10, "Deleting Objects." To learn more about painting order, see Chapter 13, "Painting."

Correcting mistakes

You do not need to be concerned about drawing your artwork perfectly on the first attempt. You can make adjustments as you create your artwork and at any time after it is created. See Chapter 7, "Adjusting Paths," for more information.

In addition, you can use the Undo command to easily correct mistakes you make while using the Adobe Illustrator 88 program. Often, operations can be undone, and operations that have been undone can be redone.

To undo an operation:

1. Choose Undo from the Edit menu, or press ⌘-Z.

   You must choose Undo *immediately after the operation*, before you click anywhere or perform any other operation. The wording of the Undo command corresponds to the operation you have just performed. For example, if you have just moved an object, the command will read "Undo Move."

   If an operation cannot be undone, the Undo choice is dimmed.

To redo an operation that has been undone:

1. Choose Redo from the Edit menu, or press ⌘-Z.

   You must choose Redo *immediately after the Undo operation*, before you click anywhere or perform any other operation.

   The wording of the Redo command corresponds to the operation you have just undone. For example, if you have just undone some typing, the command will read "Redo Typing."

   If an operation cannot be redone, the Redo choice is dimmed.

NOTE: ⌘-Z is a toggle. Each time you press it, the most recent operation is either undone or redone.

Closing documents

You close and save Adobe Illustrator 88 program documents much as you do documents in other Macintosh applications, by closing their windows. Closing a document removes it from the Adobe Illustrator 88 program desktop. Once a document is closed, you must open it again to work on it.

To close a document:

1. Choose Close from the File menu, or click in the close box in the upper left corner of the document window.

   If you have changed the document since the last time you saved it, you will be asked if you want to save the changes.

   If you have not saved your document before (*Untitled art* appears in the title bar), you will be asked if you want to save the document, and if so, give it a name.

Naming documents

Because you will often be working with two kinds of documents, you should adopt a consistent naming scheme so that you can easily distinguish artwork documents from template documents. Adobe recommends that you name your artwork documents using the form *Document art* and your template documents using the form *Document template*. For example, you could name an artwork document *Flower art* and the template document *Flower template*.

When you open a document, the title bar of each window tells you the name of the artwork document, followed by the name of the template document (if any), followed by the view number (if more than one view exists on the desktop), separated by colons. For example, the second view of your document might be named *Flower art:2: Flower template*:2.

Choosing a preview format

Before you save your artwork, decide in which format you want to save the *preview image*. It can be saved in one of three formats, as described below. The preset option is None.

None

If you choose None, your artwork is saved as a complete PostScript language program. You can open documents saved with this preview format in the usual way to edit, preview, or print them. It is best to use one of the other two options to save your document when you want to use it with another application that supports the *EPS (Encapsulated PostScript)* format. You can also save your document with None and use it with an application that supports the EPS format, but when you preview your artwork, you will see only a gray box.

If you know how to program in the PostScript language, you can also open documents saved with this preview format with any word processor and make changes to them, although you should take certain precautions before editing Adobe Illustrator 88 program documents. Some

modifications of the PostScript language file will cause the file to be unopenable, although you will still be able to place it or print it. When you are not sure about the effects of a change you want to make, check with the following Adobe Systems documentation, published by Addison-Wesley: *PostScript Language Program Design, PostScript Language Tutorial and Cookbook,* and *PostScript Language Reference Manual.*

Apple Macintosh

If you choose Apple Macintosh, your artwork is saved in an EPS-format file that contains both the PostScript language program for your artwork and a preview image in Macintosh *QuickDraw PICT* format. You cannot edit this document with most word processors. This format is designed to be used with page composition applications that support the Aldus/Altsys/Adobe Encapsulated PostScript file format. Applications that support this format display the preview image on the screen for placement, scaling, and cropping and send the appropriately transformed PostScript language file to the printer.

IBM PC

If you choose IBM® PC, your artwork is saved in an EPS-format file that contains the PostScript language program for your artwork in the Aldus/Altsys/Adobe Encapsulated PostScript file format for IBM PC products. You cannot edit this document with most word processors. This format is designed to be used with page composition applications that run on IBM PCs and that support the Aldus/Altsys/Adobe Encapsulated PostScript file format. You will have to transfer the file onto an IBM PC-compatible disk in order to use it with an IBM PC.

Saving documents

Save your document frequently as you work. Do not wait until your artwork is complete, or you may have to redo all of it if something goes wrong.

When you save an Adobe Illustrator 88 program document, you are saving the latest version of it. The document remains on the desktop, and you can continue working on it. The first time you save a document, you are asked to name it. See "Naming Documents," earlier in this chapter, for more information.

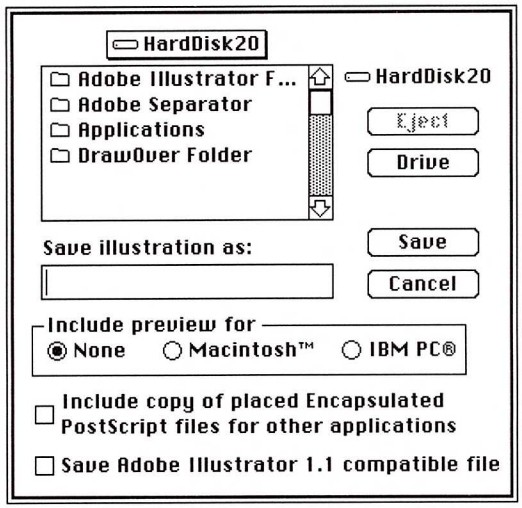
When the program saves a document, only the artwork is saved. The template, which is stored as a separate document, never changes, and thus there is no need to save it.

Saving a document under a new name creates a duplicate document under a different name while retaining the existing document under its original name. You can save a document under a new name as an Adobe Illustrator version 1.1 document.

To save a document:

1. Choose Save from the File menu, or press ⌘-S.

   The Save dialog box appears.



   If you have already saved and named your document, the File menu will remain highlighted, the watch icon will appear on your screen, and you will not be able to continue work on your drawing until the save operation is complete.

   If you have not saved your document before, you will be asked to name and save the document. Follow steps 2 through 4.

2. Type the name in the Save Illustration As field.

3. Choose the format in which you want to save the preview image.

   You can choose None, Apple Macintosh, or IBM PC. See "Choosing a Preview Format," earlier in this chapter, for more information.

   If you have placed EPS images in the document you are saving, and you will be using the document with page layout applications, click in the "Include Copy of Placed Encapsulated PostScript Files for Other Applications" checkbox. This saves the EPS files containing the placed images with your Adobe Illustrator 88 file. For more information, see "Placing EPS Files" and "Saving the Placed Files," in Chapter 16, "Working with Other Applications."

If you want to save the file as an Adobe Illustrator program version 1.1 document, click in the "Save Adobe Illustrator 1.1 Compatible File" checkbox. If you save in this format, custom colors are converted to process colors, masking is not in effect (although all objects involved in the mask are present), and patterns and all placed images are removed.

4. Click Save.

   The document remains open on the desktop, and you can continue working on it.

   If you click Cancel, the document is not saved.

To save a document under a new name:

1. Choose Save As from the File menu.

   A dialog box appears, asking you for a new document name.

2. Type the new name in the Save Illustration As field.

3. Choose the format in which you want to save the preview image.

   You can choose None, Apple Macintosh, or IBM PC. See "Choosing a Preview Format," earlier in this chapter, for more information.

   If you have placed EPS images in the document you are saving, and you will be using the document with page layout applications, click in the "Include Copy of Placed Encapsulated PostScript Files for Other Applications" checkbox. This saves the EPS files containing the placed images with your Adobe Illustrator 88 file. For more information, see "Placing EPS Files" and "Saving the Placed Files," in Chapter 16, "Working with Other Applications."

   If you want to save the file as an Adobe Illustrator version 1.1 document, click in the "Save Adobe Illustrator 1.1 Compatible File" checkbox. If you save in this format, custom colors are converted to process colors, masking is not in effect (although all objects involved in the mask are present), and patterns and all placed images are removed.

4. Click Save.

   The document remains open on the desktop, with the new name in the title bar. The document still exists under its original name as well, but that version is now closed.

   If you click Cancel, the document is not saved.

Quitting the Adobe Illustrator 88 program

To leave the Adobe Illustrator 88 program, choose Quit from the File menu, or press ⌘-Q.

If you have made changes to any document currently on the desktop since you last saved the document, you are asked if you want to save the changes. You can reply Yes, No, or Cancel.

- **Yes**—Saves and closes the document. If it has never been saved (*Untitled art* appears in the title bar), you are asked to name it first.
- **No**—Closes the document without saving it and proceeds to ask you about the next open document, if there is one.
- **Cancel**—Cancels Quit command. You can resume work on the current document.

When all documents have been closed, you are returned to the Macintosh desktop.

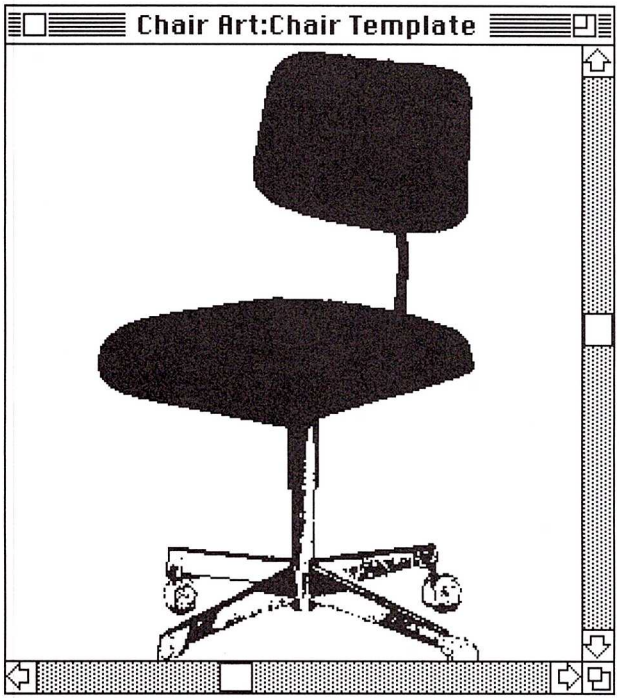
Chapter 2: *Viewing Documents*

This chapter describes all of the tools and techniques you can use to control your view of a document.

You can use several methods to control how your document is displayed on the screen. These methods let you move around in the document, zoom in or zoom out, preview the printed output, or display several views of one document. This chapter discusses how you can control the visibility of the template, the artwork, and the toolbox. You can also control the visibility of the rulers. For more information, see "Displaying the Rulers" in Chapter 12, "Measuring and Constraining."

Looking at the working area

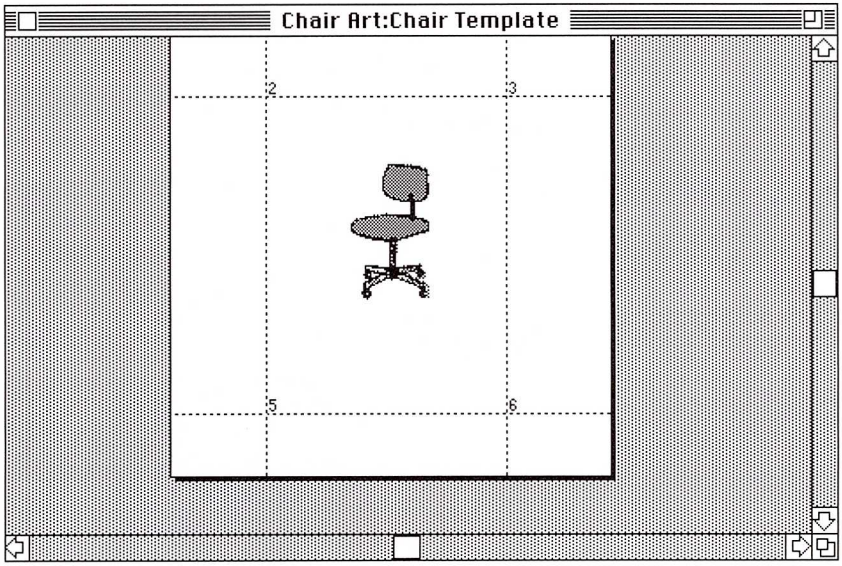
Here's how your screen looks when you first open a document, in this case a template.



The document working area is a square 1008 by 1008 points (14 by 14 inches). It is subdivided into pages when you print. The number of pages into which it is divided depends on how you set up the page. See "Setting

Up Pages" in Chapter 15, "Printing Documents," for more information. When you use the most common setting (U.S. letter size paper printed at 100 percent), the document is divided into nine pages.

Dotted lines define the printed surface of each of nine pages. You can see how the pages relate to your whole working area when you view the entire document on the screen with the Fit In Window command. You can also see parts of these dotted lines as you scroll your document at its actual size while you are working.



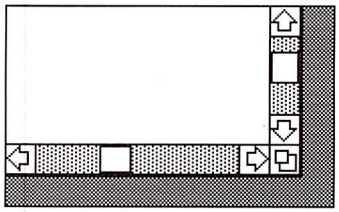
Four of the page numbers—2, 3, 5, and 6—appear in the working area. These are for your reference only. The page numbers themselves are never printed and do not affect the art you create.

Only page 5 appears in its entirety. You can adjust the placement of page 5 within the working area. You will often draw your artwork only on page 5, although you can draw on and print any of the pages in the working area. See Chapter 15, "Printing Documents," for more information.

Scrolling a document

You can view different areas of a document by using the scroll bars or the hand tool.

Using the scroll bars



The scroll bars work just as they do in other Macintosh applications. You have three options.

To use the scroll bars:

Option 1 Click the scroll arrow that points in the direction you want to see: up, down, left, or right.

You can scroll continuously by keeping the mouse button pressed on the scroll arrow.

Option 2 Click the gray area of the scroll bar, above or below the scroll box, depending on the direction you want to see.

This scrolls half a window at a time.

Option 3 Drag the scroll box to the location in the scroll bar that approximates the location in the document you want to see.

Using the hand tool

You can use the hand tool to control the area of the document you see. Moving the hand tool around on your document is like moving a piece of paper around on your desk with your hand placed on top of the paper.

To scroll with the hand tool:

1. Click on the hand tool in the toolbox.

   The pointer becomes a hand when moved to the active window.

2. 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.

To move the hand around on the document without moving the document itself, release the mouse button and move the mouse.

SHORTCUTS: To scroll quickly with the hand tool while using another tool, hold down the Space bar and drag the hand. As soon as you release the Space bar, the previously selected tool is available again.

To see the full 14-inch by 14-inch working area, double-click on the hand tool. This is equivalent to choosing the Fit In Window command.

Magnifying and reducing with the zoom tool

The zoom tool, represented by a magnifying glass in the toolbox, lets you zoom into or zoom out of any area in your document. You can use it to control how much of the document you see in the active window.

Each time you click with the zoom tool, the document is magnified or reduced by a factor of two. In other words, each click either doubles or halves the size of the image you see. Zooming does not change the size of the actual objects, only the magnification at which you see them. For information about enlarging or reducing the objects themselves, see "Using the Scale Tool" in Chapter 11, "Transforming Objects."

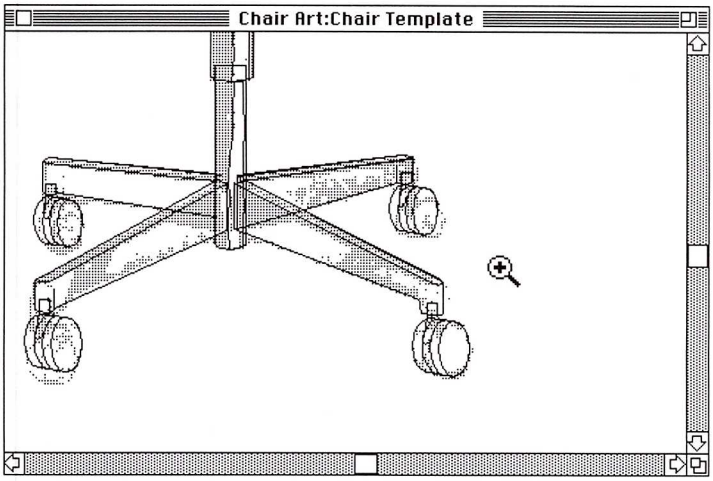
You can zoom through a total of nine magnification or reduction levels. Starting from 100 percent scale when you open a document, you can enlarge it to 200 percent, 400 percent, 800 percent, and 1600 percent, and you can reduce it to 50 percent, 25 percent, 12.5 percent, and 6.25 percent.

If rulers are displayed, zooming also affects them. See "Displaying the Rulers" in Chapter 12, "Measuring and Constraining."

To magnify or reduce with the zoom tool:

1. Click on the zoom tool in the toolbox.

The pointer becomes a magnifying glass with a plus sign in the center, indicating that the zoom tool will magnify.

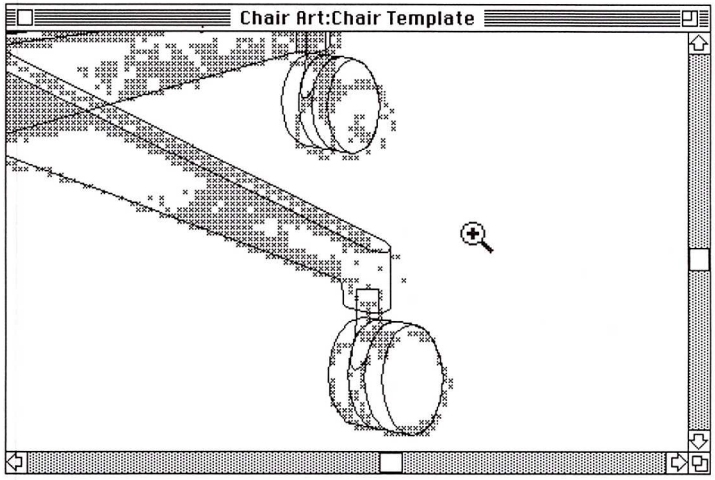


NOTE: If you hold down the Option key, the magnifying glass will have a minus sign in the center, indicating that the zoom tool will reduce.

2. Position the magnifying glass in the center of the area you want to magnify or reduce.

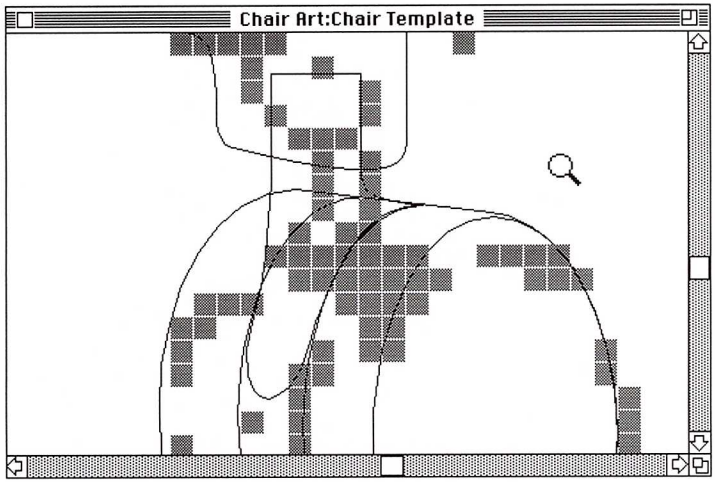
   The document will zoom around this point.

3. Click.



The document zooms in or out by a factor of two. If you click again, the document again zooms by a factor of two.

NOTE: The plus sign and the minus sign in the magnifying glass disappear when the document cannot be magnified or reduced further.



SHORTCUTS: To magnify while using another tool, hold down the Space bar and the ⌘ key simultaneously, and click. When both keys are released, the previously selected tool is available again.

To reduce while using another tool, hold down the Space bar, the ⌘ key, and the Option key simultaneously, and click. When all three keys are released, the previously selected tool is available again.

To magnify from the center of the active window, double-click on the zoom tool in the toolbox.

To reduce from the center of the active window, hold down the Option key, and double-click on the zoom tool in the toolbox.

To scroll and zoom at the same time, drag the magnifying glass. The magnifying glass changes to the hand while you hold the mouse button down.

Displaying documents

You can display your documents in more than one way while you work.

When you open a document, it is displayed at actual size in the working area. Yet at actual size you see only part of the whole document. You can choose a view that displays the entire document, and you can choose multiple views of the same document.

In addition, you can choose the kind of document you display: template only, artwork only, or template and artwork. At any time, you can preview how your artwork will look when it is printed.

Fitting documents in the window

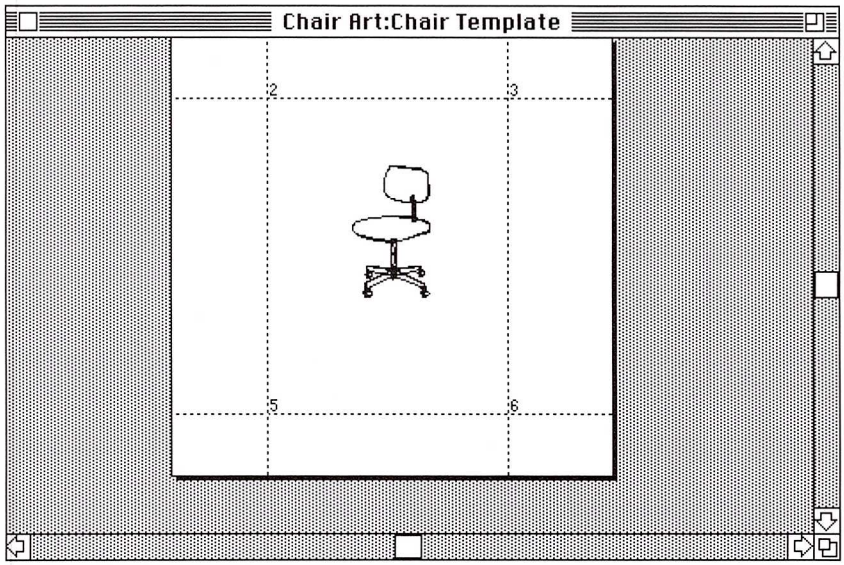
When you choose the Fit In Window command, the document is scaled and centered so that it can be viewed in its entirety in the active window.

You can manipulate objects in this view just as you can when they are at actual size.

To fit a document in the window:

1. Choose Fit In Window from the View menu, or press ⌘-M.

   The entire document appears in the window.



SHORTCUT: Double-click on the hand tool in the toolbox to choose Fit In Window.

Restoring documents to actual size

At any time, you can restore your document to actual size.

To restore a document to actual size:

1. Choose Actual Size from the View menu, or press ⌘-H.

   The document is displayed at its actual size and is centered in the active window.

SHORTCUT: Double-click on the hand tool in the toolbox while you hold down the Option key to choose Actual Size.

Displaying multiple views of one document

You can display several views of the same document. Each view of the document is in a separate window on the desktop.

For example, you can simultaneously view several magnification levels of one drawing, or you can display a preview image in one window and artwork in another.

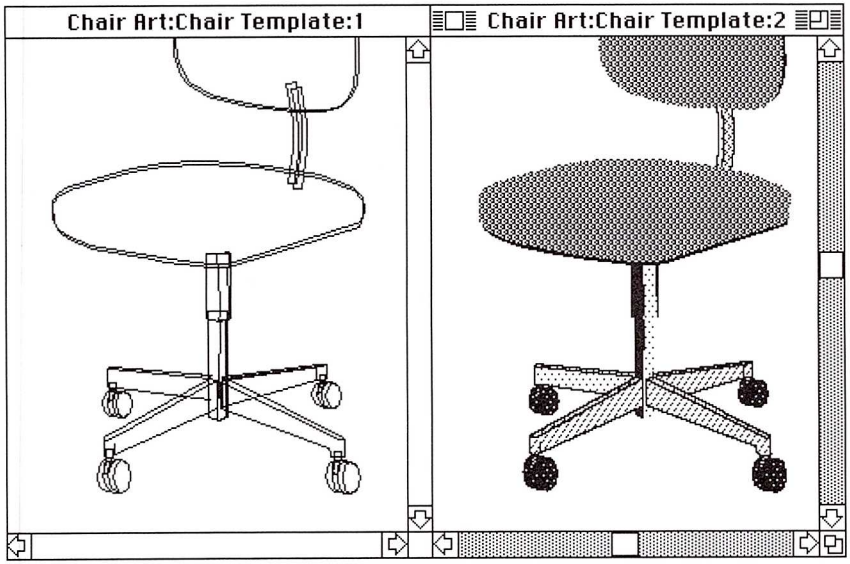
When two or more views of the same document are on the desktop, the program assigns each a number, which appears in their title bars.

To open a new window:

1. Size the existing window to approximately half its current size so that there is enough room for the window you are going to create.
2. Choose New Window from the Window menu.

   A new window appears on top of the previously active window. The two windows are identical except for their window numbers. The scroll bars in window 2 are shaded, which indicates that it is the active window.

Size and move the new window so that you can see both windows at the same time. For help with sizing or moving windows, see "Managing Multiple Windows," later in this chapter.



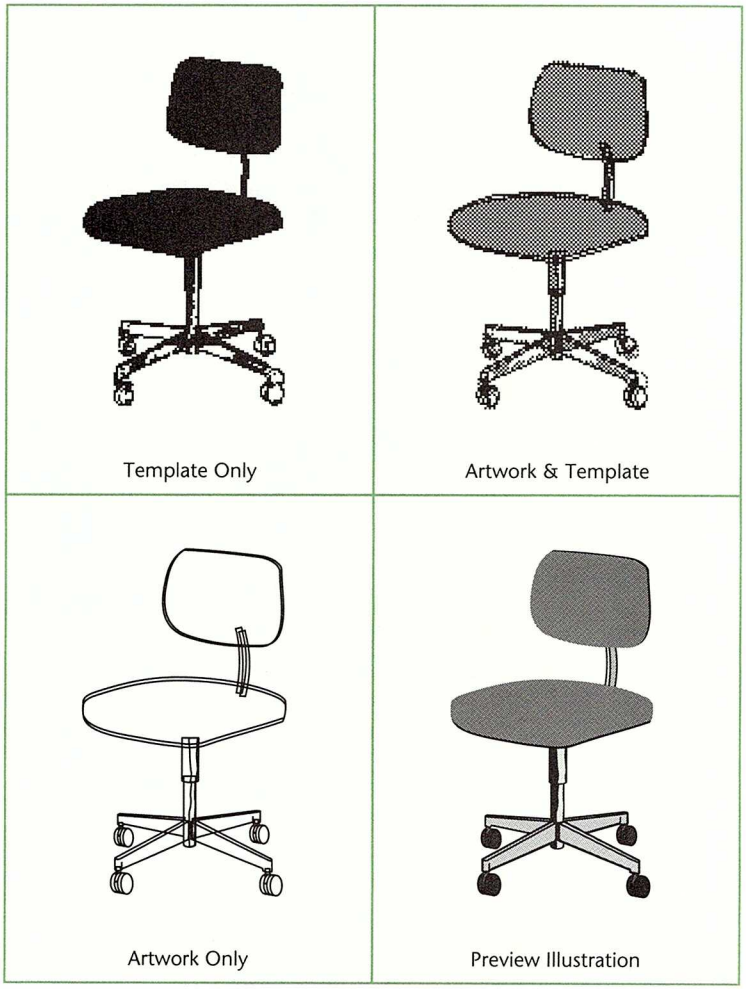
Viewing the template and artwork

You have several choices about what is visible in a window. You can display the template only, the artwork only, or the template and artwork together. You can also display a preview image of your artwork, as described in the next section. The Template Only command temporarily removes the entire artwork from view. Removing the template or artwork from view does not delete either one.

To view the template and/or the artwork:

1. Choose the appropriate command from the View menu.

The following illustrations show the effects of each command.



Previewing printed output

You can use the Preview Illustration command at any time to get a rough idea of what your artwork will look like when it's printed. When you choose this command, an image of your artwork is displayed in the active window, with the currently selected paint and type attributes. Only the previewed image appears; the artwork and template are not displayed.

You can perform viewing operations on a preview window, but you cannot edit a preview image. Therefore, the only tools that you can use from the toolbox are the hand tool, the zoom tool, the measure tool, and the page tool. You cannot use any commands from the Edit menu, Arrange menu, or Style menu.

If you are working on a Macintosh II with a color monitor, you can preview either in color or in black and white. See the *Adobe Illustrator 88 Color Guide* that accompanies this manual for instructions on adjusting your color monitor before you preview.

To preview your artwork:

1. Choose Preview Illustration from the View menu, or press ⌘-Y.

   The previewed image does not represent your artwork exactly but it will give you a rough idea of how your artwork will look when it is printed. See the illustration at the end of the previous section for an example of a previewed image.

Managing multiple windows

The Adobe Illustrator 88 program supports four standard Macintosh window manipulation techniques. With them, you can do the following:

- Change the window size
- Restore the window to normal size
- Move a window
- Close the active window

To change the size of a window:

1. Position the pointer on the size box (in the lower right corner of the window), and drag it.
2. Release the mouse button when the window is the size you want. The window remains at the new size.

To restore a window to its normal size:

1. Click the window's zoom box (in the upper right corner of the window).

   The window is restored to the size it was when you started the program. The zoom box is a toggle. Clicking it again changes the window back to its last size.

To move a window:

1. Position the pointer anywhere on the title bar of the window, except in the close box.
2. Drag the window to the new position, and release the mouse button.

   The window remains at the new position.

To close the active window:

1. Click its close box, or choose Close from the File menu.

   If the document was saved previously and there have been no changes, the active window closes.

Displaying the Clipboard

If you have cut or copied objects, you can show the Clipboard window at any time to see how many objects it currently contains, and then you can hide it again.

This command is a toggle. Choosing Show Clipboard changes the menu command to Hide Clipboard, and choosing Hide Clipboard changes the menu command to Show Clipboard.

To show or hide the Clipboard:

1. Choose Show Clipboard from the Window menu.

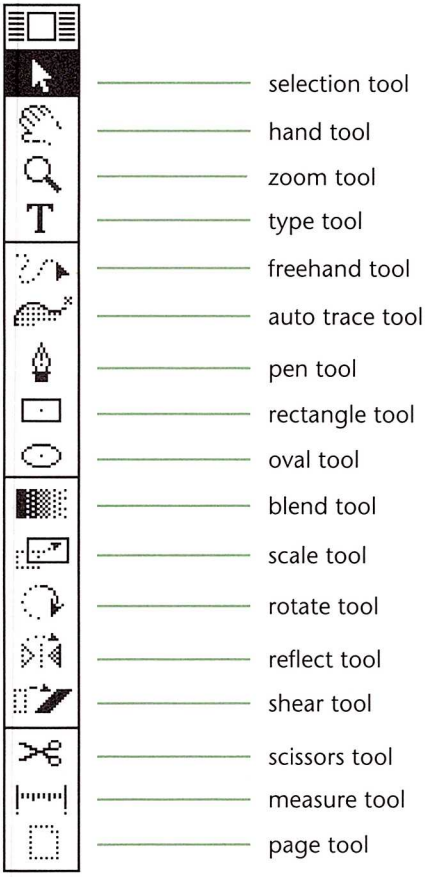
   The Clipboard window appears, indicating the number of objects it currently contains.

2. Choose Hide Clipboard from the Window menu, or click in the close box of the Clipboard window.

   The Clipboard window disappears.

Managing the toolbox

When you open a document, the toolbox appears on the left of the screen. At the top of the toolbox is a title bar (no title appears) and a close box. The rest of the toolbox contains the following tools.



If you want more room to work, you can hide the toolbox and use the equivalent keyboard commands instead. You can also move the toolbox to another area of the screen.

Showing and hiding the toolbox

You can hide the toolbox from the desktop to get a little more room on the screen.

To hide the toolbox:

1. Choose Hide Toolbox from the Window menu, or click the toolbox close box.

If the toolbox is invisible, you can still use the last tool you selected.

To regain access to all the tools, you must make the toolbox visible.

To show the toolbox:

1. Choose Show Toolbox from the Window menu.

The toolbox reappears.

Moving the toolbox

When it's visible, you can move the toolbox around on the screen, but it always remains frontmost.

To move the toolbox:

1. Position the pointer in the title bar of the toolbox.
2. Drag the toolbox to the new position, and release the mouse button.

The toolbox remains in the new position.

Chapter 3: *Drawing Paths*

This chapter describes exactly how the Adobe Illustrator 88 program defines *paths*. Then it tells you how to use the freehand tool, the auto trace tool, or the pen tool to draw straight line paths and curved paths. Note that this chapter does not tell you how to adjust paths. For information on making adjustments, see Chapter 7, "Adjusting Paths."

Defining paths

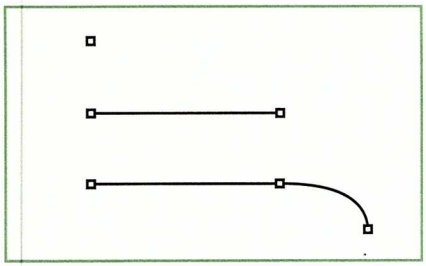
A path is any line or shape you create by using the Adobe Illustrator 88 software drawing tools. The freehand tool, the auto trace tool, and the pen tool are described in this chapter. The rectangle tool and the oval tool are described in Chapter 4, "Drawing Rectangles and Ovals."

A path can consist of a single *anchor point*, a single *segment*, or two or more segments.

A path consisting of one anchor point is not connected to any segments.

A path consisting of one segment has anchor points that are connected only to that segment.

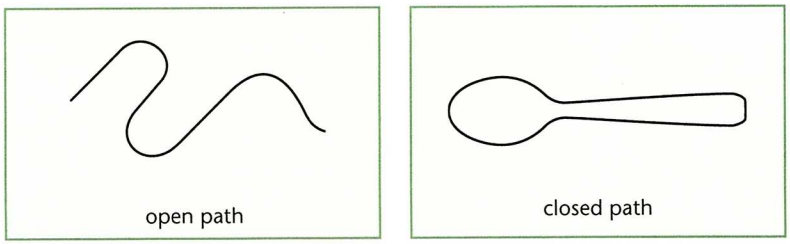
A path consisting of two or more segments has anchor points that are connected to two adjacent segments.



Open and closed paths

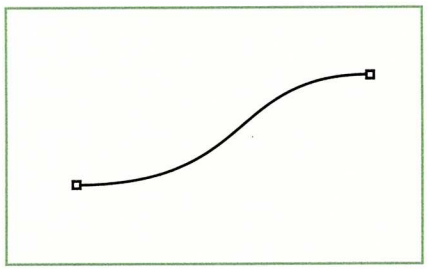
You can create either open paths or closed paths. Open paths consist of a sequence of straight lines and/or curves spanning from one distinct endpoint to another distinct endpoint.

Closed paths have no endpoints. Their first anchor point and their last anchor point are the same.



All segments

Each segment can be either a straight line or a curve. Segments are both bounded by and connected by anchor points. The anchor points define where each segment starts and ends. The first and last anchor points on a path are also called endpoints.

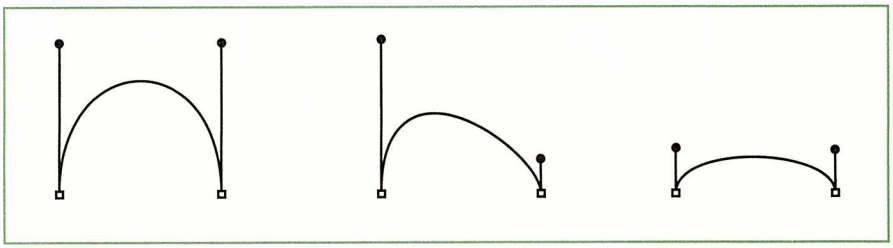


A segment's shape and size is determined by the anchor points, direction points, and direction lines associated with it.

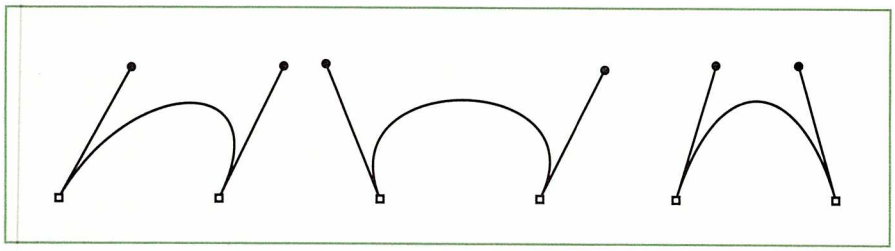
Curved segments

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

The position of each direction point and direction line relative to its anchor point determines the size and shape of the curved segment.



The slope of each direction line relative to its anchor point determines the slope of the curve.

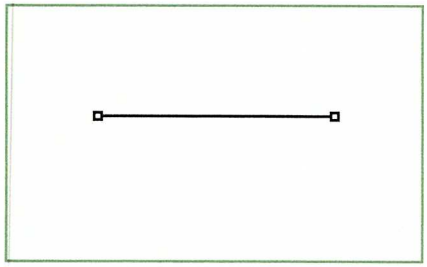


The length of each direction line relative to its anchor point determines the height or depth of the curve.

See "Understanding a Few Rules," later in this chapter, for more information about drawing curves.

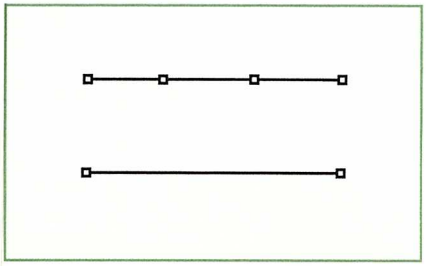
Straight line segments

On straight line segments, both direction points and their direction lines are coincident with the anchor points. This means that the direction lines occupy the same position as their anchor points and are therefore not displayed.

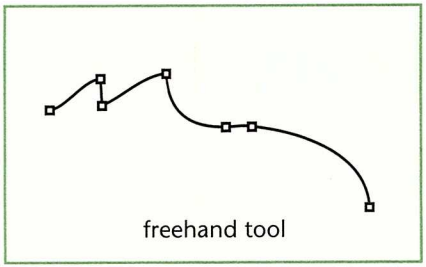


Continuous paths

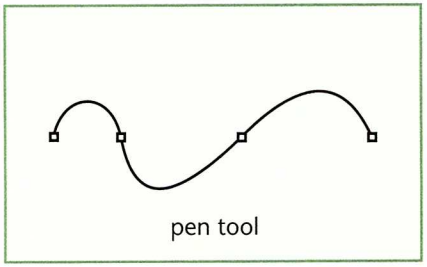
You can draw a straight line path consisting of several segments, but drawing just one segment is more efficient.



To draw continuously curved paths with the freehand tool, just draw the line the way you want it.



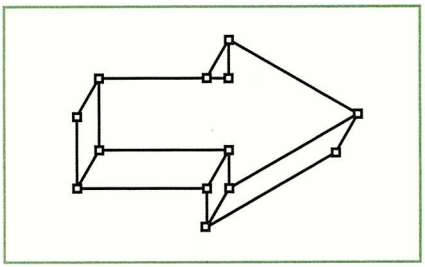
To draw continuously curved paths with the pen tool, follow the Bump rule described later in this chapter.



Continuously curved paths are connected by smooth points. Contrast this with corner points, described next.

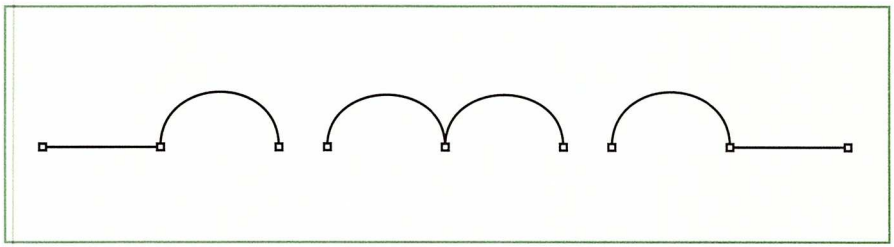
Paths with corner points

Corner points form automatically when your path goes from one straight line segment to another straight line segment, because the direction lines are of 0 length.



There are three instances in which you need to create corner points on paths:

- When joining a straight line segment to a curve segment
- When joining a curve segment to another curve segment so that they are non-continuous
- When joining a curve segment to a straight line segment



To create corner points with any of the drawing tools, see "Adding Segments to Existing Open Paths," later in this chapter.

Working with paths

As you are drawing a path, you can constrain the location of its anchor points relative to the currently set angle of the *x* and *y* axes of the document. For more information, see "Rotating the *X* and *Y* Axes," in Chapter 12, "Measuring and Constraining."

After you draw a path, you can adjust, paint, or transform it in several ways to obtain the exact look in your artwork that you want.

The whole path, or any of its anchor points or segments, can be adjusted at any time. For more information, see Chapter 7, "Adjusting Paths."

The whole path (not just parts of it) can be filled and/or stroked with black, white, shades of gray, patterns, or process or custom colors. In addition, masking, line weight, and other line attributes can be specified. Single anchor points cannot be painted. For more information, see Chapter 13, "Painting."

The whole path, or any of its anchor points or segments, can be transformed at any time. For more information, see Chapter 11, "Transforming Objects."

Choosing a drawing tool

You can draw paths in the Adobe Illustrator 88 program with three drawing tools: the freehand tool, the auto trace tool, or the pen tool. Each tool works somewhat differently, making it useful for particular drawing needs.

Paths created with any of the three tools are adjusted, painted, or transformed in exactly the same way.

In rare cases, you may draw a path that is either too long or too complex. The program will stop drawing the path and will display an error message. When you release the mouse button, the beginning of the path that you were drawing will remain, but to finish the path, you must go back to the ending anchor point and start drawing again.

The freehand tool

The freehand tool lets you work just as if you were drawing with a pencil on paper, and is best suited to fast sketching. It is very useful for drawing when you do not have to be extremely precise or when you want your artwork to have a more spontaneous look than you could achieve using the pen tool. However, you cannot easily create perfectly straight lines with the freehand tool, and the curved lines you create may be somewhat bumpy.

The freehand tool allows you to erase paths as you are drawing them.

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 Preferences dialog box.

The freehand tolerance value allows for the fact that your hand may wobble a bit as you are drawing. See the next section, "Drawing with the Freehand Tool," for more information.

If you draw a freehand path that extends outside the active window, that path will continue to be drawn past the edge of the active window, and you will be able to see it when you scroll.

You cannot constrain the location of anchor points drawn with the freehand tool. To constrain the location of anchor points while you draw a path, you must use the pen tool.

You can create corners on curve segments by using the Option key with the freehand tool as you do with the pen tool. See "Adding Segments to Existing Open Paths," later in this chapter.

The auto trace tool

The auto trace tool traces template shapes automatically to draw paths for you. With a template open, you choose the auto trace tool and click near the edge of the shape you want to trace. The auto trace tool draws a path around the shape, returning to the point at which you clicked. You can also trace only between two points that you specify. The new path has the currently set paint attributes. It can be adjusted just like any path you might draw with the other tools.

The auto trace tool is especially suited to tracing around simple shapes or lines. This relieves you of the tedium of having to spend time drawing the basic outlines of your artwork.

If part of a template shape is very complex, you can draw that part of the path with either the freehand tool or the pen tool, and draw the simpler parts automatically with the auto trace tool.

The pen tool

The pen tool is best used when you want to draw with precision. It allows you to create very straight lines or smooth, flowing curves. Your work, whether tracing templates or creating an elaborate structure from scratch, can be much more precise than it would be if you were using the freehand tool.

You use the pen tool to create a path by setting down anchor points one at a time exactly where you want them. You have complete control over each anchor point you set down.

If you hold down the Shift key while drawing with the pen tool, you can constrain a straight line to 45-degree multiples relative to the angle of constraint specified in the Preferences dialog box.

If you hold down the Option key while drawing a curved path with the pen tool, you can create a corner. See "Adding Segments to Existing Open Paths," later in this chapter.

If you draw a path with the pen tool that 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 with the freehand tool

You draw paths with the freehand tool by dragging the pointer in the working area just as you would move a pencil on paper. You can easily draw curved paths with the freehand tool. If you try to draw straight line paths, they usually do not appear perfectly straight. Adjusting them so that they are straight is very time-consuming. Use the pen tool when you want to draw straight lines.

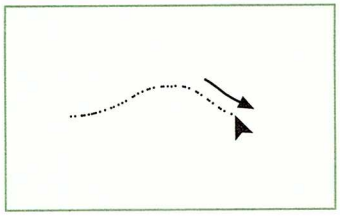
To draw a freehand path:

1. Click on the freehand tool in the toolbox.

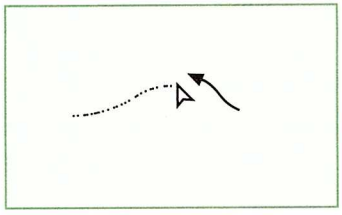
   The pointer changes to an x when you move it to the active window.

2. Position the x where you want the path to begin.

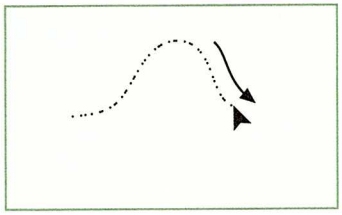
3. Drag the mouse to draw a path.



As you drag, the x changes to an arrowhead and a dotted line trails behind it. The faster you drag, the fewer the dots in the line.

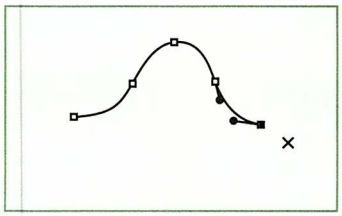


You can erase any part of the dotted line as you are drawing it by holding down the ⌘ key and going back over the line. You can erase only before you release the mouse button. While you are erasing, the previously solid arrowhead becomes hollow.



When you're finished erasing, redraw the line the way you want it.

4. Release the mouse button when the path is the way you want it.



Anchor points automatically appear at both ends of the path and at various locations along it. The path becomes solid, and it is selected. The arrowhead changes back to an x, indicating that you can start drawing another line.

If you change your mind, you can immediately choose Undo Freehand from the Edit menu to delete the path you just drew.

5. You have two options. You can start a new path, or you can continue the existing path.

Option 1 To start a new path, repeat steps 1 through 4, positioning the x anywhere on the screen except on an endpoint of an existing path.

Option 2 To continue the existing path, position the x on an endpoint of the path, and start dragging the mouse. Release the mouse button when the line is the way you want it.

To continue the path with a corner, hold down the Option key and drag to draw the corner you want.

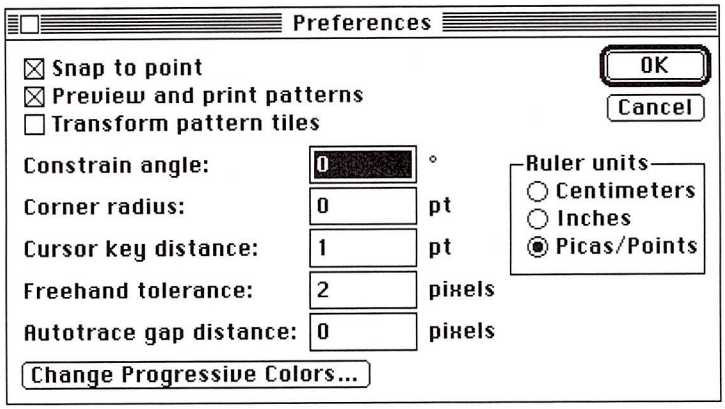
Setting the freehand tolerance

When you use the freehand tool, it 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 setting the freehand tolerance before you draw, or at any time.

To set the freehand tolerance:

1. Choose Preferences from the Edit menu, or press ⌘-K.

The Preferences dialog box appears.



2. Enter a value in the Freehand Tolerance field.

   This field is calculated in number of pixels. The preset value is 2. You must enter a positive number between 0 and 10.

   The larger the number of pixels you specify, the more bumps the program will ignore, and the smoother your lines will be.

3. Click OK.

Drawing with the auto trace tool

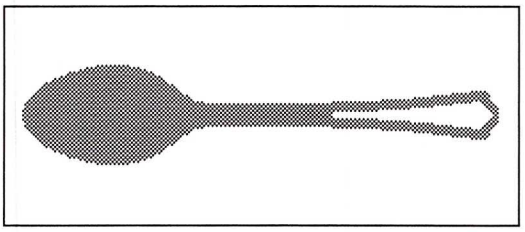
You use the auto trace tool to automatically trace paths around template shapes. You can use the auto trace tool to draw entire paths, or you can use it to draw part of a path either started by or finished by the freehand tool or the pen tool. Paths drawn with the auto trace tool are painted with the paint attributes set when you started using the tool.

Both the freehand tolerance and auto trace gap distance settings in the Preferences dialog box affect the auto trace tool. Before you use the tool, choose Preferences from the Edit menu and enter the values that you want to apply. See the next section, "Setting the Auto Trace Gap Distance," and see "Setting the Freehand Tolerance," earlier in this chapter, for more information.

The following procedures apply to lines as well as shapes. When you use the auto trace tool to trace a line, it travels all the way around the line and comes back to where you clicked, forming a closed path, not an open one.

To trace a template shape:

1. Open a new artwork document with a template.

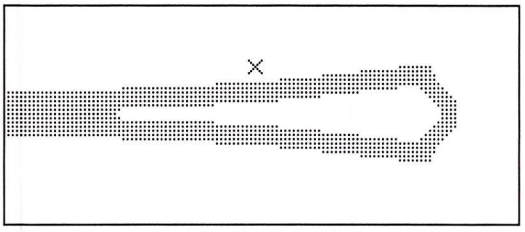


2. Click on the auto trace tool in the toolbox.

   The pointer changes to an x when you move it to the active window.

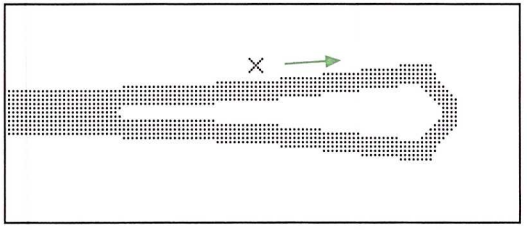
3. Position the x on the template where you want a path to be automatically traced.

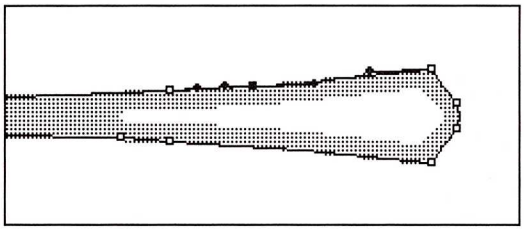
   You must position the x within 6 pixels of the edge of a bitmapped shape. The auto trace tool is guided by the boundary between the black bitmap and the white background.



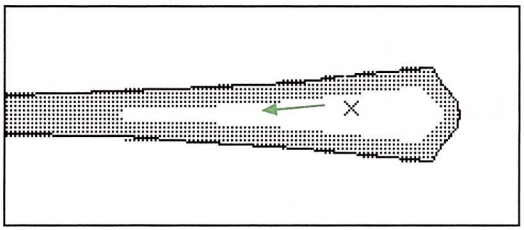
4. Click.

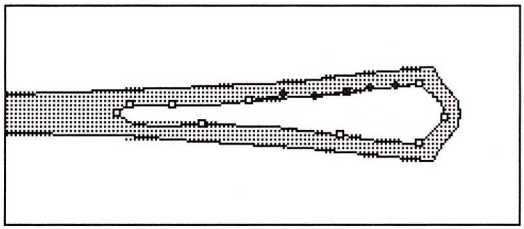
   A path is traced around the shape on which you clicked. The path is drawn so that it starts where you click and follows around the shape, *keeping the black bitmap always on its right.*





In some cases, the path will be drawn clockwise, and in other cases, counterclockwise, depending on where you click and how the black bitmap and the white background relate.





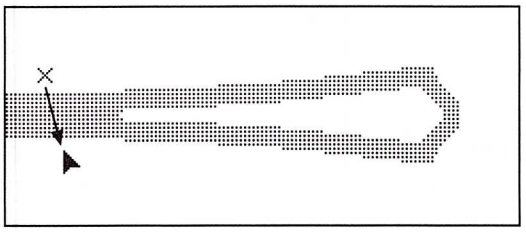
If you change your mind, you can immediately choose Undo Auto Trace from the Edit menu to delete the path just drawn.

To trace part of a template shape:

1. Open a new artwork document with a template.
2. Click on the auto trace tool in the toolbox.

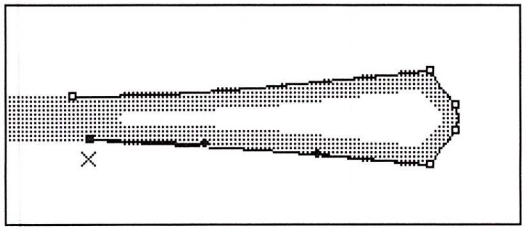
   The pointer changes to an x when you move it to the active window.

3. Drag (the x changes to an arrowhead) from the place on the bitmap shape where you want the path to start to the place where you want the path to end.



The drag should start and end within 2 pixels of the edge of the shape.

The auto trace tool automatically traces a path between the points you dragged. The path is drawn so that it starts from the beginning point of the drag and follows around the shape keeping the black bitmap always on its right. In some cases, the path will be drawn clockwise, and in other cases, counterclockwise, depending on where you start the drag and how the black bitmap and the white background relate.



If you change your mind, you can immediately choose Undo Auto Trace from the Edit menu to delete the path just drawn.

To connect a new auto trace path to an existing path traced along a bitmap, start the drag on the anchor point of the existing path where you want the paths to connect. The anchor point must be within 2 pixels of the edge of the shape you want to trace. To connect them with a corner, use the following procedure.

To draw a corner with the auto trace tool:

1. Click on the auto trace tool in the toolbox.

   The pointer changes to an x when you move it to the active window.

2. Position the x on the anchor point of the existing path where you want the corner to be.

3. Hold down the Option key and drag to the place on the bitmap where you want the path to end.

   If you change your mind, you can immediately choose Undo Auto Trace from the Edit menu to delete the path just drawn.

Setting the auto trace gap distance

The lines and shapes in bitmapped template images often contain gaps that are visible when you enlarge your view of the document. You can control the accuracy with which the auto trace tool traces lines or shapes with gaps. You do so by setting the auto trace gap distance in the Preferences dialog box.

The 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 from the Edit menu, or press ⌘-K.

   The Preferences dialog box appears.

2. Enter a value in the Auto Trace Gap Distance field.

   This field is calculated in number of pixels. The preset value is 0. You must enter either 0, 1, or 2.

3. Click OK.

Drawing with the pen tool

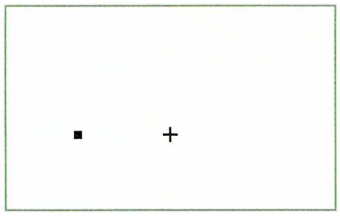
You draw curved paths with the pen tool by clicking to set down anchor points and then dragging to establish their corresponding direction points and direction lines. When you draw curves, you must be aware of five simple rules. See "Understanding a Few Rules," later in this chapter.

To draw a path of straight lines:

1. Click on the pen tool in the toolbox.

   The pointer changes to an x when you move it to the active window.

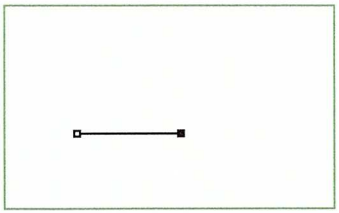
2. Move the x to where you want the straight line path to begin, and click.



   The x changes briefly to an arrowhead and then to a cross. A solid square appears. It is an anchor point, and it is selected.

IMPORTANT: Do not move the mouse while you click. If you do, you will start a curve instead of a straight line. For an anchor point to be associated with a straight line, the pointer must stay within 2 pixels of where you click.

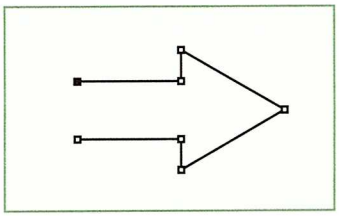
3. Click again where you want the first segment of the straight line path to end.



   If you change your mind, you can immediately choose Undo Pen from the Edit menu to delete the path you just drew.

   You can also 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 Preferences dialog box. To constrain a line, hold down the Shift key while you click the anchor points. No constraint is applied when you click the first anchor point on a path or when you close a path. See "Rotating the *X* and *Y* Axes" in Chapter 12, "Measuring and Constraining."

4. Continue clicking to create straight lines.



An additional anchor point appears at the end of each new line segment. The last anchor point added is always a solid square, indicating that it is selected. Previous anchor points become hollow squares.

5. End the straight line path.

   You can end the path in one of two ways. You can leave the path open, or you can close the path.

   Option 1 To end an open path, click on the pen tool in the toolbox.

   The cross changes back to an x, indicating that you can start a new path.

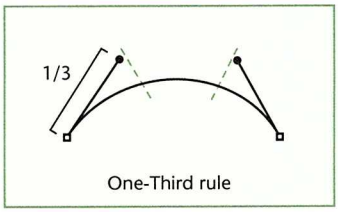
   Option 2 To close the path, click on top of the first anchor point.

   The program connects the last anchor point you clicked with the first anchor point, and the cross changes back to an x, indicating that you can start a new path.

Understanding a few rules

If you keep in mind the following five rules, you can quickly and easily draw any kind of curve.

- The One-Third rule



One-Third rule

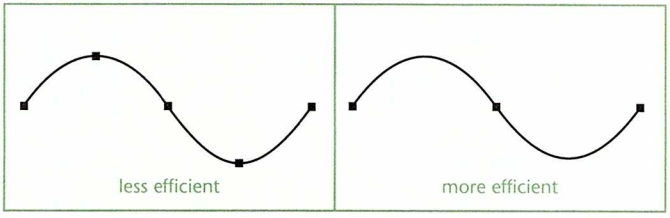
When you are drawing a curved line, make the distance between the direction point you are dragging and its corresponding anchor point approximately one-third the length of the segment you want to create.

If you have difficulty figuring out what one-third of the curve is, imagine the curve as a straight line.

- The Bump rule

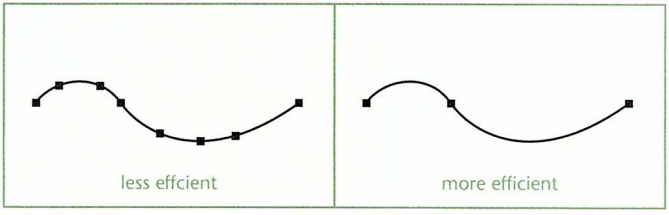
  When you are drawing a series of continuous curves, draw one "bump" at a time, placing anchor points at the beginning and end of each bump, not at the top.

  This is the best way to draw a path that consists of multiple curves. Using more anchor points would be less efficient and probably more confusing, and would actually give you less control.



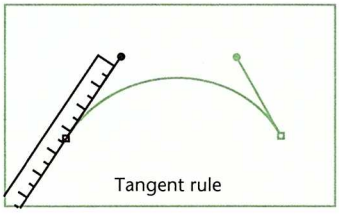
- The Stride rule

  Take big strides. When drawing a segment, use as few anchor points as possible, placing them as far apart as possible.



  Working this way is very efficient. If anchor points turn out to be too far apart, you can add more points later by using the scissors tool. See "Adding Anchor Points" in Chapter 7, "Adjusting Paths," for more information.

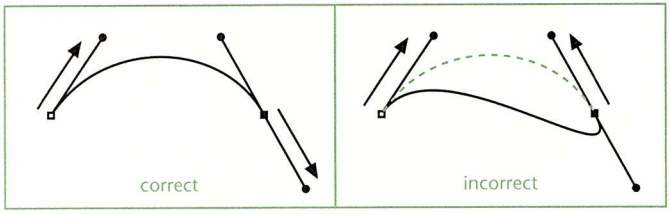
- The Tangent rule



  When you drag, imagine that you are butting a ruler up against the curve and that the ruler is tangent to the curve at its anchor point. The direction line that you create when you drag to establish a direction point represents that ruler.

- The Direction rule

  Always drag the direction point in the direction the curve is traveling at the anchor point. If you drag the direction point in the opposite direction, the curve will be drawn in the opposite direction.



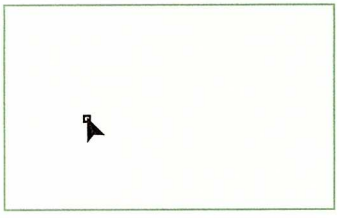
To draw a curved path:

1. Click on the pen tool in the toolbox.

   The pointer changes to an x when you move it to the active window.

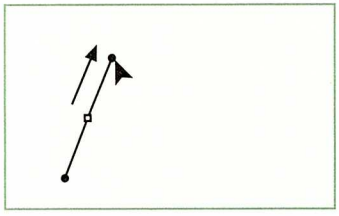
2. Position the x where you want the curve to begin.

3. Press and hold down the mouse button.



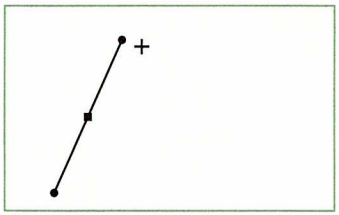
The first anchor point appears, and the x changes to an arrowhead.

4. Drag in the direction you want the curve to be drawn.



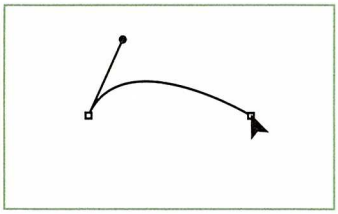
As you drag, the arrowhead leads one of two direction points. The two direction points move in opposition to each other around the stationary anchor point. Their position when you release the mouse button sets the starting direction of the curve. Both direction points are the *same length*. You can adjust one or both later.

5. Release the mouse button when the direction points are the way you want them.



The arrowhead changes to a cross.

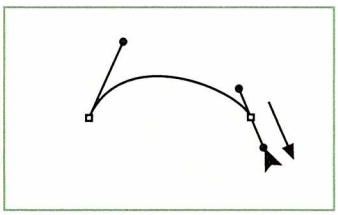
6. Position the cross where you want the curve segment to end, and press and hold the mouse button.



A second anchor point is set, and the arrowhead appears.

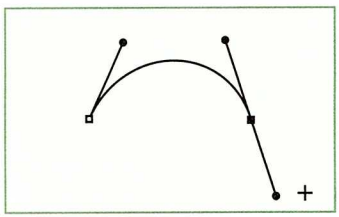
You can constrain the position of anchor points by holding down the Shift key while you place them. The anchor point is placed at a multiple of 45 degrees from the previous anchor point, relative to the angle of constraint set in the Preferences dialog box. See "Rotating the *X* and *Y* Axes" in Chapter 12, "Measuring and Constraining." When you place the first anchor point in a path or close a path, no constraining occurs.

7. Drag to position the direction points that will determine the height and slope of the next curve segment.



If you hold down the Shift key while dragging a direction point, the direction line will be constrained to a multiple of 45 degrees relative to the angle of constraint set in the Preferences dialog box. See "Rotating the *X* and *Y* Axes" in Chapter 12, "Measuring and Constraining."

8. Release the mouse button.



If you change your mind, you can immediately choose Undo Pen from the Edit menu to delete the anchor point you have just set.

9. Repeat steps 6 through 8 as many times as you want.

10. End the curved path.

    You can end the path in one of two ways. You can leave the path open, or you can close the path.

    Option 1 To end an open path, click on the pen tool.

    The cross changes back to an x, indicating that you can start a new path.

    Option 2 To close the path, click on top of the first anchor point and drag.

    The program connects the last anchor point you clicked to the first anchor point.

    The cross changes back to an x, indicating that you can start a new path.

Drawing with two tools

At times you may want to draw parts of an object with the freehand tool and other parts with the pen tool. You can easily switch back and forth between the two tools while drawing, connecting paths drawn with one tool to paths drawn with the other.

SHORTCUT: If you have a Macintosh SE or a Macintosh II, you can toggle by using the Control key. This shortcut works no matter which tool is currently selected. For example, if you just drew a path with the pen tool and it is still highlighted in the toolbox, you can hold down the Control key and draw with the freehand tool in effect. Releasing the key automatically restores the pen tool.

To draw a path with two tools:

1. Click on either the freehand tool or the pen tool.
2. Draw a path.
3. Select the other tool.
4. Position the x on an endpoint of the existing path.

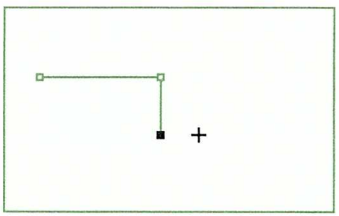
   Continue drawing the path with the other tool.

Adding segments to existing open paths

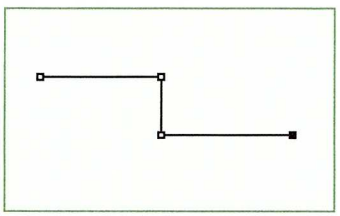
You can add straight lines, continuous curves, or corner points to open paths, as described in the following procedures. For information about adding line segments to closed paths, see "Splitting Paths with the Scissors Tool" in Chapter 7, "Adjusting Paths."

To add a straight line to an open path:

1. Click on the pen tool in the toolbox.

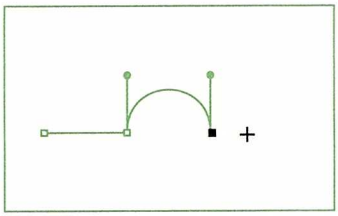


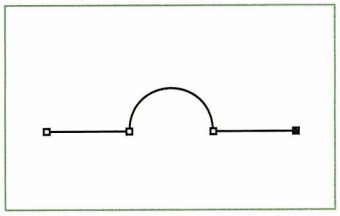
The pointer changes to an x when you move it to the active window. If the last segment of the path is a straight line, click on the path's endpoint,



and then click where you want the new straight line to end.

2. If the last segment of the path is a curve, hold down the Option key while you click on the path's endpoint,



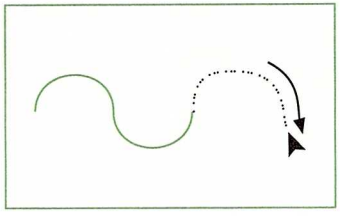


and then click where you want the new straight line to end.

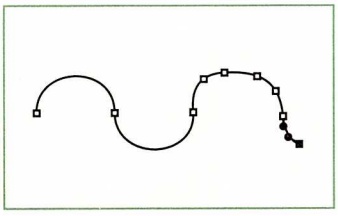
To add a continuous curve to an open curved path:

1. Click on either the freehand tool or the pen tool in the toolbox.

   The pointer changes to an x when you move it to the active window.

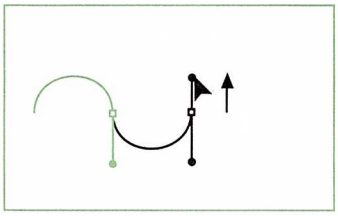


If you are using the freehand tool, position the x on the path's endpoint, and drag to draw the curve you want.



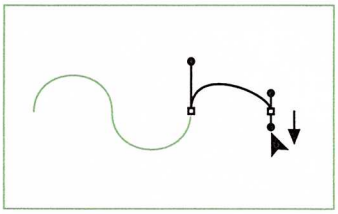
When the path is complete, release the mouse button. The path is selected with the last endpoint highlighted. Do not go on to step 2.

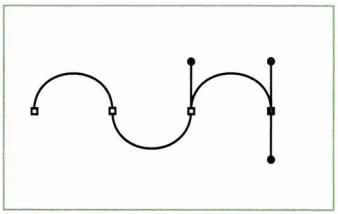
If you are using the pen tool, position the x on the path's endpoint and drag to establish the direction points for the starting side of the new curve.



The x changes to a cross. Go on to step 2.

2. Position the cross where you want the new curved segment to end, and drag to establish the direction points for the ending side of the new curve.





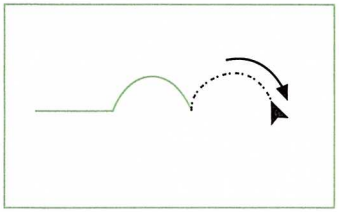
When the path is complete, release the mouse button. The path is selected with the last endpoint highlighted.

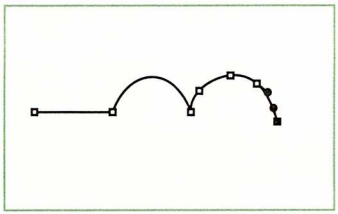
To add a corner to an open path:

1. Click on either the freehand tool or the pen tool in the toolbox.

   The pointer changes to an x when you move it to the active window.

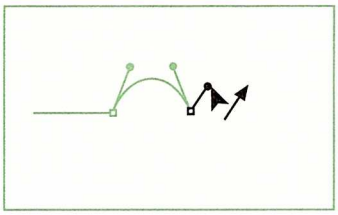
2. If you are using the freehand tool, position the x on the path's endpoint. Hold down the Option key and drag to draw the corner you want. Do not go on to step 3.





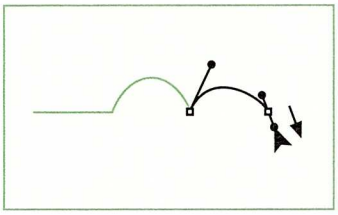
When the path is complete, release the mouse button. The path is selected with the last endpoint highlighted.

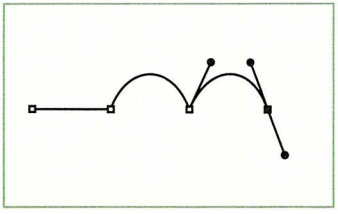
If you are using the pen tool, position the x on the path's endpoint, hold down the Option key, and drag to establish a direction point for the corner.



The x changes to a cross. Go on to step 3.

3. Position the cross where you want the new curved segment to end, and drag to establish the direction points and direction lines for the ending side of the new curve.





When the path is complete, release the mouse button. The path is selected with the last endpoint highlighted.

Chapter 4: *Drawing Rectangles and Ovals*

This chapter tells you how to use the rectangle tool and the oval tool to draw rectangles, squares, ovals, and circles. The shapes that you create can be transformed using any of the transformation tools described in Chapter 11, "Transforming Objects." They can also be filled and/or stroked with black, white, shades of gray, patterns, process colors or custom colors, or they can be used as masking objects. See Chapter 13, "Painting," for more information.

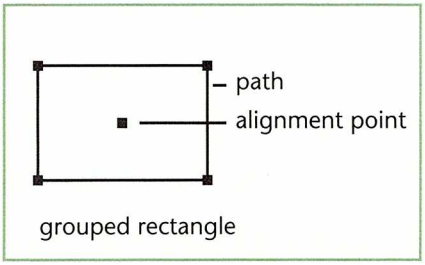
Drawing rectangles and squares

You can easily draw rectangles and squares by using one of three procedures:

- Dragging from any corner to an opposite corner
- Dragging from the center to any corner
- Specifying a height, width, and corner style in a dialog box

All three methods of drawing rectangles or squares are described in two procedures later in this chapter.

The rectangles and squares you draw are actually grouped objects consisting of two paths. The first path consists of four straight line segments connected at the corner points. The second path is a single point at the center of the rectangle. The center point can be used as an alignment aid. If you do not need this point, you can delete it. For more information on groups, see "Grouping and Ungrouping Objects" in Chapter 5, "Selecting Objects."



You can control whether the rectangles you draw have rounded or squared corners. If you want to use rounded corners, you must enter corner radius values in the Preferences dialog box *before* you draw the rectangle. See the next section, "Specifying a Corner Style," for more information.

NOTE: The current orientation of the *x* and *y* axes affects the creation of rectangles and squares. The sides of the rectangles or squares you create are aligned with the *x* and *y* axes. For example, if the *x* and *y* axes are currently rotated by 20 degrees, any square or rectangle you create is drawn at a 45-degree multiple relative to the 20-degree angle. See "Rotating the *X* and *Y* Axes" in Chapter 12, "Measuring and Constraining."

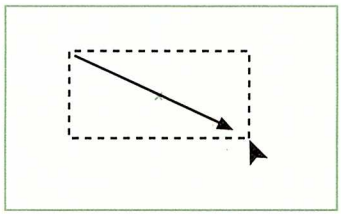
To create a rectangle or square by dragging:

1. Click on the rectangle tool in the toolbox.

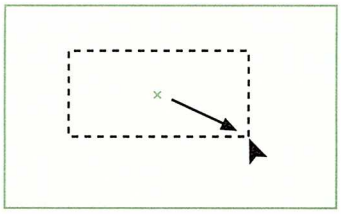
   The pointer changes to a cross when you move it to the active window.

2. You have two options.

   Option 1 Position the cross at one corner of the rectangle or square you want to create, and drag diagonally to the opposite corner.



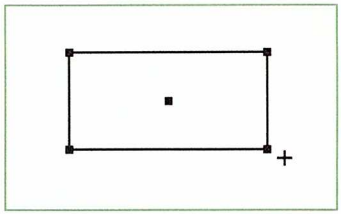
   Option 2 Position the cross at the center of the rectangle or square you want to create, hold down the Option key, and drag diagonally to any corner.



   The cross changes to an arrowhead. A rectangle or square appears.

   To constrain the shape to an exact square, hold down the Shift key as you drag.

3. Release the mouse button when the rectangle or square is the size and shape you want.



The four corners and the center of the rectangle or square have anchor points, indicating that it is selected. The rectangle or square is also grouped. The arrowhead changes back to a cross, indicating that you can make another rectangle or square.

If you change your mind, you can immediately choose Undo Rectangle from the Edit menu to delete the rectangle you just drew.

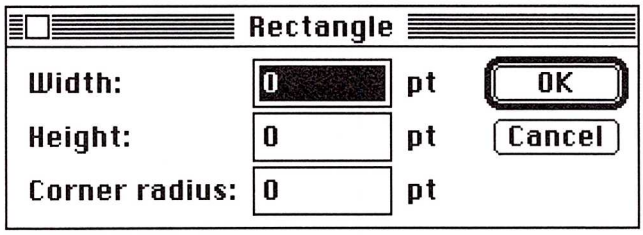
To draw a rectangle or square by specifying dimensions:

1. Click on the rectangle tool in the toolbox.

   The pointer changes to a cross when you move it to the active window.

2. Click at the center of the rectangle or square you want to create.

   The Rectangle dialog box appears.



   The width and height you specify are measured in inches, centimeters, or points and picas, depending on which unit of measure you set in the Preferences dialog box. The current unit of measure is indicated to the right of each field. The Width and Height fields display the dimensions of the last rectangle or square you drew.

3. Enter the width you want the rectangle or square to be in the Width field.

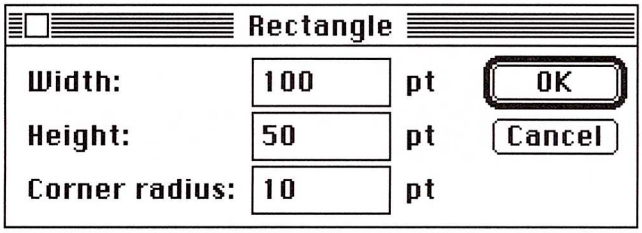
   You must enter a positive number.

4. Enter the height you want the rectangle or square to be in the Height field.

   You must enter a positive number.

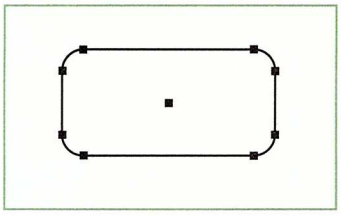
5. Enter the corner radius value you want the rectangle or square to have, if any.

   The Preferences dialog box is updated with the value you enter here.



6. Click OK.

   A rectangle or square of the width and height you designated appears, centered on the point where you clicked in step 2. It has the currently specified corner style.



The four corners and the center of the rectangle or square have anchor points, indicating that it is selected. The rectangle or square is also grouped. The arrowhead changes back to a cross, indicating that you can create another rectangle or square.

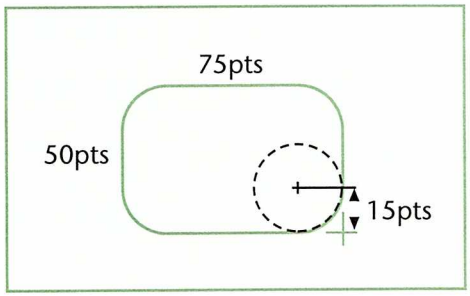
If you change your mind, you can immediately choose Undo Rectangle from the Edit menu to delete the rectangle you just drew.

Specifying a corner style

The corner style of the rectangle or square you draw is determined by the corner radius value you specify either in the dialog box described in the second procedure in this chapter or in the Preferences dialog box. If you specify a corner radius value in one dialog box, the other dialog box is updated accordingly.

When the corner radius value is 0, which is the preset value, the corners are squared. You can specify a corner radius value that will round the four corners of a rectangle or square by the amount you specify. The value you enter should represent the radius of a hypothetical circle drawn in the corner of the rectangle or square. The value is calculated in the current unit of measure set in the Preferences dialog box.

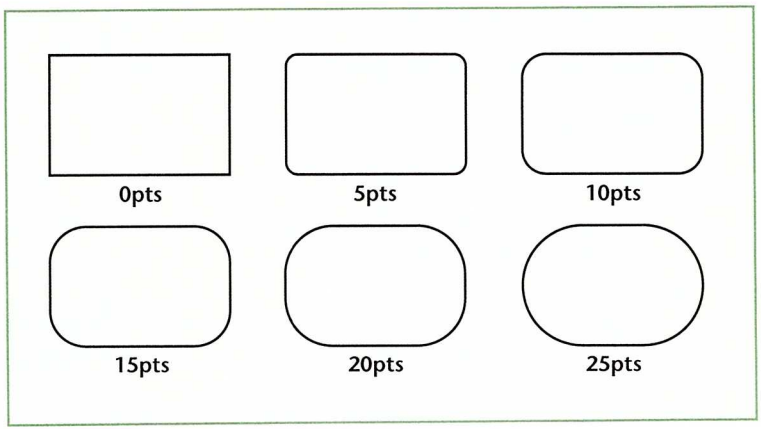
The size of the corner radius can be no more than one-half the size of either the height or width (whichever dimension is smaller) of the rectangle being drawn.



For example, if a rectangle is 50 points by 75 points, the corner radius value must be 25 points or less.

If the radius you specified is too large for the rectangle, the radius for the largest oval that can possibly fit in the corner of the rectangle will be used.

Here are some examples of how a rectangle 50 points by 75 points looks with different corner radius values.



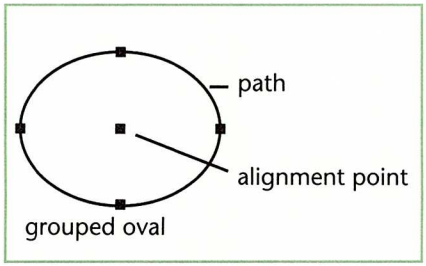
Use the second of the earlier two procedures if you want to specify a corner radius value, or choose Preferences from the Edit menu, enter a value in the Corner Radius field, and then use either one of the earlier procedures.

NOTE: You must specify the corner radius value you want *before* you draw the rectangle. If you select the rectangle and then change the radius value, the new value will not apply to the selected rectangle, only to newly created ones.

Drawing ovals and circles

You can easily draw ovals and circles with the oval tool.

The oval tool works very much like the rectangle tool. The ovals and circles you create are actually grouped objects consisting of two paths. The first path has four curved segments joined by four anchor points, one every 90 degrees. The second path is a single point at the center of the oval or circle. The center point can be used as an alignment aid. If you do not need this point, you can delete it. For more information on groups, see "Grouping and Ungrouping Objects" in Chapter 5, "Selecting Objects."



You can draw ovals or circles by using one of three procedures:

- Dragging from any edge to an opposite edge
- Dragging from the center to any edge
- Specifying height and width in a dialog box

All three methods of drawing ovals and circles are described in the following two procedures.

NOTE: The current orientation of the *x* and *y* axes affects the creation of ovals and circles. The horizontal and vertical axes of any oval or circle you create are aligned with the current *x* and *y* axes. For example, if the *x* and *y* axes are currently rotated by 10 degrees, any oval or circle you create is drawn at a 45-degree multiple relative to the 10 degree angle. See "Rotating the *X* and *Y* Axes" in Chapter 12, "Measuring and Constraining."

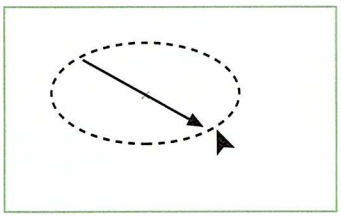
To draw an oval or circle by dragging:

1. Click on the oval tool in the toolbox.

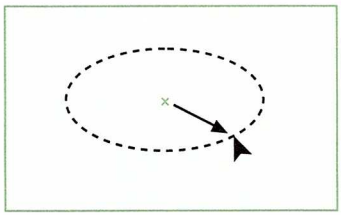
   The pointer changes to a cross when you move it to the active window.

2. You have two options.

   Option 1 Position the cross at one edge of the oval or circle that you want to draw, and drag diagonally until the oval or circle is the size and shape you want.



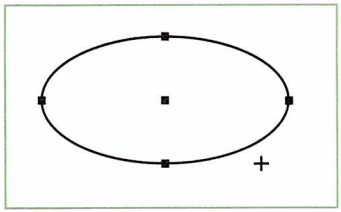
   Option 2 Position the cross at the center of the circle or oval that you want to create, hold down the Option key, and drag diagonally.



   The cross changes to an arrowhead. As you drag, an oval or circle appears.

   To constrain the shape to an exact circle, also hold down the Shift key after you start dragging.

3. Release the mouse button when the oval or circle is the size and shape you want.



   The four quarters and the center of the oval or circle have solid anchor points, indicating that it is selected. The circle or oval is also grouped. The arrowhead changes back to a cross, indicating that you can make another oval or circle.

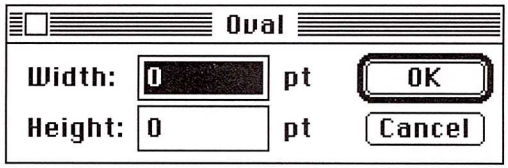
   If you change your mind, you can immediately choose Undo Oval from the Edit menu to delete the oval you just drew.

To draw an oval or circle by specifying options:

1. Click on the oval tool in the toolbox.

2. Click at the center of the oval you want to draw.

   The Oval dialog box appears.

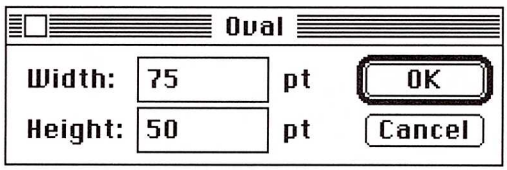


   The width and height are measured in inches, centimeters, or points and picas, depending on the unit of measure set in the Preferences dialog box. The current unit of measure is indicated to the right of each field. The Width and Height fields display the dimensions of the last oval or circle you drew.

3. Enter the width you want the oval or circle to be in the Width field.

   You must enter a positive number.

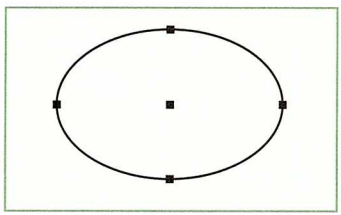
4. Enter the height you want the oval or circle to be in the Height field.



   You must enter a positive number. To create a circle, enter a value in the width field and then click on the word "Height." This copies the width value to the Height field.

5. Click OK.

   An oval of the height and width you specified appears, centered on the point where you clicked in step 2.



   The four quarters and the center of the circle have solid anchor points, indicating that it is selected. The circle or oval is also grouped. The arrowhead changes back to a cross, indicating that you can create another circle or oval.

   If you change your mind, you can immediately choose Undo Oval from the Edit menu to delete the oval you just drew.

Chapter 5: *Selecting Objects*

This chapter explains how to select and deselect objects.

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. You can select artwork objects only when you are viewing either the artwork or the template and the artwork. You cannot select the templates.

An object can be a single anchor point, a segment, a path, a block of type, a group of objects, or a placed image. When you select a path, its anchor points, endpoints, and direction points become visible, as is described later in each selection procedure. When you select type, its alignment point and baselines become visible.

Objects remain selected until you either deselect them or select another object. You can deselect an object that you selected by mistake or an object you no longer want to work with.

Selecting or deselecting an object does not modify it in any way.

You can also group, lock, or hide selected objects. This chapter also explains how and why you perform these operations.

Using the selection tool

You select objects with the selection tool, which is available for use when you click on it in the toolbox. You can also hold down the ⌘ key to obtain the selection tool temporarily while performing another task, such as drawing a path.

There are two selection techniques.

- Clicking
- Dragging the selection marquee

Both are described in the following sections.

Use these techniques to select single anchor points, segments, paths, and type, as well as to select more than one object at a time.

Clicking

The simplest selection technique is to click within 2 pixels of the desired object with the selection tool.

If you click over several overlapping objects, the frontmost object that is within 2 pixels of the pointer is selected. The frontmost object is the object

in front of all other objects in your artwork and last in the painting order. See Chapter 13, "Painting," for more information on painting order.

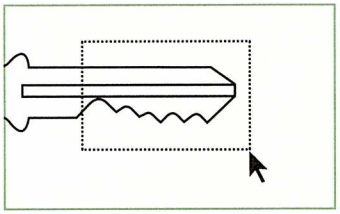
You can more easily and precisely select an object if you either lock or hide some of the objects that overlap it so that they cannot be selected. See "Locking and Unlocking Objects" and "Hiding and Showing Objects," later in this chapter.

If you click more than 2 pixels away from any object, all objects in your artwork are deselected.

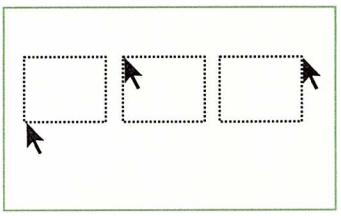
Dragging the marquee

You can also select objects by dragging the selection pointer over them.

To drag, hold down the mouse button and move the mouse diagonally across your desk. As you drag, a dotted rectangular box is displayed. This is the *selection marquee* (hereafter called the marquee).



One corner of the marquee is the starting position of the drag, and the diagonally opposite corner is the current pointer position.



You can drag from any corner to the opposite corner, depending on your specific needs.

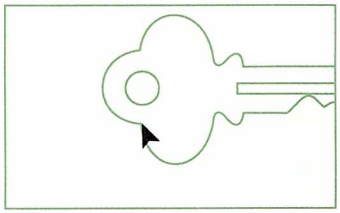
If you drag the marquee and it covers only part of an object, the part of the object that it covers is selected.

If you drag the marquee over two or more overlapping objects, all objects within the marquee are selected, regardless of painting order, even if they overlap.

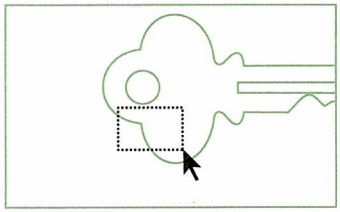
If you drag the marquee and it does not cover any objects, all currently selected objects in your artwork are deselected.

Selecting anchor points

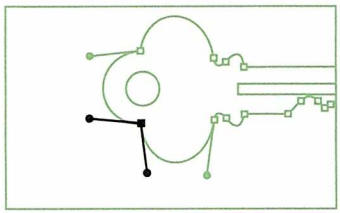
You can select an anchor point either by clicking on it



or by dragging the marquee around it.



Selected anchor points are displayed as solid squares. If the anchor point is connected to a curve, the direction points associated with the selected anchor point appear as solid circles at the end of the direction lines.



Selecting an anchor point also selects any segments that are connected to it. Thus, selecting an anchor point may also select zero, one, or two segments.

If a selected anchor point is connected to a straight line, the direction points are not displayed, since they occupy the same position as the anchor points.

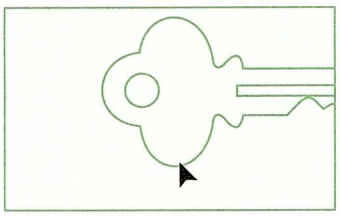
When you select at least one anchor point on a path, all anchor points on the path are displayed. Selected anchor points appear as solid squares. Endpoints (if not selected) and all other anchor points appear as hollow squares.

Painting, grouping, locking, and hiding work on entire paths. If you select even one anchor point on a path and perform any of these operations, the whole path, and not just the anchor point, is affected.

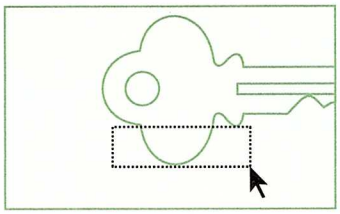
When anchor points overlap at the same location, dragging the marquee selects all of them, and clicking selects the frontmost anchor point only. You can select and lock the frontmost anchor point and, sequentially, any anchor points in back of it, to arrive at the anchor point you want.

Selecting segments

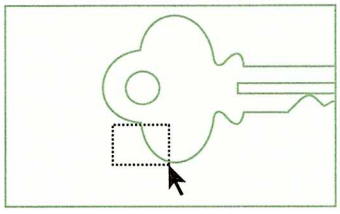
You can select a segment either by clicking anywhere on it



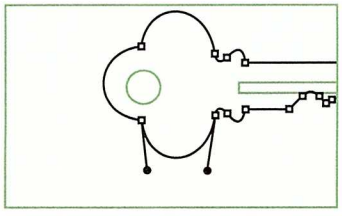
or by dragging the marquee around all



or part of it.



When you select a segment, all of the anchor points on the path are displayed. If an anchor point is also selected, it appears as a solid square. Endpoints (if not selected) and all other anchor points appear as hollow squares.



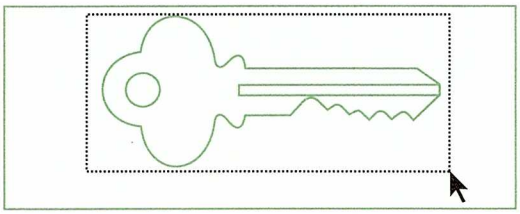
If you select a segment that's a curve, its direction points are displayed as solid circles with direction lines drawn from each direction point to the associated anchor point.

If you select a segment that's a straight line, the direction points are not displayed, since they are coincident with (occupy the same position as) the anchor points.

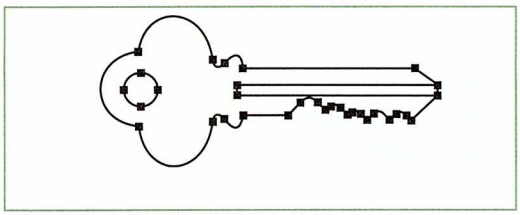
Painting, grouping, locking, and hiding work on entire paths. If you select even one segment on a path and perform any of these operations, the whole path, and not just the segment, is affected.

Selecting paths

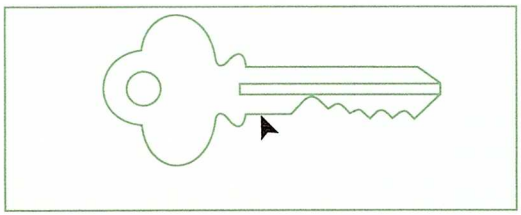
You can select an entire path (all of its anchor points and segments) in three ways. You can drag the marquee around all of it.



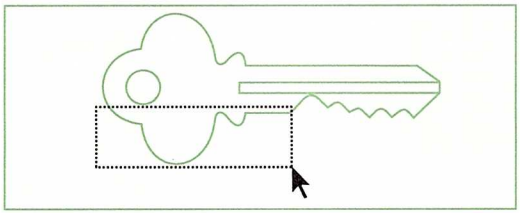
All endpoints and anchor points within the marquee appear as solid squares. Direction points are not shown when an entire path is selected.



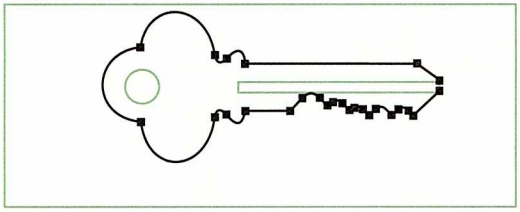
Or you can hold down the Option key and either click on the path



or drag the marquee around part of it.

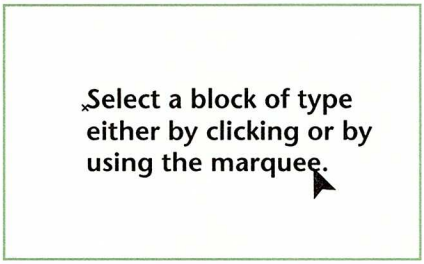


All endpoints and anchor points of the paths selected with the marquee or selected by clicking appear as solid squares. Direction points are not shown when an entire path is selected.

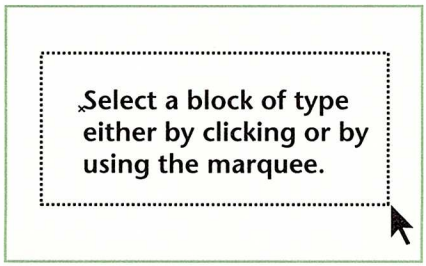


Selecting type

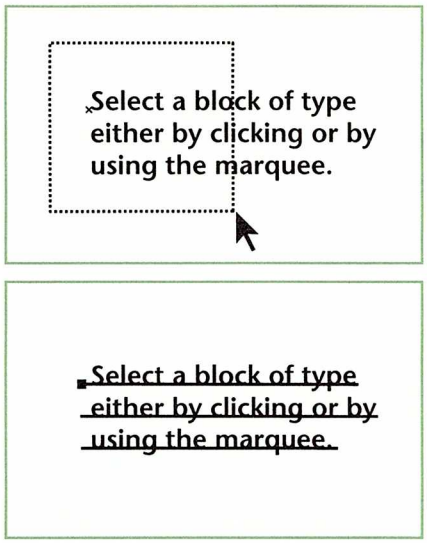
You can select a block of type either by clicking on its alignment point or anywhere else on a baseline,



or by dragging the marquee around all



or part of any baseline.



The text alignment point for the block becomes a solid square, indicating that the type is selected. The baselines of all selected type are also displayed.

You cannot select part of a block of type. If you select any part of the block, the whole block becomes selected.

Selecting placed images

When you place an EPS image, it appears in your artwork as a rectangle with diagonal lines crossing through it. You can select it and then move, scale, rotate, reflect, or shear it. To select a placed EPS image, click on any of the four corner anchor points or on any of the lines. You can also preview the EPS image, but the previewed image has no anchor points and cannot be selected.

Selecting several objects

You may want to select several objects at a time if, for example, you want to group them. You can do this by dragging the marquee to cover all of the objects. This may be awkward, however, if some of the objects are only partially visible in the active window. Another way to select several objects at the same time is to extend the selection by using the Shift key while you either click or drag the marquee, as described in the following procedure.

To select several objects with the Shift key:

1. Select the first object by either clicking or dragging the marquee.
2. Hold down the Shift key, and select the second object.

   Both the first and second objects are selected.
3. Hold down the Shift key, and select the remaining objects one at a time.
4. Release the Shift key.

NOTE: You can select several entire paths one at a time by holding down both the Shift key and the Option key as you select.

Selecting all objects

There may be times when you want to select every object in the artwork. The Select All command lets you do that.

To select all objects in the artwork:

1. Choose Select All from the Edit menu, or press ⌘-A.

   All anchor points become solid squares, indicating that all objects in the artwork are selected.

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. Deselecting objects does not affect painting order.

NOTE: Objects cannot be deselected unless they are already selected.

The Shift key acts as a toggle for selecting and deselecting objects.

To deselect one object:

You have three options.

Option 1 Click at least 2 pixels away from the object.

Option 2 Select another object by clicking or dragging the marquee.

Option 3 Hold down the Shift key, and click on the object or drag the marquee around it.

Holding down the Option key as well as the Shift key will deselect an entire path at one time.

To deselect all objects:

1. Click the selection pointer or drag the marquee at least 2 pixels away from any object in your artwork.

   All objects are deselected.

To deselect objects one at a time:

1. Hold down the Shift key, and deselect the first object by clicking on it or dragging the marquee around it.

   Holding down the Option key as well as the Shift key will deselect an entire path at one time.

   The object you are deselecting must already be selected, or else it will become a selected object.

2. Continue holding down the Shift key and deselecting objects until there are no more objects you want to deselect.

Grouping and ungrouping objects

You can combine several objects into a group that is then treated as one object. Groups can be nested; that is, they can be grouped with other objects or groups to form larger groups. Grouped objects remain grouped until you ungroup them.

Only *entire* paths can be grouped. Even if you select only part of a path (anchor points or segments), the entire path will become part of the group. Blocks of type and placed EPS images can also be grouped.

The advantage of grouping is that it allows you to manipulate several objects as a unit. For example, you can move, transform, or delete several objects as a single unit, rather than working with each object individually. Once objects have been grouped, they cannot be selected individually. Selecting one object from a group selects all objects in the group.

You can also make a group that contains only a single object, such as one path. Grouping a single path is a handy way to avoid inadvertent changes to it.

When you mask, you must group the masking object and the objects it masks in order to complete the masking procedure. See "Masking Objects" in Chapter 13, "Painting," for more information.

Grouping is saved when you save your artwork. Therefore, when you open it again, all the objects you grouped in your previous work session will still be grouped.

NOTE: If you have difficulty selecting an object that you want to edit, or if editing an object produces unexpected results, grouping may be involved. Check to see whether the object is part of a group, and ungroup it if necessary. If groups have been nested, that is, if there are groups within groups, you may need to choose the Ungroup command several times before you solve the problem.

To group objects:

1. Select the objects to be grouped.
2. Choose Group from the Arrange menu, or press ⌘-G.

   The objects are now grouped and cannot be selected individually.

   If you change your mind, you can immediately choose Undo Group from the Edit menu to undo the grouping operation.

   Grouping does not change the painting order of the individual objects in the group relative to one another, but it does change their painting order relative to other objects in the document, because the group is placed frontmost in the document.

To ungroup grouped objects:

1. Select the group to be ungrouped.
2. Choose Ungroup from the Arrange menu, or press ⌘-U.

   If you change your mind, you can immediately choose Undo Ungroup from the Edit menu to undo the ungrouping operation.

   Ungrouping does not deselect any objects. It also does not change the painting order of the objects that had been grouped.

Locking and unlocking objects

You can lock objects so that they can no longer be selected. This ability is useful when objects overlap one another. You can lock all the objects you do not want to select, and then select and work with one or more remaining objects.

Only entire paths can be locked. Even if you select only part of a path (anchor points or segments), the entire path becomes locked.

Locking is saved when you save your artwork. Therefore, when you open it again, all the objects you locked in your previous work session will still be locked.

NOTE: Neither Lock nor Unlock All can be undone with the Undo command.

The following procedure locks one object or several objects at a time.

To lock an object:

1. Select the object you want to lock.

   To select more than one object, hold down the Shift key and continue selecting.

2. Choose Lock from the Arrange menu, or press ⌘-1.

   The object is locked and deselected; it cannot be selected.

   If you hold down the Option key while you choose the Lock command from the menu, all *unselected* objects are locked.

To unlock all locked objects:

1. Choose Unlock All from the Arrange menu, or press ⌘-2.

   All locked objects are unlocked and are selected. Any previously selected objects are deselected.

NOTE: The Unlock command applies to all locked objects. You cannot unlock one object at a time, unless only one object was locked.

Hiding and showing objects

You can hide objects so that they temporarily cannot be seen. This ability is useful in a complex drawing when you want to concentrate on working with one object and hide those objects surrounding or overlapping it. Hiding objects is also useful when several objects are close together and you do not want to inadvertently select or affect one object while working on another. When an object is hidden, it cannot be selected or manipulated in any way.

Only *entire* paths can be hidden. Even if you select only part of a path (anchor points or segments), the entire path will become hidden.

Hiding an object does not change its painting order or alter it in any other way. Hidden objects are not visible when you preview or print your drawing.

Hiding is not saved when you save your artwork. Therefore, when you open it again, all the objects hidden in your previous work session will be shown.

NOTE: Neither Hide nor Show All can be undone with the Undo command.

The following procedure hides one object or several objects at a time.

To hide an object:

1. Select the object you want to hide.

   To select more than one object, hold down the Shift key and continue selecting.

2. Choose Hide from the Arrange menu, or press ⌘-3.

   The object is hidden.

   If you hold down the Option key while you choose the Hide command from the menu, all *unselected* objects are hidden.

   The Show All command applies to all hidden objects. You cannot show one hidden object at a time, unless only one object was hidden.

To show all hidden objects:

1. Choose Show All from the Arrange menu, or press ⌘-4.

   All hidden objects are shown and are selected.

Chapter 6: *Using Type*

This chapter tells you how to enter, edit, and paint *type*. It also describes type attributes and tells you how to set them.

Working with type

You can enter type into any artwork by using the type tool. Type can be used as the basis for design elements that you scale, rotate, reflect, shear, or mask.

When you enter type, you control such attributes as font, size, leading, spacing, and alignment. The type you enter can be printed in any PostScript language outline font on printers that use Adobe's PostScript interpreter.

As you work with type, remember that a block of type is treated as an object. Consequently, all of the actions you perform on objects, including painting, moving, copying, deleting, transforming, and grouping, can also be performed on type.

Blending is an exception. You cannot use either a block of type or individual type characters in a blend procedure. To blend with "type," use one of the characters available in the *Adobe Collector's Edition I.* Those characters are paths and not real type. You can also use one of the drawing tools create a path that looks like a type character and then use it in a blend.

This chapter tells you how to enter blocks of type, edit existing type, and change type attributes. See the relevant chapters in this guide for information about the other operations that can be performed on type.

Entering type

A block of type can consist of one letter or symbol, one word, or one or more lines of type. The maximum number of characters in any block of type is 255.

The angle at which type appears depends on the current orientation of the *x* and *y* axes. For example, if you have rotated the axes by 30 degrees, the baseline of either newly entered or currently selected type will appear at a 30-degree angle. For more information, see "Rotating the *X* and *Y* Axes" in Chapter 12, "Measuring and Constraining."

To enter a block of type:

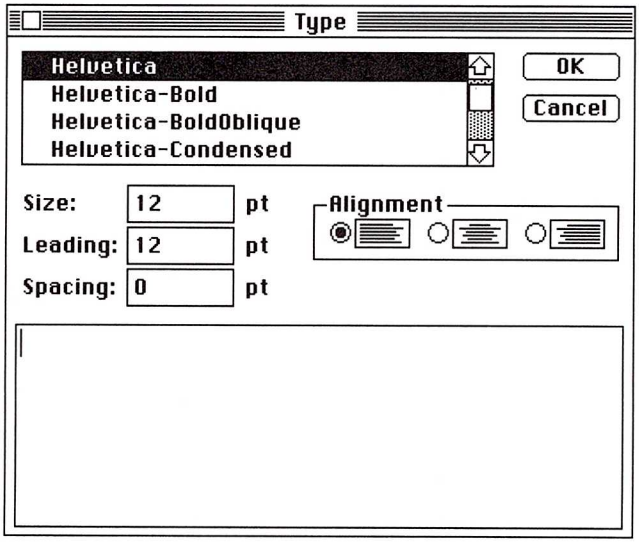
1. Click on the type tool in the toolbox.

   The pointer changes to an I-beam. The small horizontal line near the bottom of the I-beam marks the position of the baseline of the first line of type to be entered.

2. Position the I-beam where you want the type to start, and click.

   Clicking sets the alignment point for the type. Whether the type will appear to the left of, to the right of, or centered around the alignment point depends on the alignment style you specify in the Type dialog box.

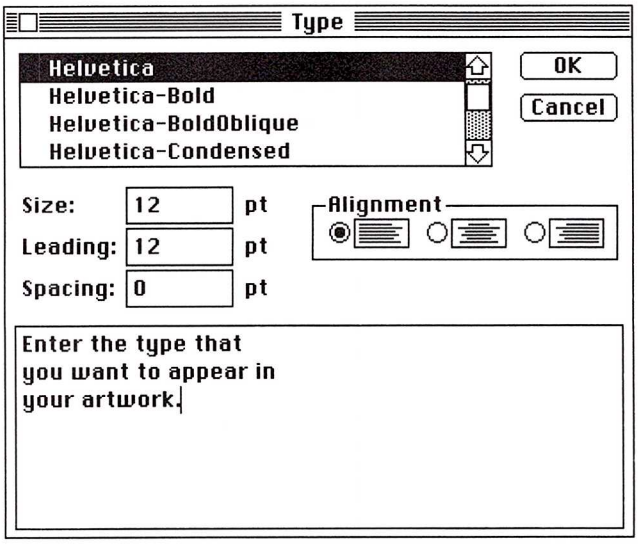
   The Type dialog box appears. A blinking I-beam appears in the large text entry box at the bottom. You enter the type there.



3. Enter the type that you want to have appear in your artwork.

   Press the Return key for each new line of type you want. If you type a few lines without using the carriage return, the words wrap around in the text entry box, but appear on one long, straight line in your document and may extend out of the working area. If the type does not appear the way you want it to in your artwork, you must open the Type dialog box and insert carriage returns in the text where necessary.

Use the Backspace key for simple corrections. See also the next section, "Editing Type," if necessary.



4. Click OK or press the Enter key on the numeric keypad.

   Pressing the Return key is not equivalent to clicking OK in this instance. The Type dialog box closes, and the type you entered appears in your artwork.

   The type is selected. The baseline of each line of type is indicated, as well as the alignment point, denoted by a solid square.

   If you change your mind, you can immediately choose Undo Type from the Edit menu to delete the type you just entered.

   If you want to set different type attributes, see "Setting Type Attributes," later in this chapter.

Editing type

You can make changes to a selected block of existing type by editing it in the Type dialog box.

To display the Type dialog box at any time, you can either choose Type from the Style menu or press ⌘-T.

To edit the text, use the standard Macintosh text-editing procedures. You can cut and paste text to and from the Clipboard while editing in the text entry box of the Type dialog box.

NOTE: You can edit type *only* in the Type dialog box. You cannot edit type directly in your artwork.

Painting type

You can paint type blocks in the same way that you paint other objects in your artwork. However, each type block can have only one set of paint attributes. You must select type before you paint it. For more information about painting, see Chapter 13, "Painting."

Understanding type attributes

Here are the type attributes that you can set. Enter values in points or fractions of points.

- Font

  Displays the names of the available fonts in a list box. The currently selected font is highlighted. Click on the font you want to use. If necessary, use the scroll bar to locate the desired font.

- Size

  Indicates the current type size, expressed in points. To change the type size, type a new number in the Size field. The number must be positive.

- Leading

  Specifies the amount of vertical spacing between baselines in blocks of type, expressed in points. To change the leading, type a new number in the Leading field. You can specify negative leading by preceding the number with a minus sign. Negative leading spaces baselines so that the bottom of a line of type approaches or overlaps the top of the line of type underneath.

- Spacing

  Specifies the amount of space between all adjacent type characters,

expressed in points. To change the spacing, type a new number in the Spacing field. You can specify negative spacing by preceding the number with a minus sign. Negative spacing spaces type characters so that they approach or overlap one another.

- Alignment

  Controls how lines of type are positioned relative to one another. The alignment you specify also affects the position of the alignment point in the blocks of type you create. You can choose left-aligned (flush left, ragged right), centered, or right-aligned (flush right, ragged left) text.

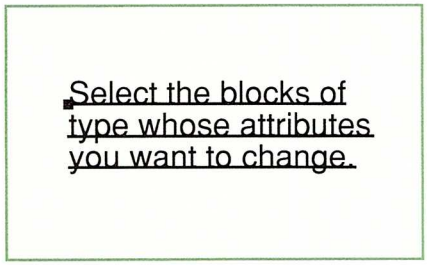
Setting type attributes

The Adobe Illustrator 88 program lets you control the font, size, leading, spacing, and alignment of type. You can either set these attributes before you enter new type or reset them to change the appearance of existing selected type. You can set attributes for several blocks of type at once if they are all selected. However, each block of type can have only one font, point size, leading value, and so on. You cannot vary type attributes within one type block.

The preset type attributes are 12-point Helvetica, 12-point leading, 0 spacing, and left alignment.

To set type attributes:

1. Select the blocks of type whose attributes you want to set.



When they are selected, the baseline for each line of selected type is displayed, as well as the alignment point for each block of type.

2. Choose Type from the Style menu, or press ⌘-T.

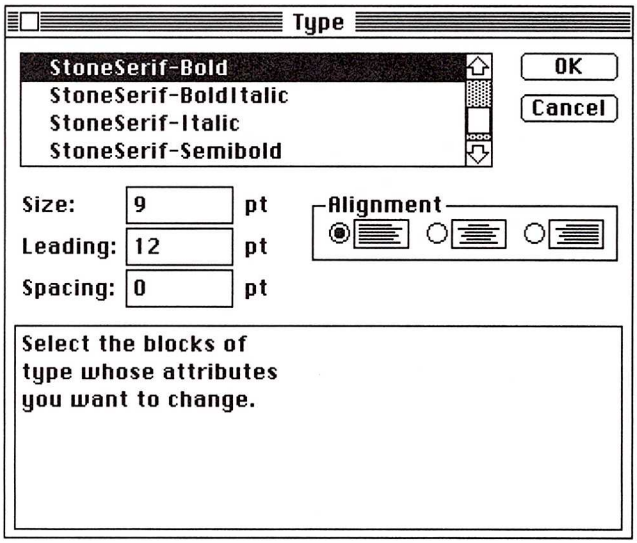
   The Type dialog box appears, showing you the type attributes set for the currently selected type.

   If you selected one block of type, it appears in the text entry box, and its type attributes are indicated.

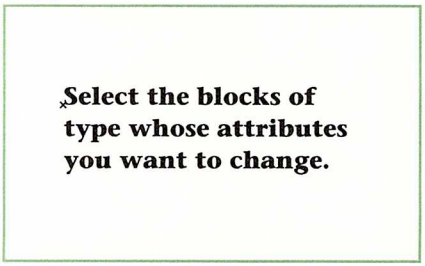
If you selected more than one type block, no type appears in the text entry box, and only the type attributes common to all selected type blocks are indicated.

3. Set the type attributes.

   Scroll through the list of fonts, and click on the one you want to use. Enter the size you want the font to have in the Size field, the leading you want between baselines in the Leading field, and the spacing you want between characters in the Spacing field. Click on the button next to the alignment you want to set.



4. Click OK.



Any type attributes that you set affect not only the currently selected type blocks but also any type blocks you enter in the future.

Chapter 7: *Adjusting Paths*

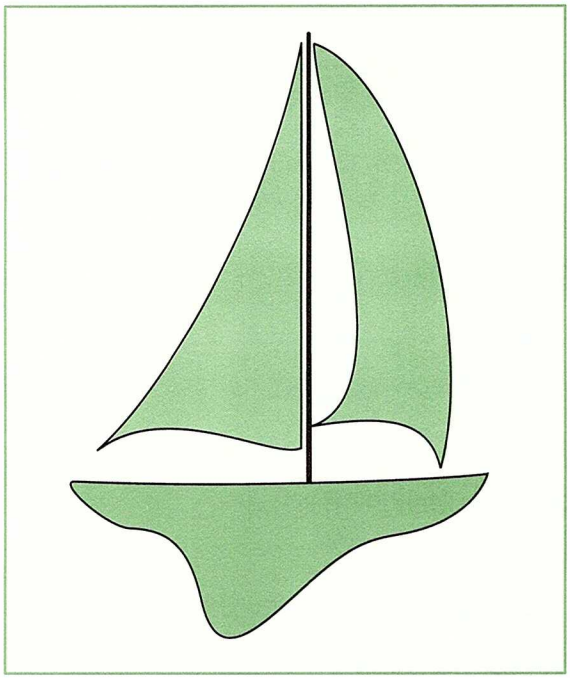
You will often need to modify the paths and shapes that you have created with the freehand tool, the auto trace tool, the pen tool, the rectangle tool, the oval tool, or the blend tool. This chapter describes several ways of making adjustments. You can

- Move anchor points
- Add anchor points
- Average the positions of anchor points
- Join endpoints of open paths
- Split paths
- Adjust paths while drawing them
- Redraw segments
- Change the shape and size of curve segments
- Move direction points
- Adjust several points or segments simultaneously

You can also constrain the adjustment of anchor points, direction points, and curve segments so that they are constrained at 45-degree multiples relative to the angle of constraint set in the Preferences dialog box. See "Rotating the *X* and *Y* Axes" in Chapter 12, "Measuring and Constraining."

IMPORTANT: Objects created with the rectangle tool, the oval tool, and the blend tool are grouped. If you want to adjust a path in an object created with one of those tools, you must ungroup the object first.

Throughout the following procedures, the figures show parts of this sailboat being created and adjusted using all of the techniques just listed.

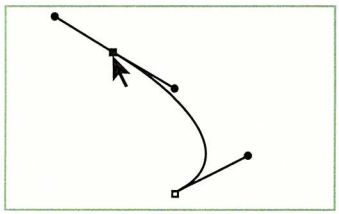


Moving anchor points

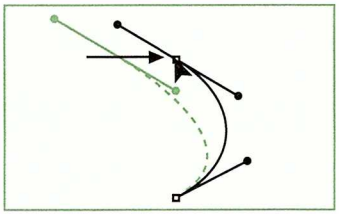
You can change the shape of any path by moving one or more of its anchor points.

To move an anchor point:

1. Click on the selection tool in the toolbox.
2. Position the pointer on the anchor point you want to move.



3. Drag the anchor point to a new location.

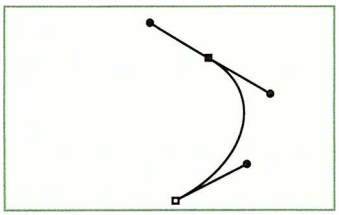


As you drag, an image of the path is temporarily left in its original location for your reference. A second image, of the segments connected to the anchor point you are moving, changes continuously but remains fixed at its other anchor points.

To constrain the movement of the anchor point so that it moves exactly horizontally, vertically, or diagonally, hold down the Shift key while you drag.

You can also move the object using the cursor (arrow) keys or the Move dialog box. See Chapter 8, "Moving Objects," for more information.

4. Release the mouse button when the anchor point is where you want it.



The anchor point and the segments connected to it remain in their new position. The anchor point is still selected.

If you change your mind, you can immediately choose Undo Move from the Edit menu to undo the move you just performed.

Adding anchor points

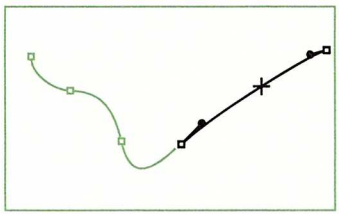
You can add new anchor points in the middle of the segments of an existing path. Added anchor points can give you more control over the path shape.

You add anchor points by using the scissors tool. Adding anchor points is different from splitting paths. Splitting a path breaks the path and adds endpoints. Adding an anchor point does not break either a closed or open path; it only adds a new anchor point in the middle of any segment, straight or curved.

To add an anchor point:

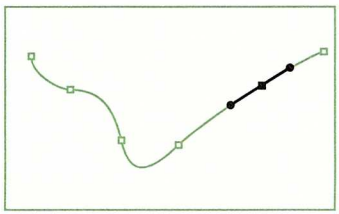
1. Select the path on which you want to add an anchor point, if you want to see the current anchor points.
2. Click on the scissors tool in the toolbox.

   The pointer changes to a cross when you move it to the active window.
3. Position the cross on a path segment where you want to add an anchor point.



NOTE: You cannot add an anchor point on top of an existing anchor point or endpoint.

4. Hold down the Option key and click.



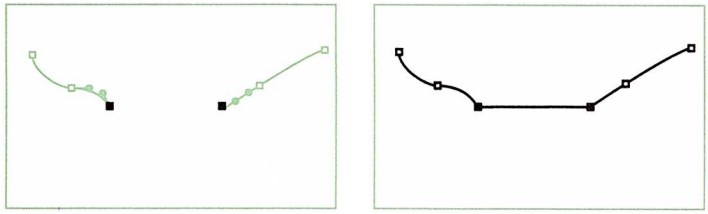
A new anchor point appears, and it is selected. If the anchor point was added to a curve segment, direction points also appear. If you did not hold down the option key, the path will be split.

If you change your mind, you can immediately choose Undo Scissors from the Edit menu to delete the anchor point.

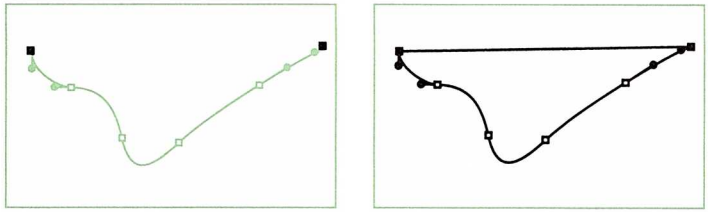
Joining endpoints

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

Joining the endpoints of two open paths combines them into one longer open path.

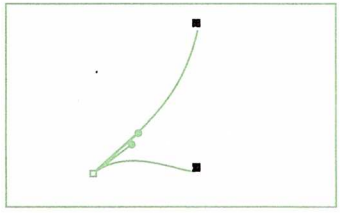


Joining the endpoints of one path (if the endpoints are not coincident) closes it with a straight line segment.



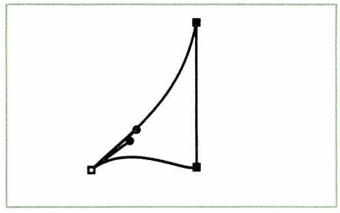
To join endpoints that are not coincident:

1. Click on the selection tool in the toolbox.
2. Select exactly two endpoints.



If you select fewer than two or more than two, no endpoints will be joined.

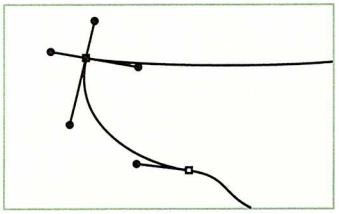
3. Choose Join from the Arrange menu, or press ⌘-J.



If the endpoints you are joining are not coincident, they will be joined by means of a straight line segment.

To join coincident endpoints:

1. Click on the selection tool in the toolbox.
2. Select exactly two endpoints.

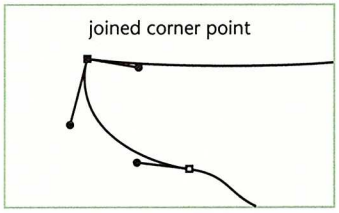


If you select fewer than two or more than two, no endpoints will be joined.

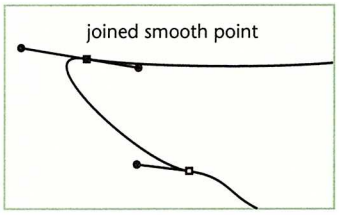
3. Choose Join from the Arrange menu, or press ⌘-J.

   The Join dialog box appears.

4. Click on the option that indicates the type of join you want.

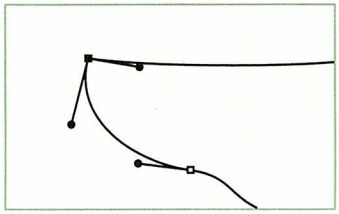


Your options are a corner point



or a smooth point. Corner Point is the preset option.

5. Click OK.



The two endpoints are connected and remain selected.

NOTE: If the two selected endpoints occupy the same place, they are replaced with a single anchor point when joined.

If you change your mind, you can immediately choose Undo Join from the Edit menu to undo the joining of the endpoints.

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.

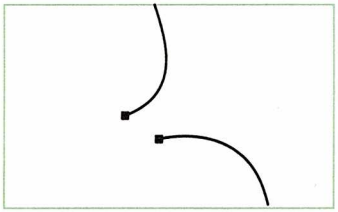
Averaging anchor points differs from joining endpoints in the following ways:

- Averaging moves anchor points. Joining does not move any anchor points.
- You can average any number of anchor points. You can join only two anchor points, both of which must also be endpoints.
- Averaging does not create any new segments. Joining creates a straight line segment between endpoints (if they are not coincident).
- Averaging does not merge anchor points. Joining will sometimes merge two anchor points into one.
- You can average along either the *x* or *y* axis. Joining always occurs along both axes.
- You can average grouped objects, but you cannot join anchor points on grouped paths.
- You can average text alignment points as well as path anchor points, but you cannot join text alignment points.

  Averaging text alignment points might be useful if you wanted to align blocks of type along a common vertical or horizontal axis.

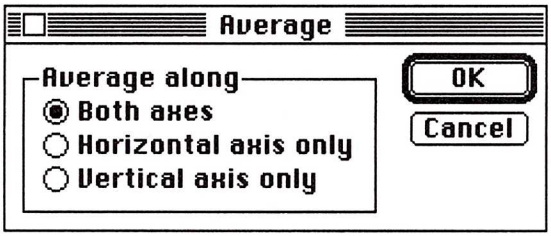
To average anchor points:

1. Click on the selection tool in the toolbox.
2. Select two or more anchor points.

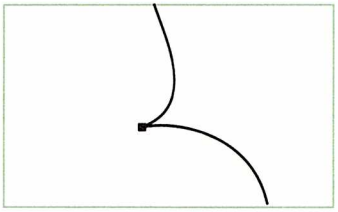


3. Choose Average from the Arrange menu, or press ⌘-L.

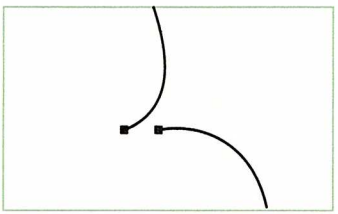
   The Average dialog box appears.



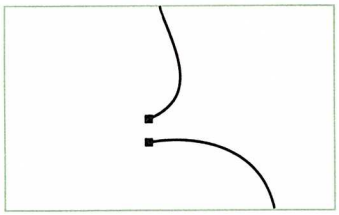
4. Click on the option that indicates how you want the averaging to occur.



Your options are to average along both axes,



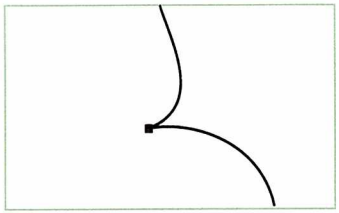
along the horizontal (*x*) axis only,



or along the vertical (*y*) axis only, relative to the angle of constraint set in the Preferences dialog box.

The preset option is to average along both axes.

5. Click OK.



The selected anchor points move to their averaged position, and the paths containing the anchor points change shape accordingly. The averaged anchor points remain selected.

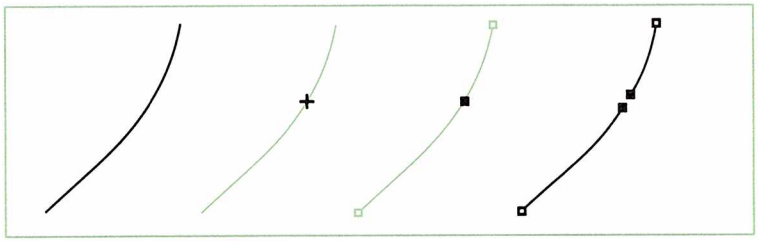
If you change your mind, you can immediately choose Undo Average from the Edit menu to undo the averaging of the anchor points.

Splitting paths with the scissors tool

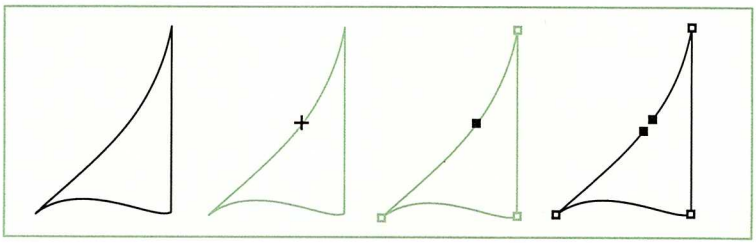
You may sometimes want to split paths that you have already created or that were created using the auto trace tool. Using the scissors tool, you can either split an open path into two paths or split a closed path so that it becomes an open path.

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 that is not part of a group. For information about ungrouping objects, see "Grouping and Ungrouping Objects" in Chapter 5, "Selecting Objects."

Splitting an open path creates two open paths.



Splitting a closed path creates one open path.

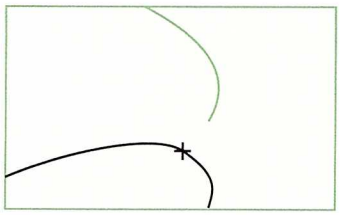


After you split an open path into two paths, you will probably want to move the paths apart. After you split a closed path, you will probably want to move the endpoints apart. Directions for all three procedures follow.

To split a path:

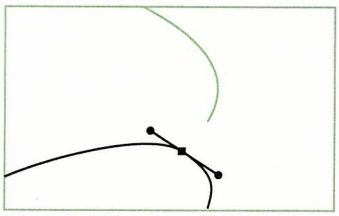
1. Select the path you want to split, if you want to see its current anchor points.
2. Click on the scissors tool in the toolbox.

   The pointer changes to a cross when you move it to the active window.
3. Position the cross on the path where you want to split it.



Do not position the pointer on an endpoint.

4. Click.



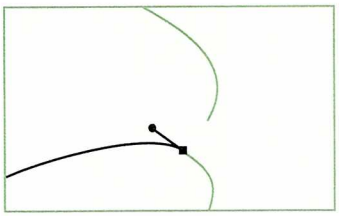
If you split the path in the middle of a segment, two new endpoints appear, one on top of the other. Both endpoints are selected.

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

If you change your mind, you can immediately choose Undo Scissors from the Edit menu to undo the splitting of the path.

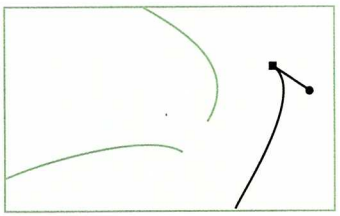
To move the endpoints apart:

1. Click on the selection tool in the toolbox.
2. Hold down the Shift key, click on the overlapping endpoints, and release the Shift key.



The frontmost endpoint is deselected, and the other endpoint remains selected.

3. Drag the endpoints to their new positions.



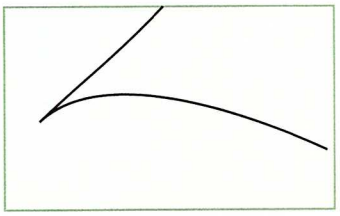
The endpoints remain in their new position and are still selected.

You can also move the endpoints by using the cursor (arrow) keys or the Move dialog box. See Chapter 8, "Moving Objects," for more information.

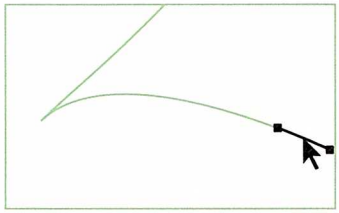
If you change your mind, you can immediately choose Undo Move from the Edit menu to undo the move you just performed.

To move the paths apart:

1. Click on the selection tool in the toolbox.
2. Click at least 2 pixels away from any object to deselect all objects in your artwork.

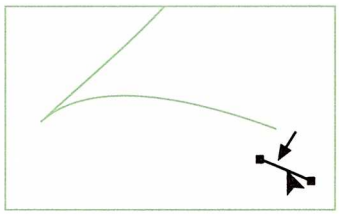


3. Hold down the Option key, click anywhere on the path you want to move, and release the Option key.



The entire path is selected.

4. Drag the selected path to its new position.



The path remains in its new position and is still selected.

You can also move the path by using the cursor (arrow) keys or the Move dialog box. See Chapter 8, "Moving Objects," for more information.

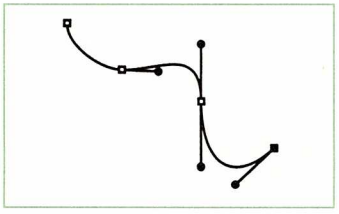
If you change your mind, you can immediately choose Undo Move from the Edit menu to undo the move you just performed.

Adjusting paths while drawing them

When you draw a path with the pen tool, you can adjust a path's anchor points, endpoints, direction points, or segments as you are creating it. You adjust paths created with the freehand tool by erasing while you draw. See "Drawing with the Freehand Tool" in Chapter 3, "Drawing Paths," for more information.

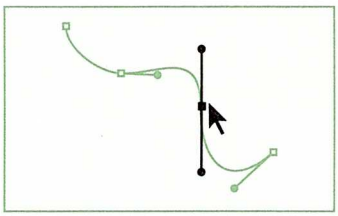
To adjust a path while drawing it:

1. Click on the pen tool in the toolbox.
2. Start drawing a path.



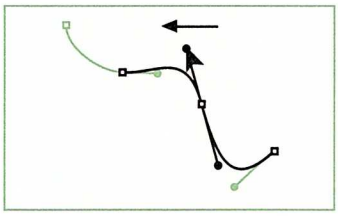
The most recent anchor point you set appears as a solid square, indicating that it is selected. If the anchor point terminates a curve segment, the direction points appear as solid circles. All other anchor points appear as hollow squares.

3. Hold down the ⌘ key and select the anchor point, direction point, or curve segment you want to adjust.

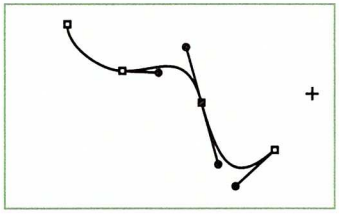


Holding the ⌘ key down changes the cross back to a selection pointer.

4. Continue to hold down the ⌘ key and move or change any selected part of the path by dragging.



5. Release the mouse button and the ⌘ key when the path is the way you want it.



If you selected more than one part of the path, the pointer changes to an x. Otherwise, the pointer is still a cross.

If you change your mind, you can immediately choose Undo Move from the Edit menu to undo the last adjustment you made.

6. Resume drawing the path.

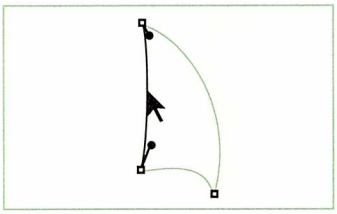
If the pointer is a cross, set the next anchor point. If the pointer is an x, position it on the last endpoint you drew before you adjusted the path. If the last endpoint is part of a curve, drag to establish the direction points. If the last endpoint is part of a straight line, just click on the endpoint.

Redrawing segments

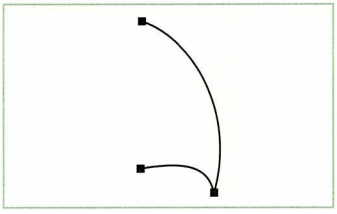
If you need to correct a segment that is part of a longer path, you can redraw it without redrawing the entire path.

To redraw a segment:

1. Click on the selection tool in the toolbox.
2. Select the segment that you want to redraw.

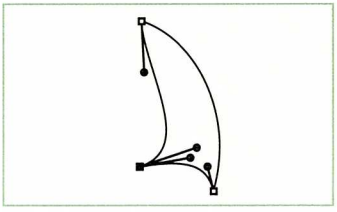


3. Press the Backspace key.



The segment is deleted. The remaining segments on the path become selected.

4. Click on either the pen tool or the freehand tool in the toolbox.
5. Redraw the segment you deleted.



Make sure you connect the new segment to both of the anchor points to which the deleted segment was connected.

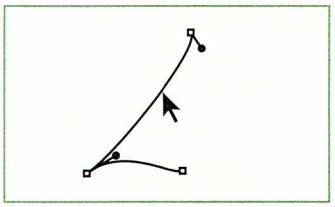
If you change your mind, you can immediately choose Undo Pen or Undo Freehand from the Edit menu to delete the segment you just drew.

Changing curve segments

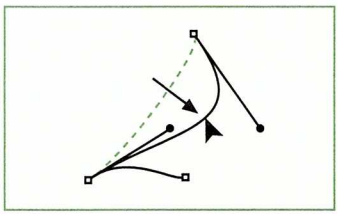
You can modify the shape of a path by changing the shape and size of one or more of its curve segments. You change the curve segment either by moving the segment itself or by moving one or more of its direction points. Moving direction points affects only curve segments; you adjust straight line segments by moving the anchor points.

To move a curve segment:

1. Click on the selection tool in the toolbox.
2. Select the curve segment you want to change.
3. Position the pointer on the selected segment, anywhere between its two anchor points.



4. Drag the curve segment.

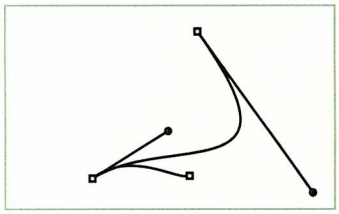


As you drag, an image of the path is temporarily left in its original location for your reference. A second image of the selected curve segment changes shape and size while remaining fixed at its anchor points. The curve's direction points also move to reflect changes in the shape and size of the segment.

To constrain the movement of the curve segment so that it moves at 45-degree multiples relative to the angle of constraint set in the Preferences dialog box, hold down the Shift key while you drag.

You can also move the curve segment by using the cursor (arrow) keys or the Move dialog box. See Chapter 8, "Moving Objects," for more information.

5. Release the mouse button when the curve is the size and shape you want.

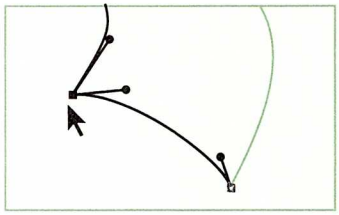


The curve retains the new size and shape and is selected.

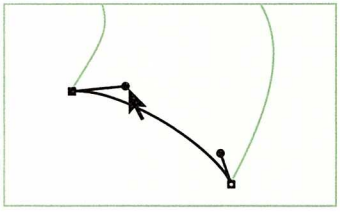
If you change your mind, you can immediately choose Undo Move from the Edit menu to undo the move you just performed.

To move a direction point:

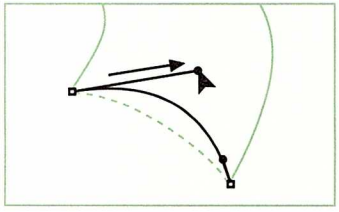
1. Click on the selection tool in the toolbox.
2. Select the anchor point or the curve segment whose direction point you want to move.



3. Position the pointer on the direction point you want to move.



4. Drag the direction point to where you want it.

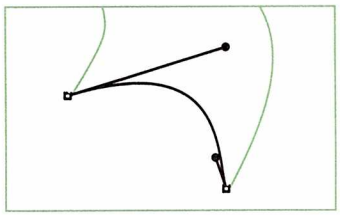


An image of the selected curve segment is temporarily left in its original location for your reference. A second image indicates the change in the direction point you are dragging and the curves connected to it. Either one or two segments will change shape, depending on whether a corner point or smooth point was established.

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

You can also move the direction point by using the cursor (arrow) keys or the Move dialog box. See Chapter 8, "Moving Objects," for more information.

5. Release the mouse button when the direction point and the curve are the way you want them.



The direction point and curve segments remain in their new positions.

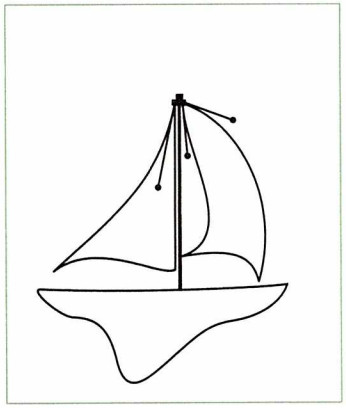
If you change your mind, you can immediately choose Undo Move from the Edit menu to undo the move you just performed.

Adjusting several anchor points or segments

You can select several anchor points or segments, on the same path or on different paths, and adjust them all simultaneously.

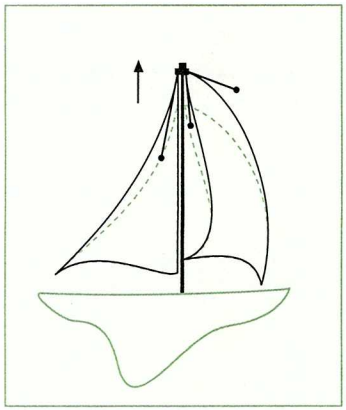
To adjust several anchor points or segments:

1. Select several anchor points and/or segments.



You can use the Shift key, the Option key, or the marquee to select them all. See "Selecting Several Objects" in Chapter 5, "Selecting Objects," for more information.

2. Drag the selected anchor points and/or segments to their new position.

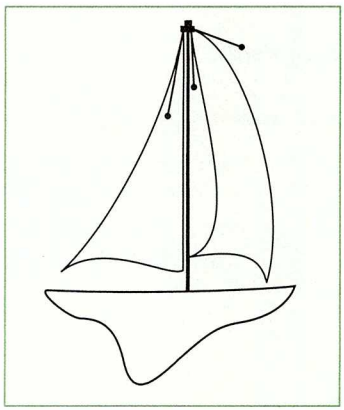


All of the selected anchor points and/or segments move in unison.

To constrain the movement so that the selected objects move at 45-degree multiples relative to the angle of constraint set in the Preferences dialog box, hold down the Shift key while you drag.

You can also move the objects by using the cursor (arrow) keys or the Move dialog box. See Chapter 8, "Moving Objects," for more information.

3. Release the mouse button when the anchor points and/or segments are where you want them.



All of the selected anchor points and/or segments remain in their new position and are selected.

Chapter 8: *Moving Objects*

This chapter covers all the methods you can use to move objects from one part of your artwork document to another. To move an object, you can

- Drag it, with or without constraining its movement
- Use the cursor (arrow) keys
- Use the Cut command, and then use the Paste, Paste In Front, or Paste In Back command
- Use either the Bring To Front or Send To Back command
- Use the Move dialog box

Note that this chapter explains only how to move objects within a single document. To move or paste objects between Adobe Illustrator 88 program documents, see Chapter 9, "Copying Objects." To move or paste objects between Adobe Illustrator 88 documents and other applications, see Chapter 16, "Working with Other Applications."

If an object that you want to move is painted with a pattern, you can choose to move the pattern tiles as well as the object itself. Before you move the object, choose Preferences from the Edit menu and click in the Transform Pattern Tiles checkbox. An x appears, indicating that the option is turned on. (The preset option is off.)

Turning this option on means that if you move or transform an object painted with a pattern, the pattern will also be transformed. However, moving a patterned object by using the Cut and Paste commands does not move or transform the pattern in any way.

Turning this option on or off in the Preferences dialog box updates the same option in *all* of the transformation dialog boxes as well. Turning this option on or off in *any* of the transformation dialog boxes updates this option in the Preferences dialog box. For more information, see the last section in this chapter, "Moving Objects a Specific Distance and Direction."

Moving objects to a new location

You can move one or more objects from one place to another in your artwork either by dragging the object or by using the cursor (arrow) keys. Using the cursor keys is an effective way of moving objects by small, specific increments, as illustrated in the procedure that follows.

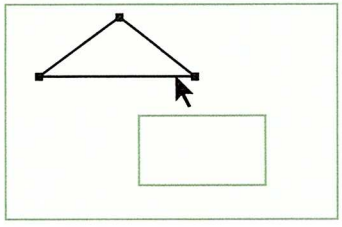
The cursor keys allow you to move selected objects in the direction indicated by the arrow on the key. How far the selected object moves each time you press one of the cursor keys depends on the value specified in the Cursor Key Distance field of the Preferences dialog box. The preset value is 1 point. If you are going to use the cursor keys and want to use a different distance value, you must first open the Preferences dialog box and enter the new value. See "Setting Cursor Key Distance" in Chapter 12, "Measuring and Constraining."

Keeping the cursor key held down moves the selected object continuously.

NOTE: If you want to view the complete document in the window as you move objects, first choose Fit In Window from the View menu.

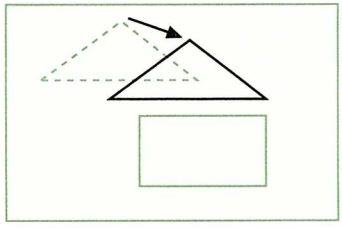
To move an object by dragging:

1. Select the object you want to move.
2. Position the pointer on the selected object.



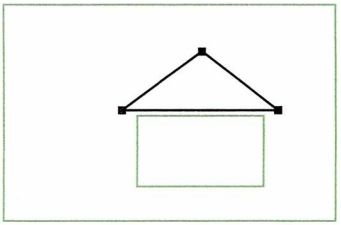
In the case of type, position the pointer on any of the baselines.

3. Drag the selected object to its new location.



As you drag, an image of the object is temporarily left in its original location for your reference.

4. Release the mouse button.



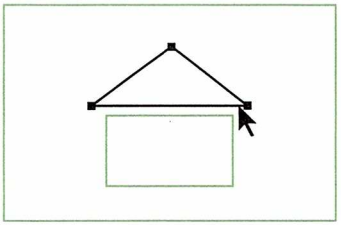
The object remains in its new location, and it is selected.

If you change your mind, you can immediately choose Undo Move from the Edit menu to delete the move you just performed.

NOTE: If you are working at actual size and you move an object to a part of the artwork that is outside the window while dragging, the document scrolls to keep the object in view.

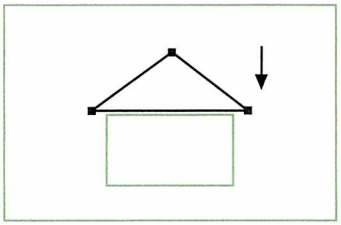
To move an object with the cursor keys:

1. Select the object you want to move.
2. Position the pointer on the selected object.



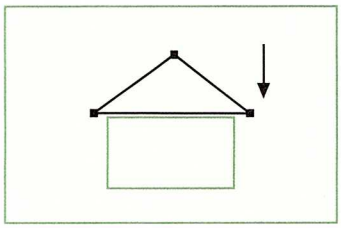
In the case of type, position the pointer on any of the baselines.

3. Press the cursor key that indicates the direction in which you want the object to move.



You can press the key as many times as you want. You can press different cursor keys one after another to change the direction in which the object moves. As you press, the object moves in the direction indicated by the arrow on the key, for the distance set in the Cursor Key Distance field of the Preferences dialog box.

4. Stop pressing the cursor keys when the object is where you want it.



The object remains in its new location, and it is still selected.

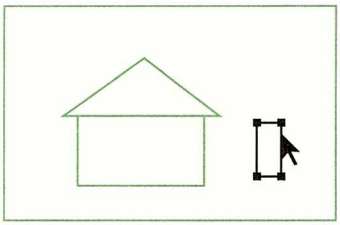
If you change your mind, you can immediately choose Undo Move from the Edit menu to undo the move you just performed.

Moving objects horizontally, vertically, or diagonally

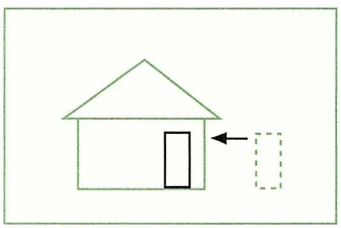
You can constrain the movement of one or more objects so that they move in a precise horizontal, vertical, or diagonal direction, relative to the current orientation of the *x* and *y* axes. See "Rotating the *X* and *Y* Axes" in Chapter 12, "Measuring and Constraining," for more information. Constrained diagonal movement is always calculated in multiples of 45 degrees relative to the current axes.

To move an object horizontally, vertically, or diagonally:

1. Select the object you want to move.
2. Position the pointer on the selected object and hold down the mouse button.

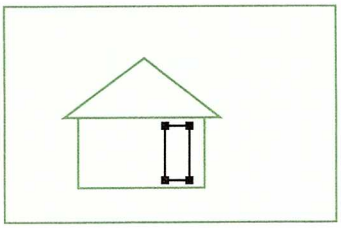


3. Hold down the Shift key, and drag the object in the approximate horizontal, vertical, or diagonal direction you want.



The object's movement is constrained so that it moves exactly horizontally, vertically, or diagonally.

4. Release the mouse button and the Shift key when the object is where you want it.



If you change your mind, you can immediately choose Undo Move from the Edit menu to undo the move you just performed.

Moving objects to the center of the window

The following procedure positions one or more objects in the exact center of the active window.

To move an object to the center of the window:

1. Select the object you want to move.
2. Choose Cut from the Edit menu, or press ⌘-X.

   The selected object is temporarily deleted and placed on the Clipboard.
3. Choose Paste from the Edit menu, or press ⌘-V.

   The object is pasted to the center of the active window, in front of all other objects in the document, and it is selected.

   If you change your mind, you can immediately choose Undo Paste from the Edit menu to undo the paste you just performed.

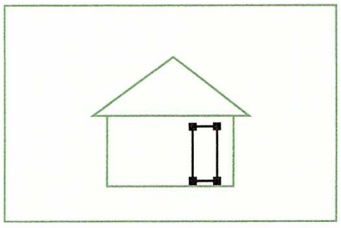
   If you paste in more than one object, the relative painting order among the individual objects pasted from the Clipboard remains the same.

Moving objects in front of or in back of other objects

The ordering, or layering, of objects in your artwork affects the final appearance of the document when it is previewed or printed. Use the following procedure to move one or more objects in front of or in back of other objects. To move an object all the way to the front or back of your artwork without placing it on the Clipboard, see the following section, "Sending Objects to the Front or Back."

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

1. Select the object you want to move.

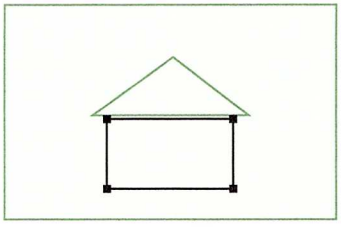


In the example at left, the door is in the backmost paint layer.

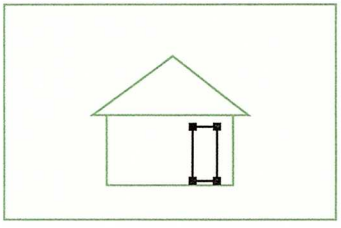
2. Choose Cut from the Edit menu, or press ⌘-X.

   The selected object is temporarily deleted and placed on the Clipboard.

3. Select the object or objects in front of which (or in back of which) you want the Clipboard object to appear.



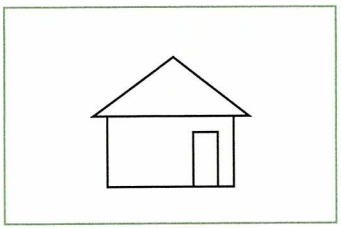
4. Choose Paste In Front (or Paste In Back) from the Edit menu, or press ⌘-F or ⌘-B.



The Clipboard object is pasted in front of (or in back of) the object you selected in step 3, in terms of relative painting order. You can move the pasted object to its final position.

If you change your mind, you can immediately choose Undo Paste from the Edit menu to undo the paste you just performed.

5. Choose Preview Illustration from the View menu to see the result of the move.



If you paste in more than one object, the relative painting order among the individual objects pasted from the Clipboard remains the same, even though you have changed the painting order of all Clipboard objects relative to other objects in the document.

Sending objects to the front or back

Two commands provide a fast way for you to move an object to the front or back of the artwork without cutting and pasting. The object you move becomes either the frontmost or backmost object in the entire document.

To send an object to the front or back:

1. Select the object you want to move.
2. Choose either Bring To Front or Send To Back from the Edit menu, or press ⌘-= or ⌘-- (hyphen).

   The selected object is sent all the way to the front or back of your artwork.

   If you change your mind, you can immediately choose Undo from the Edit menu to undo the change you just made.

   Use the Preview Illustration command from the View menu to see the result of the move.

Moving objects a specific distance and direction

Rather than dragging objects, you can move them a specific distance and direction by providing information in the Move dialog box. Alternatively, you can move a copy of an object rather than the object itself.

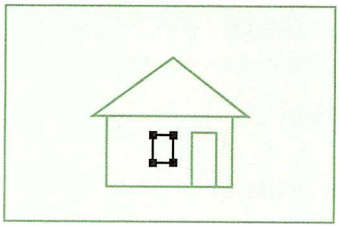
The Move dialog box always displays the distance and direction of the last move operation, and the current unit of measure set in the Preferences dialog box. To obtain this information at any time, simply hold down the Option key and click on the selection tool in the toolbox.

You can either move or copy and move one or more objects at a time using the following procedure.

If an object that you want to move is painted with a pattern, you can choose to move the pattern tiles as well as the object. For more information about pattern tiles, see "Understanding Pattern Tiling," in Chapter 13, "Painting."

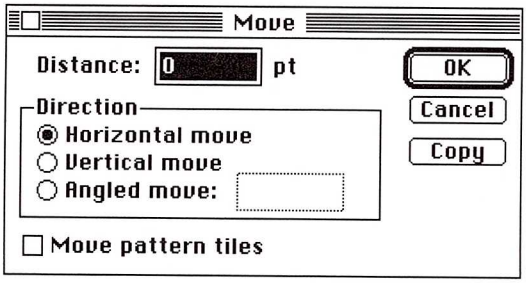
To move an object a specific distance and direction:

1. Select the object you want to move.

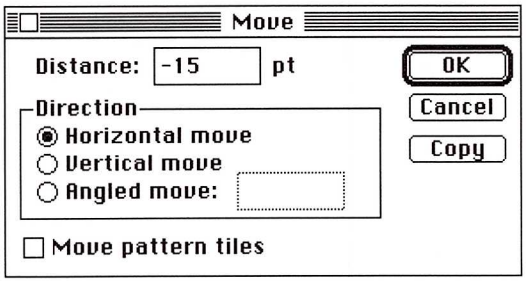


2. Hold down the Option key and click on the selection tool in the toolbox.

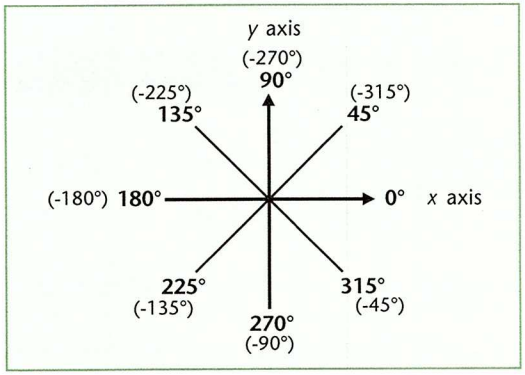
   The Move dialog box appears. The Distance field displays the distance of the last move operation, if any, that was performed. The current unit of measure is indicated to the right of the Distance field.



3. In the Distance field, type the distance that you want the object to move.
4. Click on the button that indicates the direction in which you want the object to move.



You can move the object horizontally, vertically, or at any arbitrary diagonal angle. If you click on Horizontal Move, objects move to the right for the diatance you specified. If you click on Vertical move, objects move up (toward the top of the window) for the distance you specified.



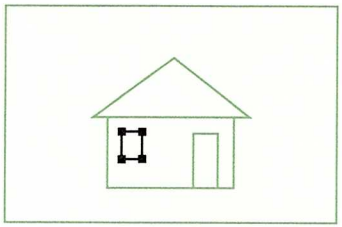
If you want to move the object diagonally, type the angle at which you want the object to move, in degrees, in the Angled Move field. The angle you enter is calculated in degrees from the horizontal, which is 0 degrees. Positive angles (ones that are not prefixed) specify a counterclockwise move. Negative angles (ones that are prefixed by a minus sign) specify a clockwise move.

NOTE: The distance and direction you specify in the Move dialog box are relative to the current orientation of the *x* and *y* axes, which may or may not be parallel to the sides of the window. For example, if the axes have already been rotated by 10 degrees, specifying an angled move of 30 degrees actually moves the object along a line 40 degrees from the window's horizontal axis. See "Rotating the *X* and *Y* Axes" in Chapter 12, "Measuring and Constraining."

5. Click in the Move Pattern Tiles checkbox if you want to move the pattern tiles as well as the object itself.

6. Once you have specified a distance and direction, you have three options.

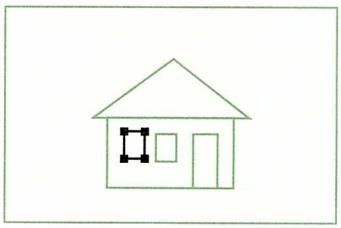
Option 1 Click OK to move the object.



The object moves to the specified location, and remains selected.

If you change your mind, you can immediately choose Undo Move from the Edit menu to undo the move you just performed.

Option 2 Click Copy to create a duplicate of the selected object at the distance and in the direction specified.



The object is copied to the new location and remains selected while the original object remains in position.

Option 3 Click Cancel if you decide not to move or copy the object.

NOTE: You can repeat a move or copy operation by choosing Transform Again from the Arrange menu, or by pressing ⌘-D.

Chapter 9: *Copying Objects*

This chapter describes how to copy objects within a document or between Adobe Illustrator program version 1.1 documents and Adobe Illustrator 88 program documents. There are six copy procedures. You can

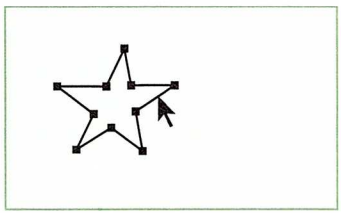
- Copy an object by moving a copy
- Copy an object by transforming a copy
- Copy an object to the center of the window
- Copy an object on top of the original object
- Copy an object in front of or in back of other objects
- Copy an object from one Adobe Illustrator program document to another

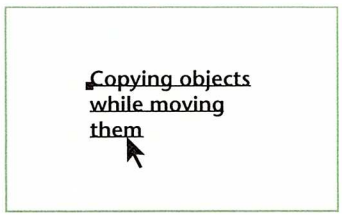
Copying objects by moving copies

You can simultaneously copy an object and move that copy to a new place by using this simple procedure.

To copy an object by moving a copy:

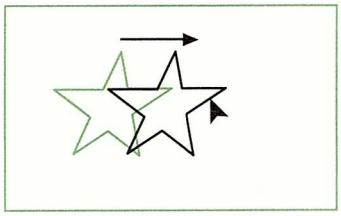
1. Select the object you want to copy.
2. Position the pointer on the selected object.





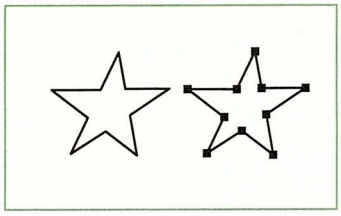
In the case of type, position the pointer on one of the selected baselines.

3. Start to drag the selected object to its new location, and then hold down the Option key.



As you drag, an image of the selected object is temporarily left in its original location for your reference.

4. Release the mouse button, and then release the Option key.



The original selected object remains, and a copy of the object appears at the new location. The copy is now selected.

If you change your mind, you can immediately choose Undo Move from the Edit menu to delete the copy you just made.

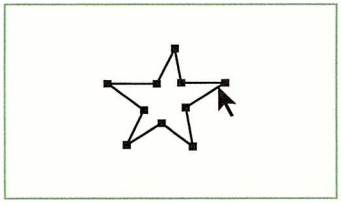
Copying objects by transforming copies

You can simultaneously copy an object and rotate, scale, shear, or reflect the copy. For example, you can copy and rotate a petal shape several times to create a flower. For more information about using the transformation tools, see Chapter 11, "Transforming Objects."

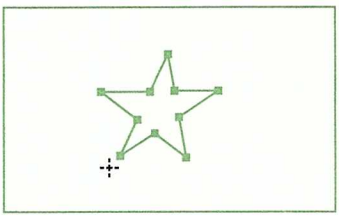
You can copy an object while you transform it either by dragging or by specifying values in a dialog box. Both procedures are provided below. In both cases, choosing Transform Again will create additional copies of the moved or transformed objects. The following transformation procedures do not work with the blend tool.

To transform a copy by dragging:

1. Select the object you want to copy and transform.



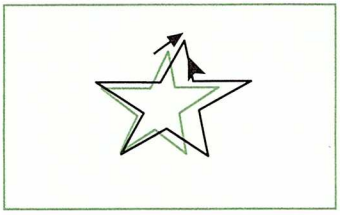
2. Click in the toolbox on the transformation tool you want to use.



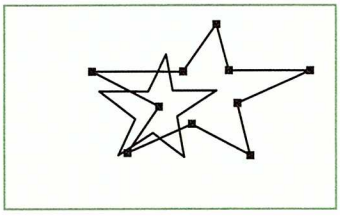
For example, click on the scale tool. The pointer changes to a dotted cross when you move it to the active window. You use the cross to fix an invisible point of origin from which the copy of the object will be transformed.

Position the cross at the point at which you want the transformation to begin, and click. The cross changes to an arrowhead.

3. Select a point and start to drag the arrowhead to transform the object, and then hold down the Option key.



4. Release the mouse button, and then release the Option key.

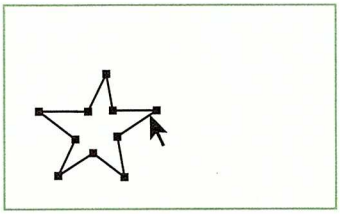


A copy of the object selected in step 1 appears at the point of transformation. It is rotated, scaled, sheared, or reflected. The copy is now selected.

If you change your mind, you can immediately choose Undo from the Edit menu to delete the copy you just made.

To transform a copy by using a dialog box:

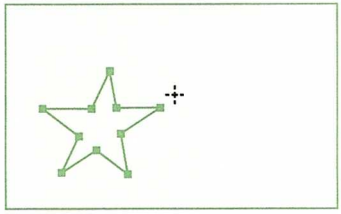
1. Select the object you want to copy and transform.



2. Click in the toolbox on the transformation tool that you want to use.

   For example, click on the reflect tool. The pointer changes to a dotted cross when you move it to the active window. You use the cross to fix an invisible point of origin from which the copy of the object will be transformed.

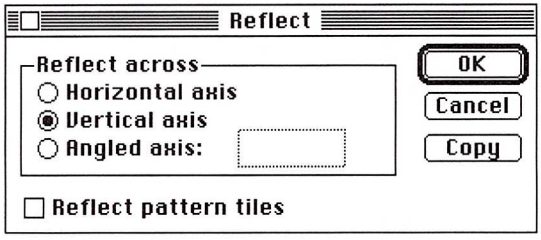
3. Position the cross at the point at which you want the transformation to begin.



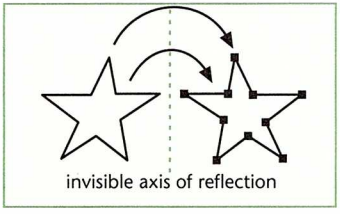
4. Hold down the Option key and click.

   A dialog box appears.

5. Fill in the dialog box with the values you want to apply to the copy of the object.



6. Click Copy (instead of OK).



A copy of the object selected in step 1 appears at the point of transformation. It is rotated, scaled, sheared, or reflected, according to the values you specified. The copy is also selected.

If you change your mind, you can immediately choose Undo from the Edit menu to delete the copy you just made.

Copying objects to the center of the window

This procedure lets you place a copy of an object in the exact center of the active window.

To copy an object to the center of the window:

1. Select the object you want to copy.
2. Choose Copy from the Edit menu, or press ⌘-C.

   A copy of the selected object is placed on the Clipboard.
3. Choose Paste from the Edit menu, or press ⌘-V.

   The Clipboard object is pasted in the center of the active window.

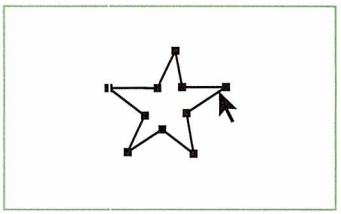
   If you change your mind, you can immediately choose Undo Paste from the Edit menu to delete the copy you just made.

Copying objects on top of the originals

Sometimes it is useful to place a copy of an object exactly on top of the original. For example, you might want to place an outline on top of a filled area of the same shape.

To place a copy of an object on top of the original:

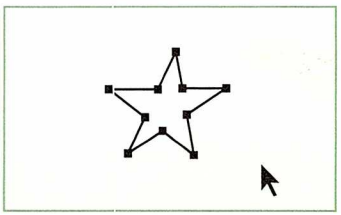
1. Select the object you want to copy.



2. Choose Copy from the Edit menu, or press ⌘-C.

   A copy of the selected object is placed on the Clipboard.
3. Choose Paste In Front from the Edit menu, or press ⌘-F.

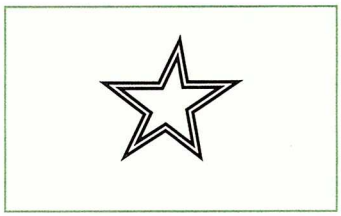
   The Clipboard object is pasted directly in front of the object you selected.



You can only see the selected copy. The unselected original is directly behind it.

If you change your mind, you can immediately choose Undo Paste from the Edit menu to delete the copy you just made.

You can paint or transform the copy in any way.



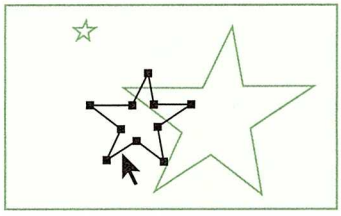
In the example at left, the original (backmost) object was selected and stroked with black using a line weight of 4. The copied object (frontmost) was selected and stroked with white using a line weight of 1. Neither object was filled.

Copying objects in front of or in back of other objects

This ability is useful when you want to rearrange the look of and/or change the painting order of overlapping objects. It is also helpful when you want to create shadows or paste scaled copies of the same object in front of or in back of the original.

To copy an object in front of or in back of other objects:

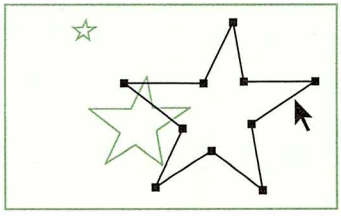
1. Select the object you want to copy.



2. Choose Copy from the Edit menu, or press ⌘-C.

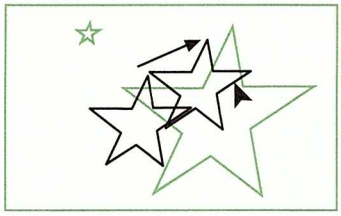
   A copy of the selected object is placed on the Clipboard.

3. Select the object in front of which (or in back of which) you want to place the Clipboard object.



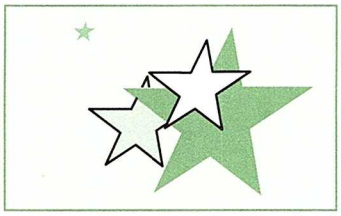
4. Choose Paste In Front (or Paste In Back) from the Edit menu, or press ⌘-F or ⌘-B.

The Clipboard object is pasted in front of (or in back of) the original object selected in step 1. In terms of painting order, (layering), it is in front of (or in back of) the object you selected in step 3. The copy is selected.



You can move the copy if it is not where you want it. Then you can paint it or transform it in any way.

5. Preview your artwork to check the final painting order.



If you change your mind, you can immediately choose Undo Paste from the Edit menu to undo the paste you just performed.

Copying between two Adobe Illustrator documents

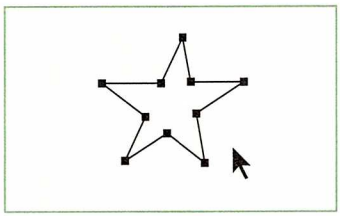
You can copy your artwork (from either Adobe Illustrator 88 program documents or Adobe Illustrator program version 1.1 documents) to the Clipboard and paste it into Adobe Illustrator 88 program documents in the same way that you copy and paste between documents in other Macintosh applications. You can also copy artwork from *Adobe Collector's Edition I*. If you paste Adobe Illustrator 88 program artwork into Adobe Illustrator program version 1.1 documents, the documents must subsequently be opened using the Adobe Illustrator 88 program.

For information about copying between Adobe Illustrator 88 program documents and other applications, see Chapter 16, "Working with Other Applications."

NOTE: The Adobe Illustrator 88 program slows down when you are working on very complex artwork. You can alleviate this problem by creating your artwork in sections (as separate documents) and then pasting each section into one final artwork document. Hiding objects you are not working with also helps keep the program from slowing down.

To copy between two Adobe Illustrator documents:

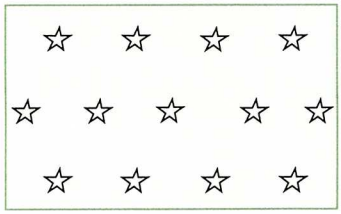
1. Select the objects you want to copy, or select all objects.



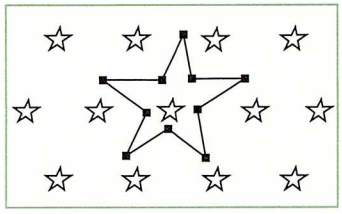
2. Choose Copy from the Edit menu, or press ⌘-C.

   The selected objects are placed on the Clipboard. You can choose Show Clipboard from the Window menu to find out how many artwork objects are on the Clipboard.

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



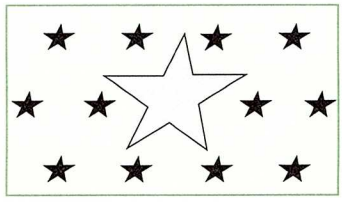
4. Choose Paste from the Edit menu, or press ⌘-V.



   All objects on the Clipboard are pasted in the center of the active window.

   Objects pasted from the Clipboard are placed in front of all other objects in the document. However, the relative painting order among the individual objects pasted from the Clipboard remains the same.

5. Preview your artwork to see the effect of the paste on the painting order.



Chapter 10: *Deleting Objects*

This chapter describes all the ways in which you can delete objects from your artwork. There are three procedures you can use. You can delete one, several, or all objects from your artwork, and you can do so temporarily or permanently. You can also undo or redo deletions.

Deleting objects temporarily

You delete an object by using the Cut command from the Edit menu. Cutting an object places it on the Clipboard temporarily. If you want to paste it back into your artwork, you must choose Paste from the Edit menu before you cut or copy another object.

To delete an object temporarily:

1. Select the object you want to delete temporarily.
2. Choose Cut from the Edit menu, or press ⌘-X.

   The selected object disappears from the working area and is placed on the Clipboard. It remains there and can be pasted back into your artwork until you cut or copy another object.

Deleting objects permanently

You can permanently delete any object that you are sure you will not be using again. You delete an object by using the Clear command from the Edit menu.

IMPORTANT: Clearing an object does not place it on the Clipboard. If you think you might need an object that you have deleted with Clear, choose Undo Clear from the Edit menu immediately. Then use the Cut command instead.

To delete an object permanently:

1. Select the object you want to delete permanently.
2. Choose Clear from the Edit menu, or press the Backspace key.

   If you have a Macintosh SE or a Macintosh II, you can press the Delete key.

   The selected object is deleted and disappears from the working area. It cannot be pasted in again unless you undo the deletion immediately.

Deleting all objects

You can delete all of the objects in your artwork simultaneously. This is useful if you want to start your drawing all over again. You delete all objects by using the Clear command from the Edit menu.

IMPORTANT: Clearing an object does not place it on the Clipboard. If you think you might need an object that you have deleted with Clear, choose Undo Clear from the Edit menu immediately. Then use the Cut command instead.

To delete all objects:

1. Choose Select All from the Edit menu, or press ⌘-A.
2. Choose Clear from the Edit menu, or press the Backspace key.

   If you have a Macintosh SE or a Macintosh II, you can press the Delete key.

   All objects are deleted and disappear from the working area. They are not placed on the Clipboard and cannot be pasted in again unless you undo the deletion immediately.

Undoing a deletion

If you change your mind about the last deletion you made, you can undo it but only *immediately* after you make the deletion. If you click anywhere or perform another operation, you will not be able to use the Undo command.

To undo a deletion:

1. Choose Undo Cut or Undo Clear from the Edit menu, or press ⌘-Z.

   The deleted object is restored to the working area.

Chapter 11: *Transforming Objects*

This chapter provides a complete description of all the transformation tools and tells you how to use them.

You can transform any number of objects, from a single anchor point to all of the objects in a document. The transformation tools let you modify the physical shape, size, and appearance of objects. You can transform objects by using one or more transformation tools, alone or in sequence. For example, you can scale an object, rotate it, and then blend the area within its outlines.

If an object that you want to transform is painted with a pattern, you can choose to move the pattern tiles as well as the object itself. Before you transform the object, choose Preferences from the Edit menu and click in the Transform Pattern Tiles checkbox. An x appears, indicating that the option is turned on. (The preset option is off.)

Turning this option on means that in the future all patterns used to paint objects will be transformed if you move the objects or transform them with any of the transformation tools, either by dragging or by using the dialog boxes.

Turning this option on or off in the Preferences dialog box updates the same option in *all* of the transformation dialog boxes as well. Turning this option on or off in *any* of the transformation dialog boxes updates this option in the Preferences dialog box. For more information, see the individual transformation procedures in this chapter that discuss using dialog boxes. See also "Understanding Pattern Tiling" in Chapter 14, "Using Patterns."

Choosing a transformation tool

Here is what each tool does:

- The scale tool enlarges or reduces objects, uniformly or nonuniformly.
- The rotate tool rotates objects at any angle counterclockwise or clockwise.
- The reflect tool creates mirror images of objects along any axis.
- The shear tool slants (skews) objects in any direction.
- The blend tool creates intermediate shapes between two different paths.

Using a transformation tool

All transformations (except blending) start from a *point of origin*, which you specify. A point of origin is a fixed spot in your artwork from which a transformation begins.

The basic procedure is similar for all transformations (except blending):

- Select an object.
- Choose a transformation tool.
- Specify the point of origin of the transformation.
- Drag the object to transform it visually, or fill in a dialog box specifying the parameters of the object's transformation.

Simple commands let you repeat the last transformation you made as many times as you want or undo the last transformation.

In addition, you can use the transformation tools with the Option key or dialog boxes to transform a copy of an object rather than the object itself. For more information, see "Copying Objects by Transforming Copies" in Chapter 9, "Copying Objects."

Transforming works differently than painting does. Painting affects an entire path, even if only part of a path is selected. Transforming affects only the part of a path that is selected. If you want to transform an entire path, you must select all of it.

Using the scale tool

Scaling an object enlarges or reduces it horizontally (along the *x* axis), vertically (along the *y* axis), or both, relative to a fixed point of origin that you designate.

Uniform scaling enlarges or reduces objects equally along the *x* and *y* axes. Nonuniform scaling lets you enlarge or reduce objects more along one axis than another.

Copying while scaling is a quick way of creating different-sized copies of the same object. See also "Copying Objects by Transforming Copies" in Chapter 9, "Copying Objects."

There are two scaling procedures:

- Dragging the object
- Specifying scale factors in a dialog box

Scaling by dragging

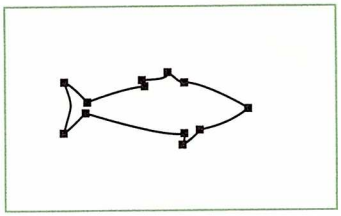
You can drag the object to visually stretch or compress it.

NOTE: Line weights are not scaled by this method. To scale line weights while scaling objects, use the method described in the next section, "Scaling by Specifying Scale Factors."

If the Transform Pattern Tiles option is turned on in either the Preferences dialog box or *any* of the transformation dialog boxes, patterns used to paint objects will also be scaled by dragging.

To scale by dragging:

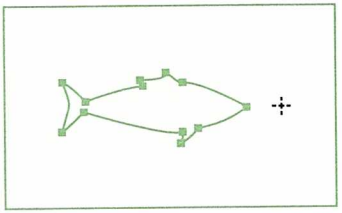
1. Select the object you want to scale.



2. Click on the scale tool in the toolbox.

   The pointer changes to a dotted cross when you move it to the active window. You use the dotted cross to specify an invisible point of origin from which the object will be scaled.

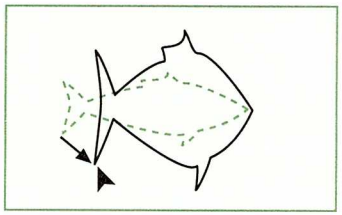
3. Position the dotted cross at the point from which you want the object to be scaled, and click.



   Clicking sets the point of origin for the scale operation. The dotted cross changes to an arrowhead.

4. Move the arrowhead away from the invisible point of origin.

5. Drag the arrowhead away from or toward the point of origin.



As you drag, an image of the selected object is temporarily left in its original position for your reference.

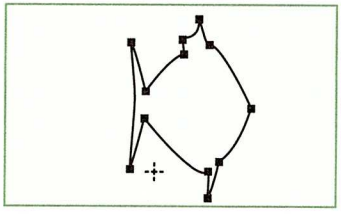
If you drag the arrowhead away from the point of origin, a second image of the object is scaled up (enlarged). If you drag the arrowhead toward the point of origin, the image is scaled down (reduced). If you drag horizontally, the image is enlarged or reduced horizontally. If you drag vertically, the image is enlarged or reduced vertically.

To have finer control of scaling, start to drag farther from the point of origin.

To constrain the scaling so that it is uniform, hold down the Shift key as you drag the arrowhead. Uniform scaling enlarges or reduces objects equally along the *x* and *y* axes. Nonuniform scaling lets you enlarge or reduce objects more along one axis than another.

To scale a copy of the object instead of the object itself, hold down the Option key after you start to drag.

6. Release the mouse button when the scaled image is the size and shape you want.



The object remains at its scaled size and shape and is still selected. The arrowhead changes back to a dotted cross, ready for you to specify the next point of origin.

To undo the scaling operation, choose Undo Scale from the Edit menu, or press ⌘-Z.

To repeat the scaling operation, choose Transform Again from the Arrange menu, or press ⌘-D.

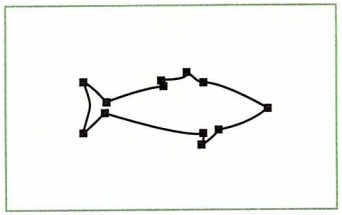
If you do not want to continue scaling, click on another tool in the toolbox.

Scaling by specifying scale factors

This method lets you specify very exact scaling. It also lets you choose whether to scale or preserve line weights (with uniform scaling).

To scale by specifying scale factors:

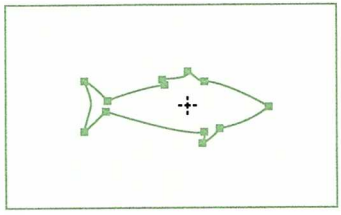
1. Select the object you want to scale.



2. Click on the scale tool in the toolbox.

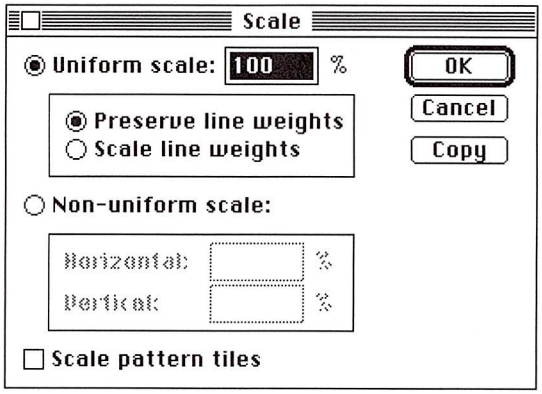
   The pointer changes to a dotted cross when you move it to the active window. You use the dotted cross to specify an invisible point of origin from which the object will be scaled.

3. Position the dotted cross at the point from which you want the object to be scaled.

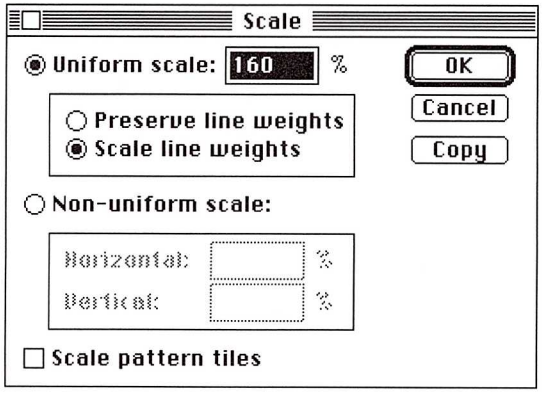


4. Hold down the Option key and click.

The Scale dialog box appears. It displays the settings for the last scale operation, if any.



5. Specify the new scale parameters.



You can choose uniform or nonuniform scaling. If you choose uniform scaling, enter the scale factor as a percentage.

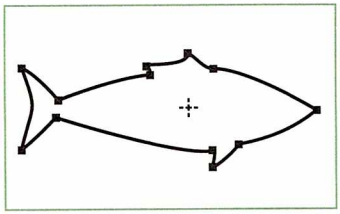
With uniform scaling you can also choose to either preserve line weights or scale them. Preserving line weights is the preset option. If you scale them, the line weights of all stroked paths (as specified in the Paint dialog box) are scaled along with the objects. See "Setting the Line Weight" in Chapter 13, "Painting," for more information.

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. For example, a nonuniform scale with -100 percent horizontal scaling and 100 percent vertical scaling is equivalent to reflection about a vertical line that passes through the point of origin.

Line weights cannot be scaled with nonuniform scaling.

If the object you are scaling is painted with a pattern, and you want to scale the pattern as well as the object, click in the Scale Pattern Tiles checkbox. Turning the option on here also turns it on in the Preferences dialog box. For more information about pattern tiling, see "Understanding Pattern Tiling," in Chapter 14, "Using Patterns."

6. Click OK.



The object assumes its scaled size and shape and is still selected. Line weights are scaled also, if you specified that option. The arrowhead changes back to a dotted cross, ready for you to specify the next point of origin.

To undo the scaling operation, choose Undo Scale from the Edit menu, or press ⌘-Z.

To repeat the scaling operation, choose Transform Again from the Arrange menu, or press ⌘-D.

If you do not want to continue scaling, click on another tool in the toolbox.

If you click Copy instead of OK, a copy of the object is scaled, and the original object remains the same.

Using the rotate tool

Rotating an object moves it around a fixed point that you designate. You can rotate an object up to 360 degrees either counterclockwise or clockwise.

Copying while rotating is a useful method of creating radially symmetrical objects; such as the petals of a flower. See also "Copying Objects by Transforming Copies," in Chapter 9, "Copying Objects."

There are two rotation procedures:

- Dragging the object
- Specifying an angle of rotation in a dialog box

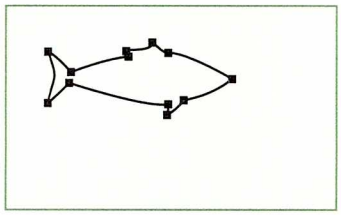
Rotating by dragging

You can drag the object to visually rotate it.

If the Transform Pattern Tiles option is turned on in either the Preferences dialog box or *any* of the transformation dialog boxes, patterns used to paint objects will be rotated by dragging.

To rotate by dragging:

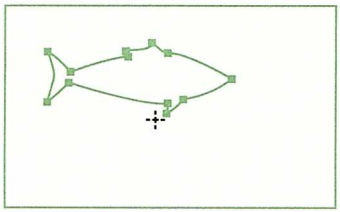
1. Select the object you want to rotate.



2. Click on the rotate tool in the toolbox.

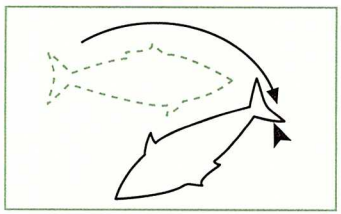
   The pointer changes to a dotted cross when you move it to the active window. You use the dotted cross to specify an invisible point of origin around which the object will rotate.

3. Position the dotted cross at the point around which you want the rotation to occur, and click.



Clicking sets the point of origin for the rotate operation. The dotted cross changes to an arrowhead.

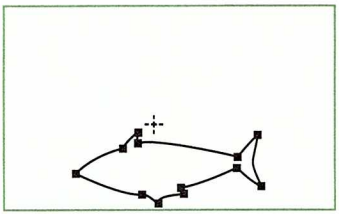
4. Move the arrowhead away from the point of origin of the rotation.
5. Drag the arrowhead in a circular motion around the point of origin.



As you drag, an image of the selected object is temporarily left in its original position for your reference. A second image of the object rotates.

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.

6. Release the mouse button when the image has been rotated to the position you want.



The object remains in the rotated position and is still selected. The arrowhead changes back to a dotted cross, ready for you to specify the next point of origin.

To undo the rotating operation, choose Undo Rotate from the Edit menu, or press ⌘-Z.

To repeat the rotating operation, choose Transform Again from the Arrange menu, or press ⌘-D.

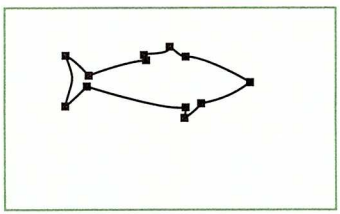
If you do not want to continue rotating, click on another tool in the toolbox.

Rotating by specifying an angle

You can also rotate by specifying an angle of rotation, rather than by dragging the object. This lets you be very exact about the amount by which an object is rotated.

To rotate by specifying an angle:

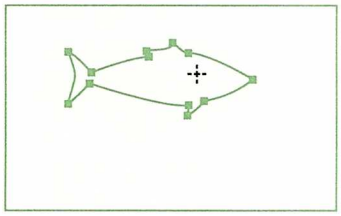
1. Select the object you want to rotate.



2. Click on the rotate tool in the toolbox.

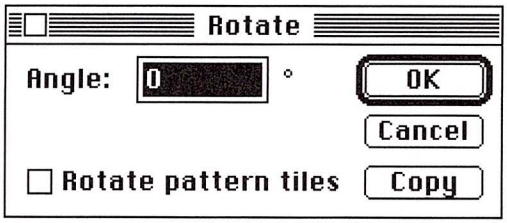
   The pointer changes to a dotted cross when you move it to the active window. You use the dotted cross to specify an invisible point of origin around which the object will be rotated.

3. Position the dotted cross at the point around which you want the rotation to occur.

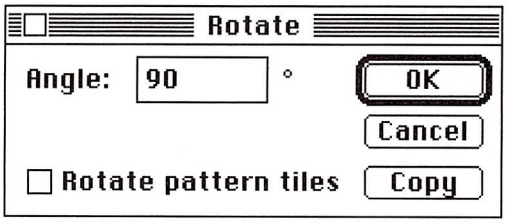


4. Hold down the Option key and click.

   The Rotate dialog box appears. It displays the angle of the last rotation, if any.



5. Enter the new rotation angle, in degrees.

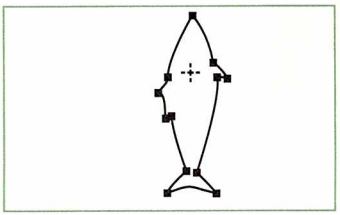


   Positive angles rotate counterclockwise; negative angles rotate clockwise.

NOTE: Do not precede positive angles with a plus sign, but precede negative angles with a minus sign.

If the object you are rotating is painted with a pattern, and you want to rotate the pattern as well as the object, click in the Rotate Pattern Tiles checkbox. Turning the option on here also turns it on in the Preferences dialog box. For more information about pattern tiling, see "Understanding Pattern Tiling," in Chapter 14, "Using Patterns."

6. Click OK.



The object assumes its rotated position and is still selected. The arrowhead changes back to a dotted cross, ready for you to specify the next point of origin.

To undo the rotating operation, choose Undo Rotate from the Edit menu, or press ⌘-Z.

To repeat the rotating operation, choose Transform Again from the Arrange menu, or press ⌘-D.

If you do not want to continue rotating, click on another tool in the toolbox.

If you click Copy instead of OK, a copy of the object is rotated, and the original object remains the same.

Using the reflect tool

Reflecting an object creates a mirror image across an invisible axis that passes through a point that you specify.

Copying while reflecting is a powerful tool for creating a mirror image of an object. See also "Copying Objects by Transforming Copies" in Chapter 9, "Copying Objects."

There are two reflecting procedures:

- Dragging the object
- Specifying an axis of reflection in a dialog box

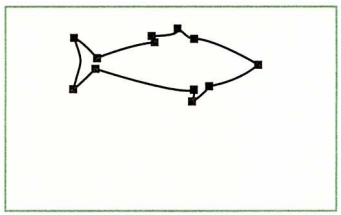
Reflecting by dragging

You can drag the object to visually reflect it.

If the Transform Pattern Tiles option is turned on in either the Preferences dialog box or *any* of the transformation dialog boxes, patterns used to paint objects will be reflected by dragging.

To reflect by dragging:

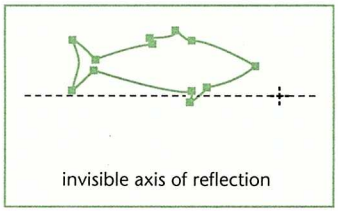
1. Select the object you want to reflect.



2. Click on the reflect tool in the toolbox.

   The pointer changes to a dotted cross when you move it to the active window. You use the dotted cross to specify an invisible axis of reflection.

3. Position the dotted cross on one point along the invisible axis across which you want the reflection to take place, and click.

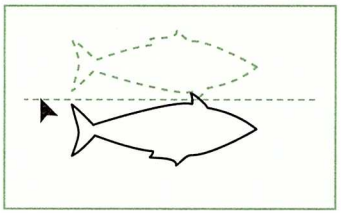


Clicking sets the point of origin for the reflect operation. The dotted cross changes to an arrowhead.

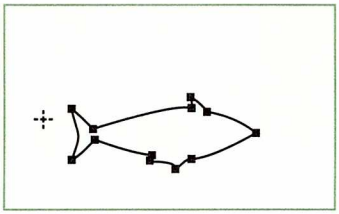
4. Position the arrowhead at another point along the invisible axis.

   You now have two options.

   Option 1 Click to reflect the object across.

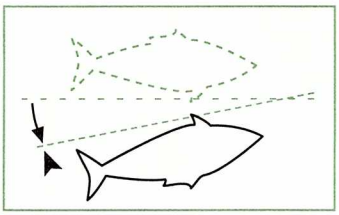


When you click, the selected object crosses over the defined axis.

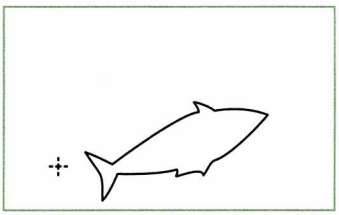


The object remains in the reflected position and is still selected. The arrowhead changes back to a dotted cross, ready for you to specify the next axis of reflection.

Option 2 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. An image of the selected object is temporarily left in its original position for your reference. A second image is reflected across the axis and follows the movement of the arrowhead as you drag it.



When the moving image is in the position you want, release the mouse button. The arrowhead changes back to a dotted cross, ready for you to specify the next axis of reflection.

To undo the reflecting operation, choose Undo Reflect from the Edit menu, or press ⌘-Z.

To constrain the reflection axis to multiples of 45 degrees relative to the angle of constraint set in the Preferences dialog box, hold down the Shift key after starting to drag the arrowhead.

To reflect a copy of the object instead of the object itself, hold down the Option key after you start to drag.

To repeat the reflecting operation, choose Transform Again from the Arrange menu, or press ⌘-D.

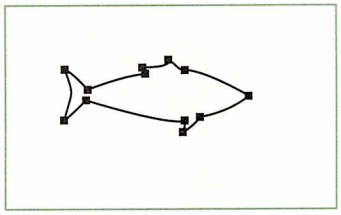
If you do not want to continue reflecting, click on another tool in the toolbox.

Reflecting by specifying an axis

You can also reflect by specifying an axis of reflection, rather than by dragging the object. This lets you be very exact about the way in which an object is reflected.

To reflect by specifying an axis:

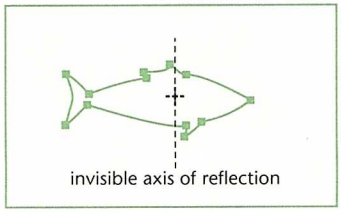
1. Select the object you want to reflect.



2. Click on the reflect tool in the toolbox.

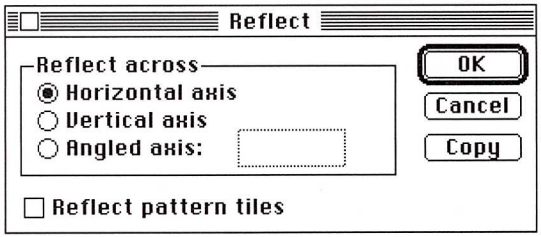
   The pointer changes to a dotted cross when you move it to the active window. You use the dotted cross to specify an invisible axis of reflection.

3. Position the dotted cross on one point along the invisible axis across which you want the reflection to take place.

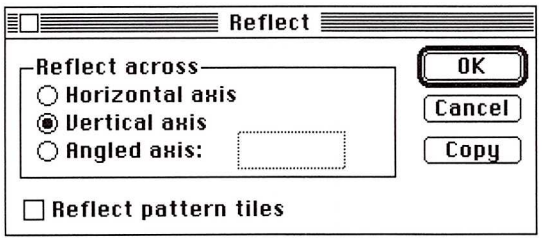


4. Hold down the Option key and click.

   The Reflect dialog box appears. It displays the orientation of the axis of the last reflection, if any.



5. Click on the axis across which you want the object to be reflected.



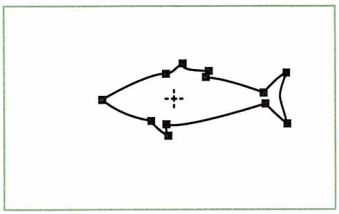
You can reflect an object across a horizontal, a vertical, or an angled axis.

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.

If the object you are reflecting is painted with a pattern, and you want to reflect the pattern as well as the object, click in the Reflect Pattern Tiles checkbox. Turning the option on here also turns it on in the Preferences dialog box. For more information about pattern tiling, see "Understanding Pattern Tiling," in Chapter 14, "Using Patterns."

6. Click OK.



The object assumes its reflected position and is still selected. The arrowhead changes back to a dotted cross, ready for you to specify the next point of origin.

To undo the reflecting operation, choose Undo Reflect from the Edit menu, or press ⌘-Z.

To repeat the reflecting operation, choose Transform Again from the Arrange menu, or press ⌘-D.

If you do not want to continue reflecting, click on another tool in the toolbox.

If you click Copy instead of OK, a copy of the object is reflected, and the original object remains the same.

Using the shear tool

Shearing an object slants (skews) it uniformly along an axis and at an angle you specify. Usually, objects are sheared either horizontally or vertically, but the Adobe Illustrator 88 program also lets you shear along any arbitrary axis.

There are two shearing procedures:

- Dragging the object
- Specifying an angle and an axis of shear in a dialog box

Copying while shearing is a simple way of producing slanted copies of an object and is particularly useful for creating cast shadows. See also "Copying Objects by Transforming Copies" in Chapter 9, "Copying Objects."

NOTE: Contrary to the way the program works in other instances, the shear angle is always calculated *clockwise* relative to the current *x* axis.

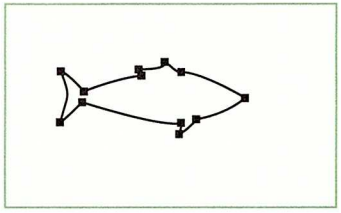
Shearing by dragging

You can drag the object to visually shear it.

If the Transform Pattern Tiles option is turned on in either the Preferences dialog box or *any* of the transformation dialog boxes, patterns used to paint objects will be sheared by dragging.

To shear by dragging:

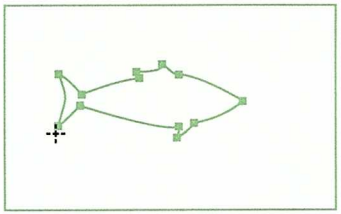
1. Select the object you want to shear.



2. Click on the shear tool in the toolbox.

   The pointer changes to a dotted cross. You use the dotted cross to specify the point of origin of the shear axis.

3. Position the dotted cross at the point from which you want the shear to begin, and click.

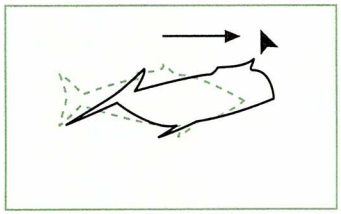


Clicking sets the point of origin for the shear axis. The dotted cross changes to an arrowhead.

4. Move the arrowhead away from the shear axis.

   The farther away you start, the finer the control you have over shearing.

5. Drag the arrowhead in the direction in which you want to shear the object.



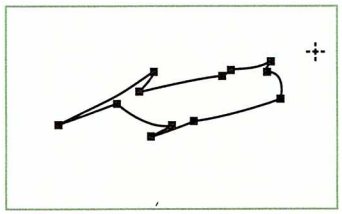
As you drag, an image of the selected object is temporarily left in its original position for your reference.

   If you drag horizontally, a second image of the object is sheared along the *x* axis. If you drag vertically, the image is sheared along the *y* axis.

   To shear along an angle that is a multiple of 45 degrees relative to the current *x* axis, hold down the Shift key after starting to drag the arrowhead.

   To shear a copy of the object instead of the object itself, hold down the Option key after you start to drag.

6. Release the mouse button when the image is the shape you want.



The object remains in the sheared shape and is still selected. The arrowhead changes back to a dotted cross, ready for you to specify the next shear axis.

   To undo the shearing operation, choose Undo Shear from the Edit menu, or press ⌘-Z.

To repeat the shearing operation, choose Transform Again from the Arrange menu, or press ⌘-D.

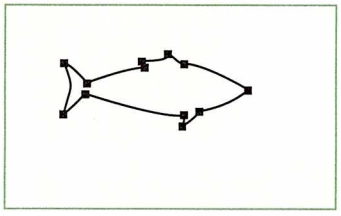
If you do not want to continue shearing, click on another tool in the toolbox.

Shearing by specifying an angle and an axis

You can specify the exact shear axis and shear angle that you want to apply to an object. This gives you precise control over the shear operation.

To shear by specifying an angle and an axis:

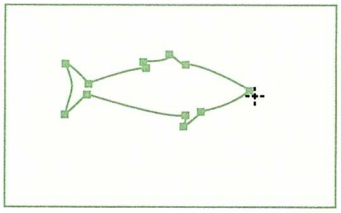
1. Select the object you want to shear.



2. Click on the shear tool in the toolbox.

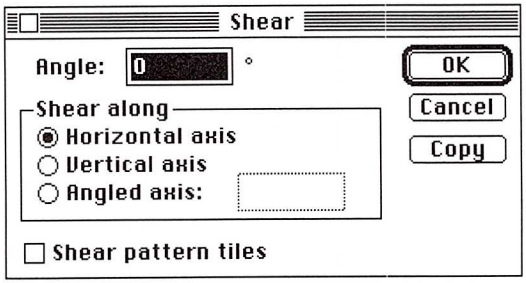
   The pointer becomes a dotted cross when you move it to the active window. You use the dotted cross to specify the point of origin of the shear axis.

3. Position the dotted cross at the point from which you want the shear to begin.



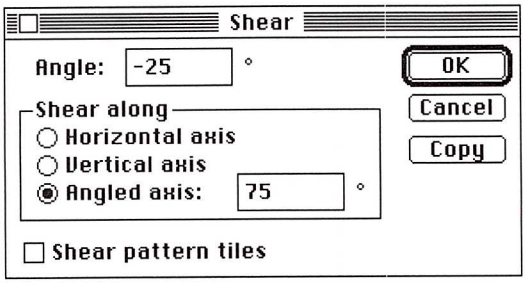
4. Hold down the Option key and click.

   The Shear dialog box appears. It displays the orientation of the last shear axis and the angle of the last shear, if any.



5. 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.

6. Specify the axis along which the selected object is to be sheared.

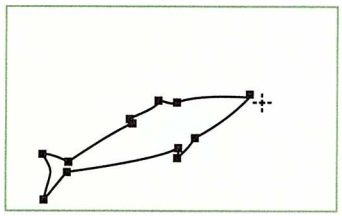


   You can shear an object along a horizontal, a vertical, or an angled axis.

   If you choose an angled axis, type the angle of the axis that you want, in degrees, relative to the *x* axis. The origin of the angled axis will be the point you set when you clicked in step 4.

   If the object you are shearing is painted with a pattern, and you want to shear the pattern as well as the object, click in the Shear Pattern Tiles checkbox. Turning the option on here also turns it on in the Preferences dialog box. For more information about pattern tiling, see "Understanding Pattern Tiling," in Chapter 14, "Using Patterns."

7. Click OK.



The object assumes its sheared shape and is still selected. The arrowhead changes back to a dotted cross, ready for you to specify the next shear axis.

To undo the shearing operation, choose Undo Shear from the Edit menu, or press ⌘-Z.

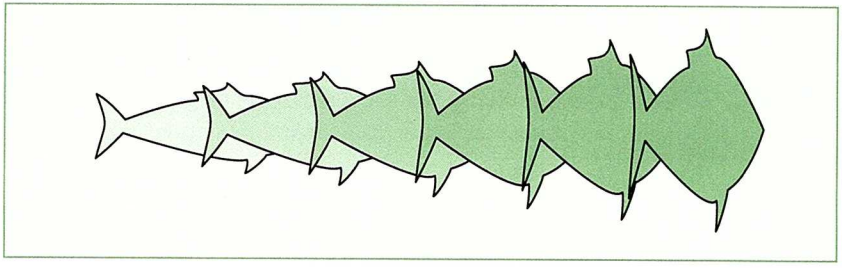
To repeat the shearing operation, choose Transform Again from the Arrange menu, or press ⌘-D.

If you do not want to continue shearing, click on another tool in the toolbox.

If you click Copy instead of OK, a copy of the object is sheared, and the original object remains the same.

Using the blend tool

Blending lets you create a series of intermediate shapes between two objects. Depending on the way you paint the objects you are blending, you can produce airbrush effects such as complex shading, highlighting, or contouring with different line weights, shades of gray, or process or custom colors.



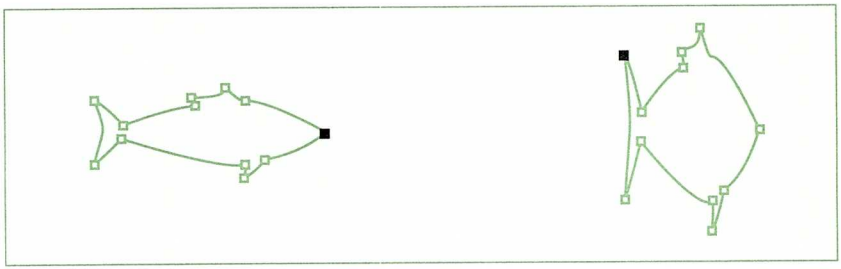
You can blend between two objects painted with two process colors or two custom colors. If you blend between one object painted with a process color and another object painted with a custom color, the blended shapes will be painted with an appropriate process color. If you want to blend a custom color with white, do not use process white. Use 0 percent tint of the same custom color instead of white to get an appropriate custom tint. For more information on blending with colors, see the *Adobe Illustrator 88 Color Guide* that accompanies this manual.

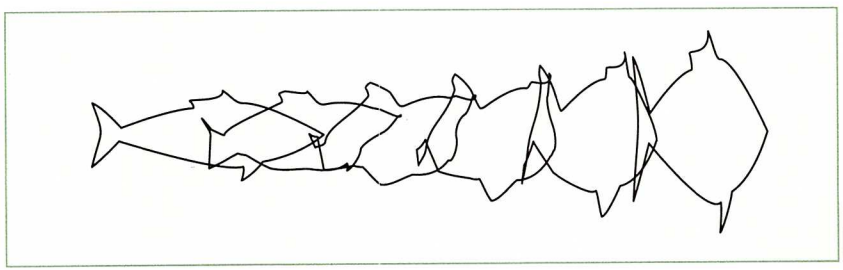
You can also blend between two patterned objects but they must have the same pattern. If the two patterned objects have different transformations of the pattern, the intermediate shapes created when blending will be painted with appropriate intermediate transformations of the pattern.

You cannot blend between an open path and a closed path. Both paths must be either open or closed.

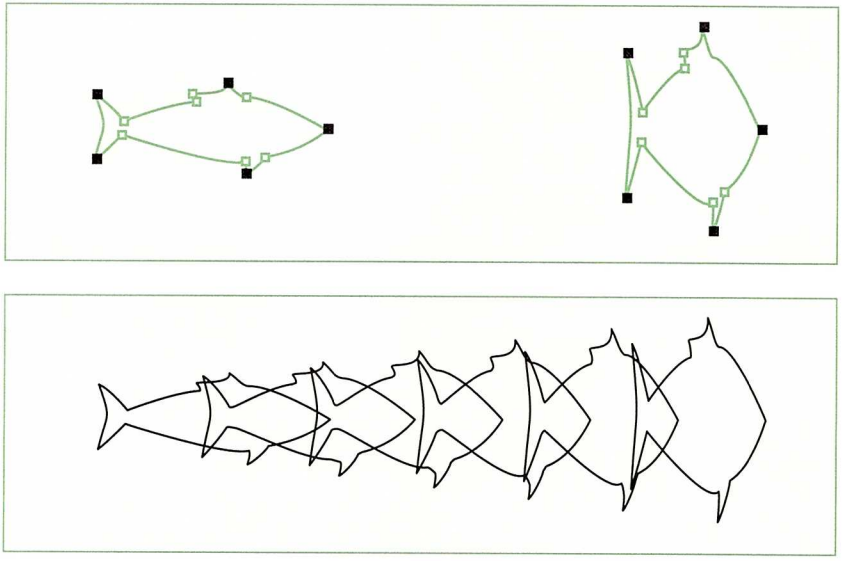
There is only one blending procedure. You specify blend factors in the Blend dialog box.

To blend, you select one or more *pairs of points* on two selected paths between which you want to blend. Then you specify the number of blending steps you want to have occur between those two paths. You also specify the blending percentages of the first and last steps.





The program interpolates between the pairs of points and creates intermediate shapes by calculating which percentage of the perimeter of the selected paths to use for each new step. The more anchor points you select, the greater the control you usually have over the blending of the paths, as shown in the following illustrations.



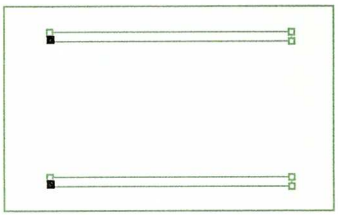
When you are blending open paths, be sure to click the blend tool on at least one endpoint from each path. (You can select more than one point on each path, but be sure to click the blend tool on selected endpoints.)

In addition, you should paint the paths between which you will be blending before you blend them, and you should place them at the correct distance from one another.

IMPORTANT: You must ungroup paths, if they are grouped, before you can blend them.

To blend between two paths:

1. Click on the selection tool in the toolbox.
2. Click on one or more points on the paths between which you want to blend.

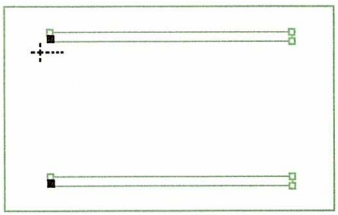


If you want to select all the points on both paths, hold down the Option key while you click.

3. Click on the blend tool in the toolbox.

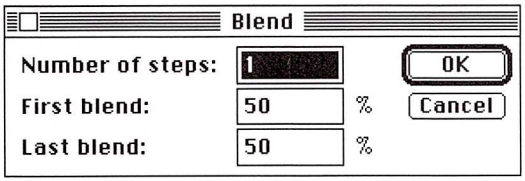
   The pointer changes to a dotted cross when you move it to the active window.

4. Click once on each selected path, on two corresponding selected points.



After the first click, the right arm of the cross is extended.

The Blend dialog box appears.



5. Specify the number of intermediate steps in which you want to blend.

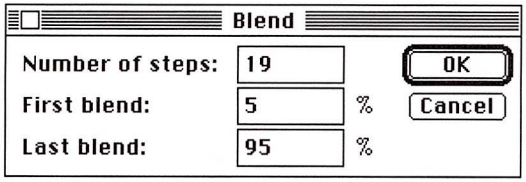
   The number of steps you enter determines how many intermediate objects are created. This number excludes the originally selected blend paths.

   The preset option is 1. Enter a whole positive number between 1 and 1008. The more steps indicated, the finer the gradation between shapes or paint attributes.

Based on the number of steps you enter, the percentages of the first and last blend steps are automatically calculated and displayed in the fields. The preset options are 50 percent and 50 percent.

6. Enter new values for the first and last blend steps, in percentages.

   You can enter any positive or negative number between -100 and 200.

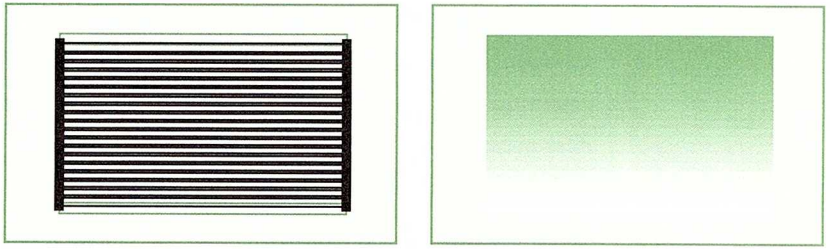


   For example, if you specify 19 steps, the First Blend and Last Blend fields display 5 percent and 95 percent, respectively. This means that the first blend will occur 5 percent of the way between the two selected objects, and the last blend will occur 95 percent of the way between them. (The second blend will occur 10 percent of the way, the third blend 15 percent of the way, the fourth blend 20 percent of the way, and so on.)

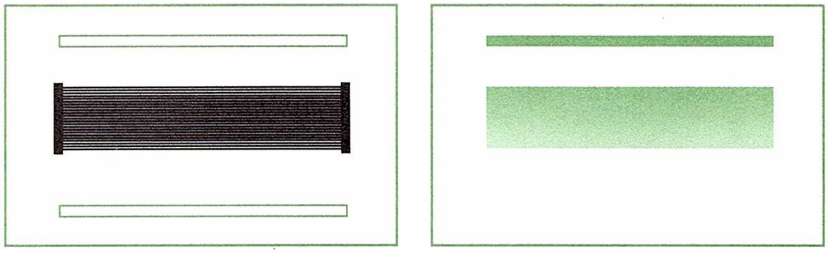
   See the examples following step 7 for a description of how different values in these fields affect the blend that is created.

7. Click OK.

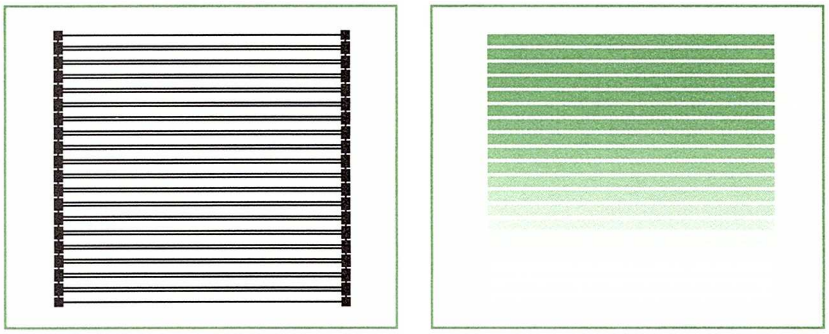
   The blend you specified is created between the two objects. The entire set of blended objects (but not the original paths) is selected and grouped. In the painting order, the intermediate objects are between the original blend paths. Preview the blend to see approximately how it will look when printed.



Keeping the same number of steps but specifying different percentages for the first and last blends produces different effects. For example, still specifying 19 intermediate steps, if you specified 30 percent for the first blend and 60 percent for the last blend, the resultant blend would look like this.



Or you could enter -25 and 125 in the First Blend and Last Blend fields, respectively. The first blend would occur 25 percent (of the distance between the two original paths) above the selected top path, and the last blend would occur 25 percent below the selected bottom path. The first and last blends would have the paint attributes of the top original path and the bottom original path, respectively. The resultant blend would look like this.



Repeating transformations

Sometimes you may want to repeat the same transformation several times, especially when you are copying objects. The Transform Again command 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.

To repeat a transformation:

1. Choose Transform Again from the Arrange menu, or press ⌘-D.

   The last transformation you performed is repeated.

   If you change your mind, you can choose Undo Transform Again from the Edit menu. That command is a toggle. Choosing it changes the menu command to Redo Transform Again, and choosing Redo Transform Again changes the command to Undo Transform Again.

Chapter 12: *Measuring and Constraining*

This chapter describes the three mechanisms by which you can precisely measure and align objects while you create your Adobe Illustrator 88 program artwork.

The first such mechanism is the measure tool. The second is a pair of rulers that you can calibrate. The third mechanism is the ability to rotate the *x* and *y* axes to any angle and then constrain drawing, movement, or transformation along the axes or at 45-degree angles relative to them.

The program also allows you to set the distance that a selected object moves when you press a cursor (arrow) key and to specify whether or not objects should snap to the nearest anchor point.

Using the measure tool

The measure tool calculates the distance between any two points in the working area. Such a measurement might be useful before you create, move, or constrain an object. You indicate the points between which you want to measure by clicking.

You can measure the distance between endpoints or anchor points on the same path or on different paths, or between any two locations in a blank area of your artwork.

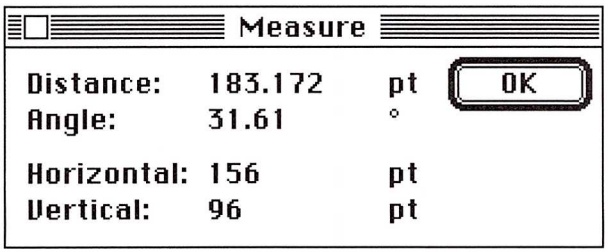
To measure the distance between two points:

1. Click on the measure tool in the toolbox.

   The pointer changes to a dotted cross when you move it to the active window.

2. Click on the two points whose distance you want to measure.

   If you are clicking on anchor points, they do not have to be selected. On the first click, the right arm of the dotted cross is extended. After the second click, the Measure dialog box appears.



The distance between the two points appears after Distance. The angle of the line between the two points appears after Angle. The distance between the two points horizontally (along the *x* axis) and vertically (along the *y* axis) is also provided. All measurements except the angle are calculated in the unit of measure currently set in the Preferences dialog box. That unit is shown to the right of the Distance field.

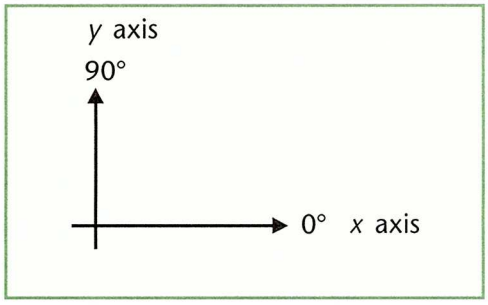
You may sometimes want to constrain a measurement. Constraining a measurement is useful when you want to measure between a point and a place on a curve, for example, between a block of text and a curved object that is near it.

Holding down the Shift key never constrains the first of two measurement clicks. It sometimes constrains the second of the two clicks. If the second click is on an anchor point, the Shift key has no effect on the distance measured. If the second click is on a path which intersects a 45-degree axis, then the measurement is constrained to where the path intersects that axis. If the second click is not on a path, or is on a path that does not intersect any 45-degree axis, then the measurement is constrained to a point along the nearest 45-degree axis.

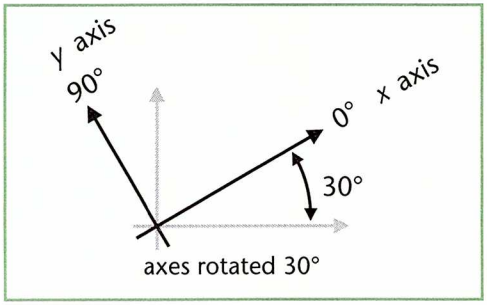
3. Click OK.

Rotating the *x* and *y* axes

When you open a new document, the *x* and *y* axes are parallel to the sides of the document window.



You can leave the axes parallel, or you can rotate them by a specifying an angle of constraint so that they are no longer parallel to the sides of the window.



After you rotate the axes, any objects or operations to which you apply constraint are constrained at 45-degree multiples relative to the angle you specified. In addition, blocks of text and any objects you draw with the rectangle or oval tool are aligned with the current axes.

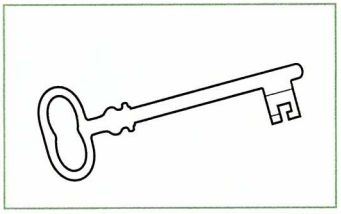
The rotation of the axes also affects scaling, reflecting, and shearing. It does not affect rotating or blending. In addition, the angle reported in the Measure dialog box is relative to the rotation of the axes.

NOTE: You must specify the constrain angle you want before you draw an object. If you select an object and then specify a constrain angle, the new angle will not apply to the selected object, only to newly created ones.

The rotation of the axes does not affect drawing with either the freehand tool or the auto trace tool.

The rotation of the axes is not saved with individual documents but in the Adobe Illustrator 88 Preferences file in your System Folder, and so it affects all documents opened in the future until you change it.

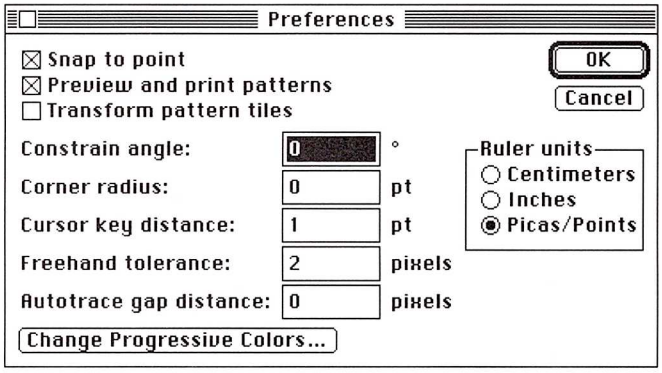
To rotate the axes:



In this example, the key was drawn with no constraint specified, and then rotated. A graph will be drawn after a 15-degree angle of constraint is specified.

1. Choose Preferences from the Edit menu, or press ⌘-K.

   The Preferences dialog box appears.

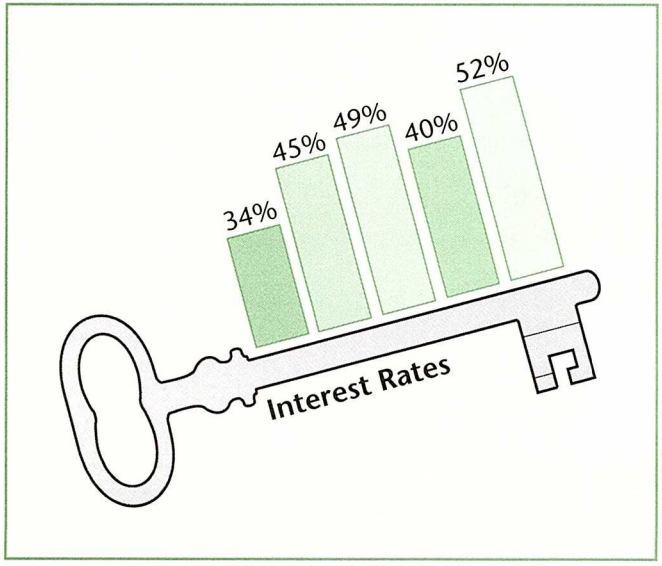


2. Enter the angle at which you want the axes rotated in the Constrain Angle field.

   If you enter a positive number (preceded by no sign), the axes are rotated counterclockwise. If you enter a negative number (preceded by a minus sign), the axes are rotated clockwise.

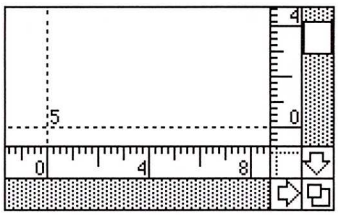
3. Click OK.

   Blocks of text or any objects either created with the rectangle or oval tools or to which you apply constraint will be constrained along the rotated axes or their diagonals.



Using the rulers

The Adobe Illustrator 88 program has two rulers, one across the bottom and one along the right side of the document 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.

The placement of the ruler origin also affects the appearance of patterns. See "Changing the Ruler Origin," later in this chapter, and also "Understanding Pattern Tiling," in Chapter 14, "Using Patterns."

To show the rulers:

1. Choose Show Rulers from the View menu, or press ⌘-R.

   The rulers appear along the right side and the bottom of the window. This command is a toggle. The command on the View menu changes to Hide Rulers.

   When the rulers are visible, you can hide them.

To hide the rulers:

1. Choose Hide Rulers from the View menu, or press ⌘-R.

   The rulers disappear. The command on the View menu changes back to Show Rulers.

Setting the unit of measure

The preset unit of measure shown on the rulers is points and picas. You can change the unit of measure to either inches or centimeters. One inch equals 72 points, 6 picas, or 2.54 centimeters.

The large tick marks indicate large units of measure (such as an inch) and the small tick marks indicate small units of measure (such as 1/8 inch). When you magnify or reduce the document with the zoom tool, the units of measure reflect the change in scale.

The unit of measure that you set for the ruler also applies in the dialog boxes that appear when you measure objects, move objects, and create patterns. It does not apply in the Type and Paint dialog boxes, which always measure size, spacing, leading, line width, and line dash in points.

Changing the unit of measure does not visually affect artwork objects that you created with another unit in effect. The current unit of measure is always used when objects are created and edited, and is valid at all levels of magnification.

The unit of measure setting is not saved with individual documents but in the Adobe Illustrator 88 Preferences file in your System Folder, and so it affects all documents opened in the future until you change it.

To set the unit of measure:

With the rulers either visible or invisible,

1. Choose Preferences from the Edit menu, or press ⌘-K.

   The Preferences dialog box appears.

2. In the Ruler Units options, click to specify the unit of measure you want the ruler to use.

   You have three choices: points/picas, inches, or centimeters.

3. Click OK.

   The ruler changes to the unit of measure you specified.

Changing the ruler origin

You can set the origin (the point where 0 appears on each ruler) for the rulers at any time. The ruler origin is tied to the document, not the window. As you scroll and zoom around the document, the rulers adjust accordingly.

When you open a document, the ruler origin is at the lower left corner of page 5.

The position of the ruler origin affects the tiling of patterns. See "Understanding Pattern Tiling," in Chapter 14, "Using Patterns."

To change the ruler origin:

1. Move the pointer to the lower right corner of the rulers, where they intersect.
2. Drag the pointer into the working area, and position it where you want the new ruler origin.

   As you drag, the pointer changes to a dotted cross, and crosshairs in the window and in the rulers indicate the changing ruler origin.
3. Release the mouse button when the crosshairs in the rulers are where you want the 0 point to appear.

   The 0 point on each ruler appears at the new point of origin. The rulers themselves remain along the edges of the window.

   If you change your mind, you can immediately choose Undo Ruler from the Edit menu to return to the previous ruler origin. You can also choose Redo Ruler if you decide you want the rulers the way you set them.

Setting Cursor Key Distance

This option allows you to specify the distance that you want a selected object to move when you press one of the cursor (arrow) keys on your keyboard. When you press a cursor key, the currently selected object moves in the direction indicated by the arrow for the distance you set using this procedure. See "Moving Objects to a New Location" in Chapter 8, "Moving Objects."

The distance that the object moves is measured in points, inches, or centimeters, depending on the unit of measure currently set in the Preferences dialog box.

The cursor key distance is not saved with individual documents but in the Adobe Illustrator 88 Preferences file in your System Folder, and so it affects all documents opened in the future until you change it.

To set Cursor Key Distance:

1. Choose Preferences from the Edit menu, or press ⌘-K.

   The Preferences dialog box appears.
2. In the Cursor Key Distance field, enter a value for the distance you want selected objects to move.
3. Click OK.

Setting Snap To Point

The Snap To Point option allows you to snap the movement of objects to an anchor point whenever the pointer is within 2 pixels of that anchor point. An x appears in the Snap To Point checkbox in the Preferences dialog box when Snap To Point is turned on.

The Snap To Point setting is not saved with individual documents but in the Adobe Illustrator 88 Preferences file in your System Folder, and so it affects all documents opened in the future until you change it.

To set Snap To Point:

1. Choose Preferences from the Edit menu, or press ⌘-K.

   The Preferences dialog box appears.

2. Click in the Snap To Point checkbox to turn it either on or off.

   The option is preset to on. Snap To Point is a toggle. Clicking it turns it on when it's off and turns it off when it's on.

3. Click OK.

Chapter 13: *Painting*

This chapter describes how to paint your artwork. It gives you detailed information about painting paths and type and about the order in which they are painted. It tells you how to paint with patterns and how to transform patterns used to paint paths. This chapter also tells you how to see the currrent paint attributes and provides a description of each attribute and how to set it. In addition, it describes how to mask objects, how to set flatness, and how to annotate your artwork.

With the Adobe Illustrator 88 program, you can paint the objects in your artwork with black, white, shades of gray, process or custom color, or patterns. If you have a black-and-white monitor, artwork painted with color will preview in shades of gray but will print in color on a color printer. Artwork painted with color and printed on a black-and-white printer will print more or less the way it previews in black-and-white. For complete information about painting and printing in color, see the *Adobe Illustrator 88 Color Guide* which accompanies this manual.

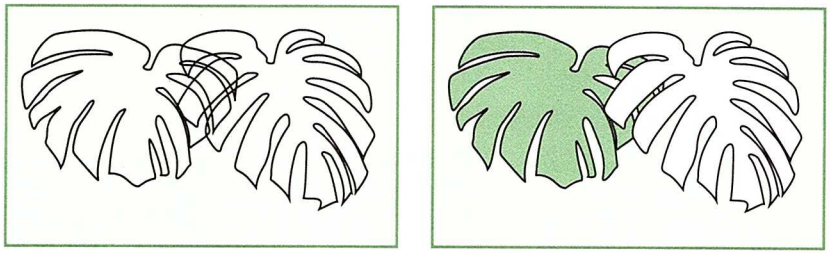
The Adobe Illustrator 88 program treats all the objects it paints, including type characters, as paths. Whenever you draw a path it is automatically painted with the paint attributes that are currently set in the Paint dialog box. If you do not change the paint attributes, the preset attributes are used. See "Looking at the Current Paint Attributes," later in this chapter, for more information.

Understanding painting order

The Adobe Illustrator 88 program paints your artwork by applying successive layers of opaque paint to the objects. This layering model is also used when you preview and print your documents.

The order in which the program applies layers of paint corresponds to the order in which objects are layered in the artwork. If you have not changed the order of objects in your artwork, the painting order corresponds to the order in which objects were created. The most recently created object is always frontmost and is painted last. Since the paint is opaque, if objects overlap, some objects may be partially or completely obscured by objects in front of them.

Grouping objects affects painting order. It does not affect the order of individual objects in the group relative to one another, but it does change their painting order relative to other objects in the document, because the group is placed frontmost in the document. Copying or cutting and pasting also change the painting order of objects. See Chapter 9, "Copying Objects," for more information.



Previewing as you paint

To see a close approximation of how your artwork will be painted when it is printed, choose Preview Illustration from the View menu. You can do this at any time.

It is a good idea to preview your artwork frequently as you work. In this way, you will see how your picture is affected by each new path you draw and paint.

You can also keep two views of your artwork open at the same time, one showing the artwork only and one showing the preview image. However, the program will process slowly if you work this way. See Chapter 2, "Viewing Documents," for more information on previewing and on working with windows.

Painting paths

Although new paths are automatically painted with the current paint attributes, you can select a path and change its paint attributes at any time. The new paint attributes will also be assigned to all new paths you create, until you change the attributes again.

You will often want to set the paint attributes for each path right after you create it, while it is still selected. If you have a preview window open, you can immediately see how the painted path will look. Painting a path immediately after you draw it saves time if you are going to duplicate the path and use the same paint attributes for each copy.

You can also draw several objects and then select and paint each one, or you can set the paint attributes for several paths before you create them. Setting the attributes beforehand can be useful in some instances, for example, if your artwork is a line drawing in which all of the lines will be black and will have the same line weight.

Paths consisting of a single anchor point are not painted.

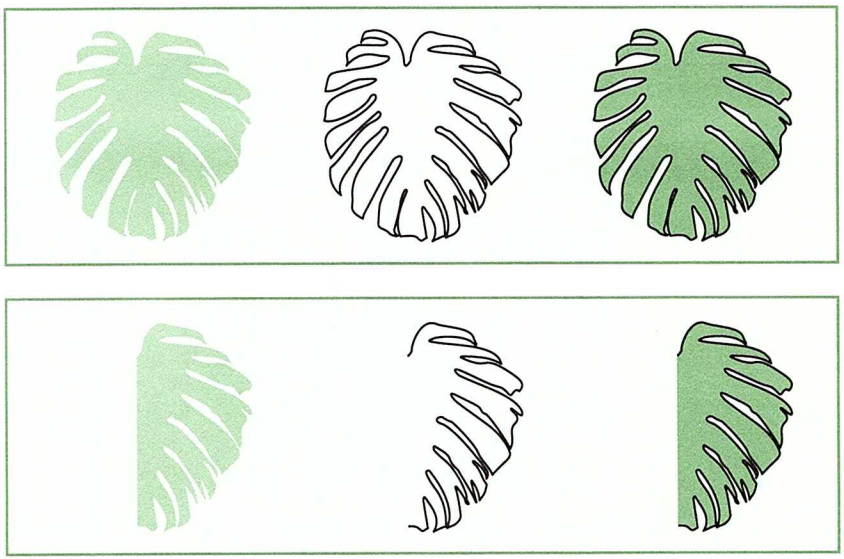
Filling and stroking paths

When paths are painted, they may be filled, stroked, or both filled and stroked, with the paint attributes currently set in the Paint dialog box. The paths in your artwork can be filled and/or stroked with black, white, shades of gray, colors, or patterns.

Filling a path paints the area that is enclosed by the path. *Stroking* a path paints a line that is centered on the path.

If a path is both filled and stroked, it is filled first and then stroked. Paths *must* be stroked if you are going to specify a dashed line; otherwise the Dash Pattern option is not available.

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.

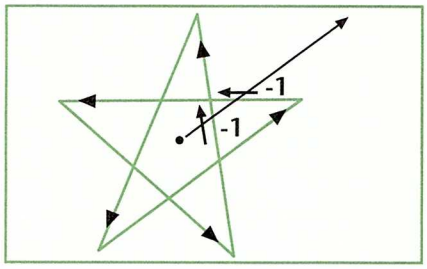


The program fills paths according to the *Winding Number rule*. Knowing this rule may be useful when trying to determine how a self-intersecting path will be filled.

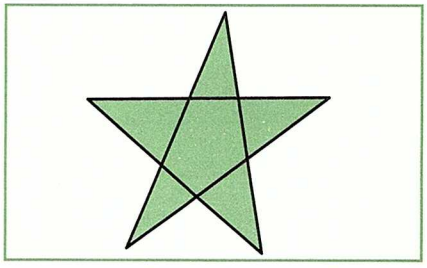
Winding Number rule

Pick a point in your artwork. To determine whether that point is inside a path (and therefore filled), draw a ray from the point across the path in any direction. Do not place the point directly on the path.

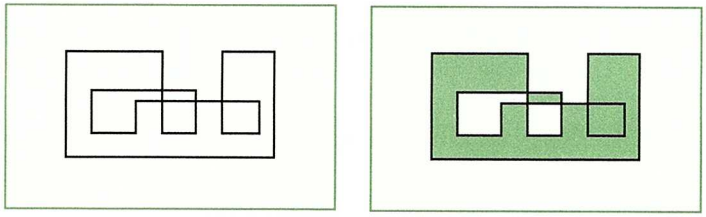
Starting anywhere on the path and following around either clockwise or counterclockwise, count each place the path crosses the ray. Start with 0, add 1 each time the path crosses the ray from the left, and subtract 1 each time the path crosses the ray from the right.



If your total is not 0, then the point is inside the path and the point is painted. If your total is 0, the point is outside the path and the point is not painted.



By applying the Winding Number rule to the artwork shown on the left below, you will see why it is painted as it is in the preview on the right.

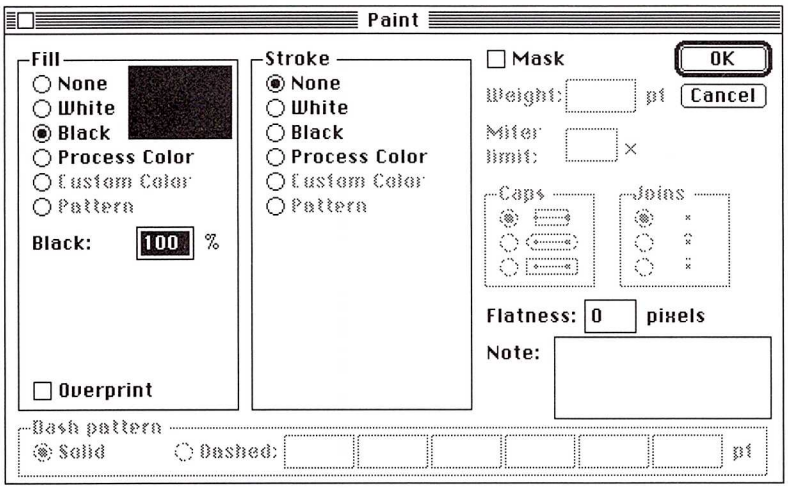


Filling and stroking type

In the Adobe Illustrator 88 program, type objects are considered to be closed paths. Normally, blocks of type are filled and not stroked. If you want to create special effects, such as simulating a neon glow, you can set paint attributes to stroke the outlines of the type object instead of or in addition to filling it.

Looking at the current paint attributes

You can see the current paint attributes at any time by choosing Paint from the Style menu or by pressing ⌘-I. The Paint dialog box appears, showing you the current settings. When you first open a new document, the following settings are displayed:



If an object is selected, the paint attributes for that particular object appear in the dialog box. If several objects are selected, only the paint attributes common to all of them are displayed, and nothing is displayed for the attributes that differ.

Setting paint attributes

You can set paint attributes either for existing selected paths or for paths you are about to create. Newly created paths are automatically painted with the current paint attributes set in the Paint dialog box. Paint attributes also apply to blocks of type.

Only entire paths can be painted. Even if you select only part of a path and set paint attributes for it, the entire path to which the selected part belongs will be painted.

To set paint attributes:

1. Select one or more paths or blocks of type whose paint attributes you want to change, or deselect all paths or type in your artwork if you want the attributes to apply only to new paths or type you create.
2. Choose Paint from the Style menu, or press ⌘-I.

   The Paint dialog box appears.
3. Change the settings for the paint attributes.

   See the sections on setting particular types of attributes later in this chapter.

   If several paths or blocks of type are selected, only the values for their common attributes are displayed. Settings for differing attributes are blank. If you enter new values for the blank settings, all paths or type are painted alike. If you do not enter new values for the blank settings, the paths or type retain their original individual attributes.
4. Click OK.

   The Paint dialog box disappears. Clicking Cancel instead of OK voids any changes you have made.

   Currently selected paths and type, and new paths and type you create, are given the paint attributes that you just set.

Setting fill attributes

You can display the Paint dialog box to change the fill attributes at any time. To see the Paint dialog box, choose Paint from the Style menu, or press ⌘-I.

The fill attributes determine whether or not a path is filled and, if it is filled, whether it is filled with black, white, gray, a process or custom color, or a pattern.

How a path is filled, if at all, is independent of how it is stroked.

Not filling a path

If you do not want a path to be filled, display the Paint dialog box and click on None in the Fill options. Not filling a path makes it transparent in relation to paths in layers in back of them.

Filling a path

To fill a path, display the Paint dialog box and click on the fill setting for the paint attribute you want.

To fill with white, click on White. Painting with white is an effective way of "erasing" an area.

Black is the preset fill option. The value in the Black field is automatically set to 100 (all black paint).

To fill with a shade of gray, click on the Black option and type a number between 1 and 100 in the Black field. (Typing 0 will fill with all white paint; typing 100 will fill with all black paint.)

To get an accurate reading of how shades of gray will look in your final artwork, make up a sample page containing shades of gray in 5 percent increments, from 0 percent to 100 percent black, and print it on the printer you will be using for final output.

Filling with color

You can fill with either process color or custom color. If you have a black-and-white monitor, the artwork will preview in shades of gray but will print in color on a color printer.

For detailed information about painting and printing with color, see the *Adobe Illustrator 88 Color Guide* which accompanies this manual.

Filling with pattern

See "Painting with Patterns," later in this chapter.

Setting stroke and line attributes

You can display the Paint dialog box to change stroke and line attributes at any time. To see the Paint dialog box, choose Paint from the Style menu, or press ⌘-I.

Stroke attributes determine the shade of gray, the pattern, or the color that is used for stroking paths. Line attributes, which are available only if you stroke a path, 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.

How a path is stroked, if at all, is independent of how it is filled.

Not stroking a path

If you do not want a path to be stroked, display the Paint dialog box and click on None in the Stroke options.

Stroking a path

To stroke a path, display the Paint dialog box and click on the option you want in the Stroke options.

To stroke with white, click on White.

To stroke with black, click on the Black option. The Black field appears. The value in this field is automatically set to 100 (all black paint).

To stroke with a shade of gray, click on the Black option and type a number between 1 and 100 in the Black field. (Typing 0 will stroke with all white paint; typing 100 will stroke with all black paint.)

To get an accurate reading of how shades of gray will look in your final artwork, make up a sample page containing shades of gray in 5 percent increments, from 0 percent to 100 percent black, and print it on the printer you will be using for final output.

Stroking with color

You can stroke with either process color or custom color. If you have a black-and-white monitor, the artwork will preview in shades of gray but will print in color on a color printer.

For detailed information about painting and printing with color, see the *Adobe Illustrator 88 Color Guide*, which accompanies this manual.

Stroking with pattern

See "Painting with Patterns," later in this chapter.

Setting the line weight

The *line weight* determines the thickness of the stroke, in points.

To specify a line weight, click in the Weight field. Type in the line weight you want, in points.

To get an accurate reading of how line weights will look in your final artwork, make up a sample page containing a set of line weights and print it on the printer you will be using for final output. Hairlines thinner than 0.25 point may not reproduce correctly when used in camera-ready artwork.

CAUTION: Be careful when stroking paths to simulate shading or to create regular patterns. The results are device dependent when you choose line weights that approach or become smaller than the size of the device pixel.

For example, the thinnest line you can print on a LaserWriter is thicker, and darker, than the thinnest line possible in Linotronic output. As a result, artwork that uses closely spaced lines to simulate shading produces a darker image when printed on the LaserWriter than it does on a Linotype. Use blending to simulate shading. See "Using the Blend Tool" in Chapter 11, "Transforming Objects."

Setting the line cap style

The *line cap style* affects the appearance of the endpoints of open paths and the drawn ends of dashed lines.

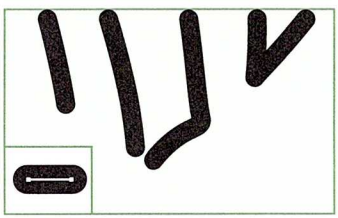
Click on the line cap style you want in the Caps options to specify it.

You have three line cap styles to choose from, as described below.

- Butt cap

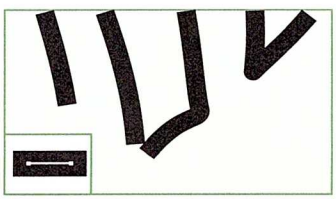
The line has squared-off ends that are perpendicular to the path. The cap does not extend beyond the end of the path.

- Round cap



The line ends in a semicircular cap. The diameter of the cap is equal to the width of the line.

- Projecting cap



The line has square ends that extend half of the line width beyond the end of the line.

CAUTION: If you specify a round or projecting cap with a dashed line style, the line caps will spill over into the spaces between the dashes.

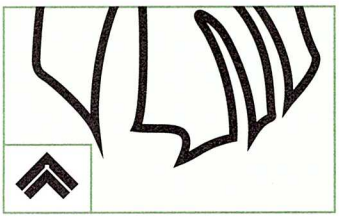
Setting the line join style

The *line join style* determines the appearance of the corners of stroked paths. It has no effect at the points where stroked paths intersect.

Click on the line join style you want in the Joins options to specify it.

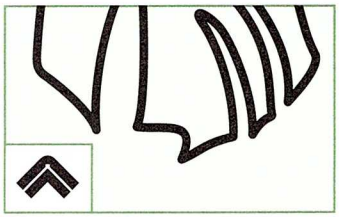
You have three line join styles to choose from, as described below.

- Miter join



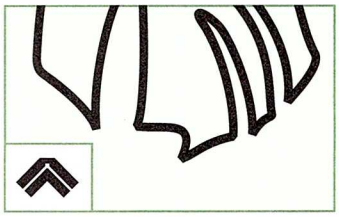
The edges of two converging strokes are extended until they meet, as in a picture frame. When this option is selected, the Miter Limit option becomes available. See the next section, "Setting the Miter Limit."

- Round join



Corners are connected with a circular arc whose diameter is equal to the weight of the line.

- Bevel join



The straight lines that meet at the corner point are finished with butt caps, and the resulting notch is filled with a triangle, giving the corner a squared-off look.

CAUTION: Avoid using round joins with butt caps. If an endpoint of an open path is less than half the line weight from the nearest corner, the circle that is used to make the join may overlap the butt cap.

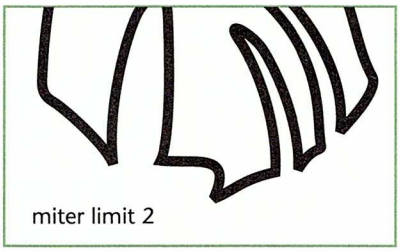
Setting the miter limit

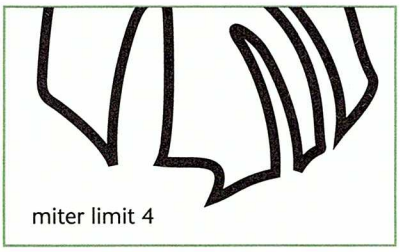
You can set the *miter limit* only if you have specified a miter join; otherwise, the Miter Limit option is dimmed.

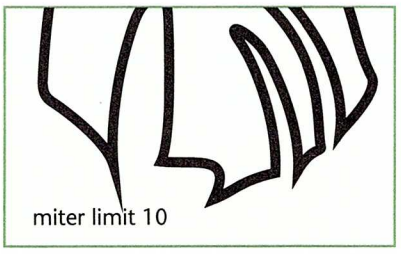
When a mitered join is created by two lines that meet at a sharp angle, a long spike is formed that extends well beyond the intersection of the lines. By specifying a miter limit, you control when the program switches from a mitered (pointed) join to a beveled (squared-off) join.

The miter limit is the maximum ratio of the spike length to the line weight at the join. It must be specified as a number greater than or equal to 1. The lower the miter limit value, the sooner bevel joins replace spiked ends.

You can enter a value between 1 and 10. In the Adobe Illustrator 88 program, the miter limit is preset to 4, which means that when the spike length reaches 4 times the line weight, the program switches from a miter join to a bevel join. A miter limit of 1 always causes a bevel join to be used.







Setting the dash pattern

When the stroke attribute is White, Black, Process Color, or Custom Color, you can set the *dash pattern* to create either solid or dashed lines. You can paint dashed lines with patterns also, but this is not recommended. If the stroke attribute is set to None, the Dash Pattern option is dimmed.

To create a dash pattern you specify the lengths of dashes and the gaps between them in the Dash Pattern fields. It isn't necessary to fill in all of the fields if you can establish your pattern in fewer than six fields, but you should specify an even number of fields (that is, one gap for each dash). Do not leave any blank fields within your dash pattern.

The preset option is Solid. If a dashed pattern is currently set and you want to specify solid lines, click on Solid in the Dash Pattern option group.

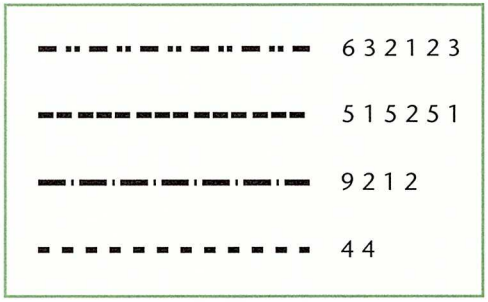
To set dashed lines:

1. Click on Dashed in the Dash Pattern options.

   The dash and gap fields become available.

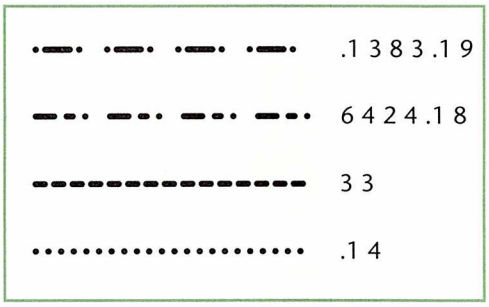
2. Type the length of the first dash, in points, in the first dash field.
3. Press the Tab key.
4. Type the length of the first gap, in points, in the first gap field.
5. Repeat steps 2 through 4 to complete the remaining fields.

   The dashed line pattern always starts again at the beginning of each path.



These dashed lines have butt caps.

These dashed lines have rounded caps. To create a dotted line, set the dash values low and the gap values high. For example, use a .1 point dash and a 4. point gap.



Using paint attributes from an existing object

It is often convenient to apply paint attributes from one object to objects you're about to create.

To use paint attributes from an existing object:

1. Select the object whose paint attributes you want to use.
2. Choose Paint from the Style menu, or press ⌘-I.

   The Paint dialog box appears.
3. Click OK.

   The Paint dialog box disappears.
4. Create the new objects in your artwork.

   The newly created objects will have the paint attributes of the object you selected in step 1.

Painting with patterns

You can fill and/or stroke paths, including type, with any existing *pattern*. When you fill or stroke a path with a pattern, you can also transform the pattern by moving, scaling, rotating, reflecting, or shearing it. See the next section, "Transforming Patterns," for more information.

You can fill or stroke paths only with the patterns available for the currently open documents. For more information, see "Understanding Pattern Availability," in Chapter 14, "Using Patterns."

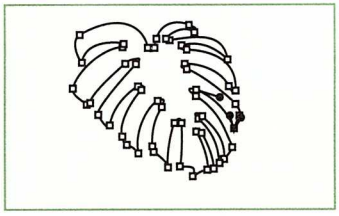
NOTE: You can paint dashed lines with patterns, but this is not recommended.

The display of the pattern in your artwork usually begins at the current ruler origin. If you want the pattern to begin at the top of the artwork, and the ruler origin is at the bottom, you must either move the ruler origin, or move the pattern. See "Changing the Ruler Origin," in Chapter 12, "Measuring and Constraining," and "Understanding Pattern Tiling" in Chapter 14, "Using Patterns."

NOTE: Text that is either filled or stroked with a pattern cannot be previewed.

To fill or stroke with a pattern:

1. Select the path you want to fill or stroke.



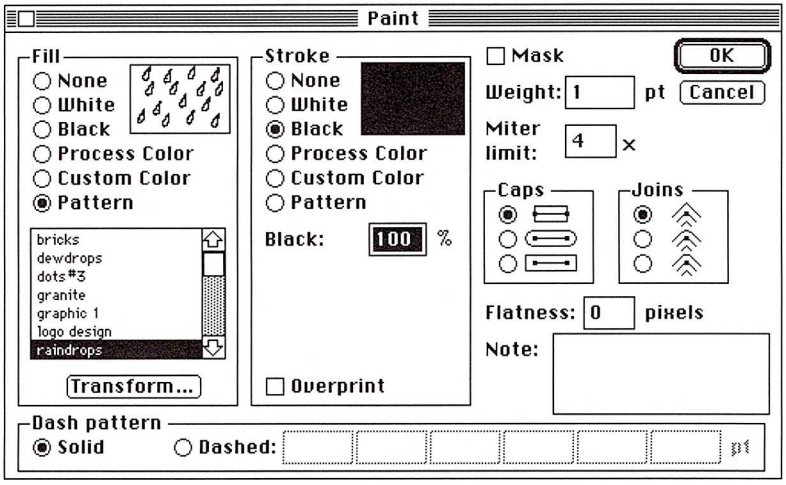
2. Choose Paint from the Style menu, or press ⌘-I.

   The Paint dialog box appears.

3. Click on Pattern under either Fill or Stroke.

   A list of all available patterns appears.

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



If you want to transform the pattern, go on to step 4 in the next section, "Transforming Patterns." If not, go on to step 5 below.

5. Click OK.

The path is filled or stroked with the pattern you selected.

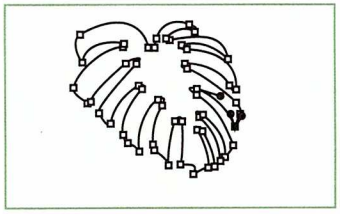
Transforming patterns

You can transform patterns that fill or stroke paths by moving, scaling, rotating, reflecting, or shearing them. Transforming the pattern that fills or strokes a particular selected path does not change the definition of the original pattern as it appears on the pattern list and does not change the way the pattern appears in other paths in the same document or in different documents.

In the following procedure, only the pattern is transformed, not the path that is filled or stroked with it. To transform the path, or the path and pattern together, see the procedures for using the transformation tools with dialog boxes in Chapter 11, "Transforming Objects."

To transform a pattern:

1. Select the path that is filled or stroked with the pattern you want to transform.



2. Choose Paint from the Style menu, or press ⌘-I.

   The Paint dialog box appears.

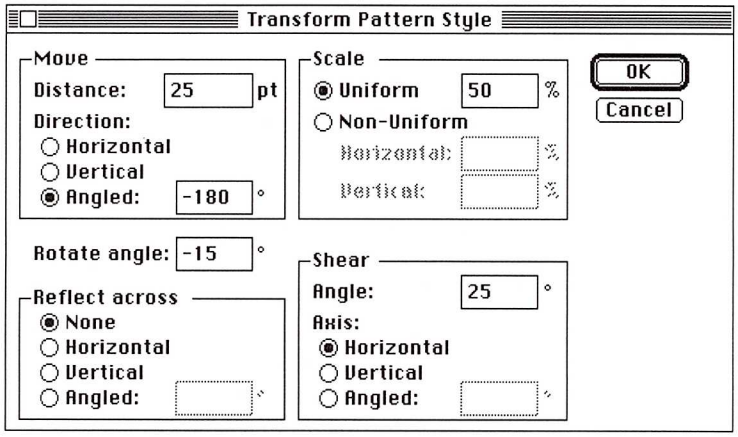
3. Click on Pattern under either Fill or Stroke.

   A list of all available patterns appears. The name of the pattern filling or stroking the currently selected path is selected.

4. Click Transform.

   The Transform Pattern Style dialog box appears. It contains dialog boxes for all the transformation tools (except the blend tool).

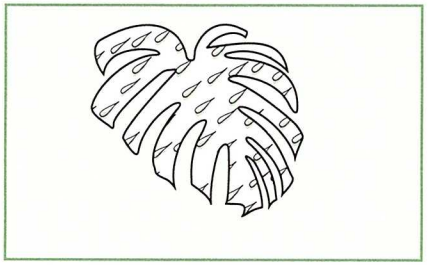
5. Fill in one or more dialog boxes with the values that will produce the transformation you want.



   If you need help, see Chapter 11, "Transforming Objects," for a description of how to fill in the dialog box for each transformation tool.

6. Click OK.

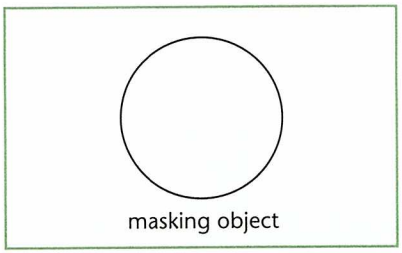
   The fill or stroke pattern is transformed according to the values you specified. The transformations occur in this order: move, scale, rotate, reflect, and shear. The program uses this order regardless of the order in which you entered the transformation values.

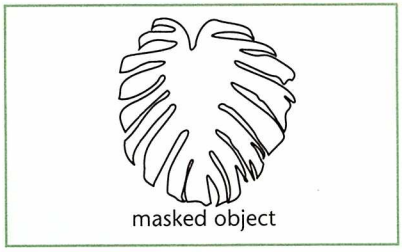


Masking Objects

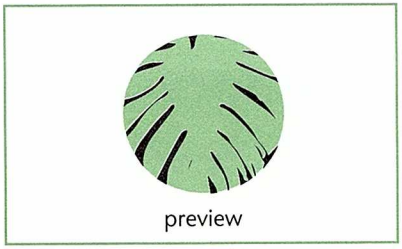
You can create an object and indicate in the Paint dialog box that you want to use it as a *masking object*. The boundary of the masking object defines the boundary for all objects that overlap it and that are in front of it in the painting order. Only those objects or portions of objects that fall *within* the boundary of the masking object are previewed or printed. Objects placed in back of the masking object are not masked.

Masking is similar to using a stencil, as you do, for example, when you screen-print or airbrush. You lay down a stencil or some other opaque mask and then apply paint or dye to the exposed area, that is, the area within the boundaries of the stencil. When you use a stencil, whatever is in back of the stencil is affected by it. However, in the Adobe Illustrator 88 program, whatever is in front of the masking object (the stencil) is affected.





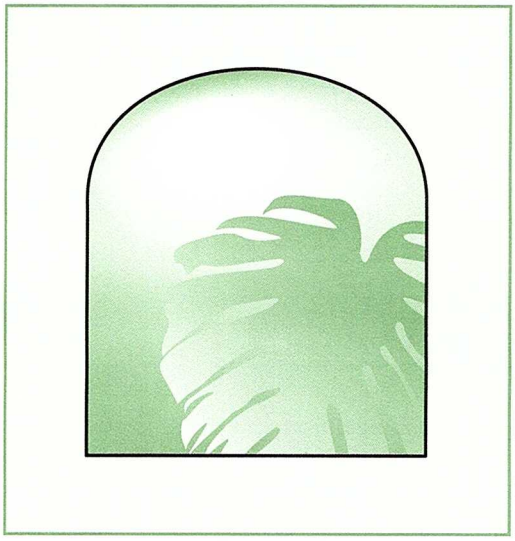
Grouping the masking object and the masked objects completes the masking procedure, and turns masking off for subsequently created objects until you turn it on again. You can mask as many times as you want in any document, but each prior masking object and the objects it masks must be grouped before the mask option can be turned on again. Previewing the grouped mask shows you how it will look when it is printed.



NOTE: You cannot preview text used as a mask.

A masking object should consist of a single object, and only one masking object should be used for any set of masked objects. You can mask a blended object, but you cannot use a blend as a masking object. Once you create the masking object, you can draw objects in front of it, move already existing objects in front of it, or do both. Or, if you want to mask existing artwork, you can move the masking object behind the objects you want to mask.

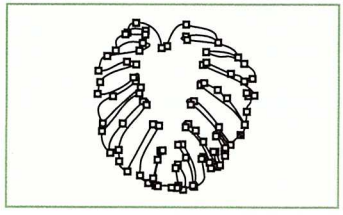
You can mask an already masked group, but only with a single masking object. In other words, you can place one masking object in back of an already masked group so that the masked group will be masked again.



IMPORTANT: Rectangles and ovals must be ungrouped before they can be used as masking objects, and the anchor point in the center must be deleted.

To mask objects:

1. Draw or select the shape you want to use as a masking object.

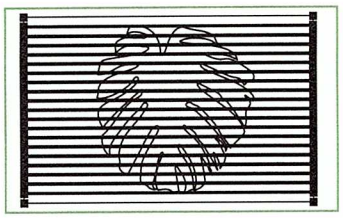


Be sure it is selected and ungrouped.

2. Choose Paint from the Style menu, or press ⌘-I.
3. Click in the Mask checkbox to specify that the currently selected object is to be used as a mask.

   An x appears in the checkbox. The preset option is off (blank).
4. Set the paint attributes for the masking object, and click OK.
5. Choose Preview Illustration from the View menu, or press ⌘-Y.

   Check to see if the masking object looks the way you want. Then choose Artwork Only from the View menu. If necessary, display the Paint dialog box and change its paint attributes.
6. Draw or move one or more objects in front of the masking object.



In this example, a leaf is masking a blend of rectangles. Alternatively, you could use the Send To Back command to place the leaf in back of the objects to be masked. In either case, be sure to preview your artwork.

7. Paint the objects to be masked, if they are not already painted.
8. Select the masking object and all the objects it masks.
9. Choose Group from the Arrange menu, or press ⌘-G.

   This groups the masking object and all the objects it masks, completing the masking procedure.

   Previewing the masked group shows you how it will look when it is printed.

Setting flatness

The *flatness* setting determines how curved segments look when you preview and print them. The value in the Flatness field of the Paint dialog box applies to both stroked and filled paths but does not apply to blocks of type.

Usually, you do not need to change the flatness value. Change the flatness only to avoid or correct a PostScript language *limitcheck* error, as explained below.

The Adobe Illustrator 88 program creates curved segments by linking a series of straight line segments. The flatness setting controls how closely the straight line segments approximate the curve. The smaller the flatness value, the greater the number of straight lines used and the more accurate the curve.

Using more straight lines also uses more program memory, however, which causes the program to operate more slowly. If you draw a very long curved path, you may receive a limitcheck error message, telling you that the program cannot handle that long a path. In some cases, no message will appear, but your artwork will not print. To avoid or correct the limitcheck, you can either draw shorter paths (or split existing long ones), or you can change the flatness setting.

You see the effect of the flatness setting only when you preview or print; the artwork image on the screen is not affected.

Since printers vary in their resolution, flatness settings are device-dependent. A flatness setting that will be effective on one printer, for example, a laser printer, may not be adequate for another printer, for example, a Linotype printer.

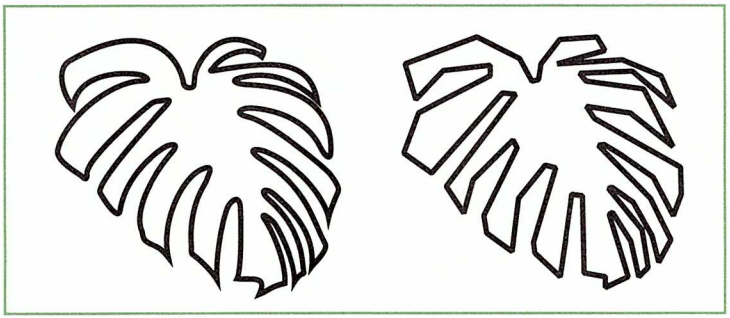
To set the flatness:

1. Select the object whose flatness you want to change.
2. Choose Paint from the Style menu, or press ⌘-I.

   The Paint dialog box appears.

3. Type a value in the Flatness field.

   The preset value is 0. You can set the flatness to be between 0 and 100. The screen or printer you are using measures flatness in terms of its own display units (pixels.) When flatness is set to 0, the screen preview image uses a flatness setting of 1, and the printer uses its own preset value.



In the previous illustration, the flatness setting for the leaf on the left was increased, resulting in the leaf on the right.

Annotating objects

The Note field in the Paint dialog box lets you enter an *annotation* for an artwork object. Annotated objects are useful in applications that read the PostScript language output created by the Adobe Illustrator 88 program when either the application or a programmer wants to locate particular objects in a drawing.

To annotate an object:

1. Select the object you want to annotate.
2. Choose Paint from the Style menu, or press ⌘-I.

   The Paint dialog box appears.
3. Type your annotation in the Note field.

   You can enter up to 254 characters.
4. Click OK.

   The annotation is associated with the object.

   When you save the artwork, the annotation is written as a %%Note comment in the PostScript language program that corresponds to the artwork.

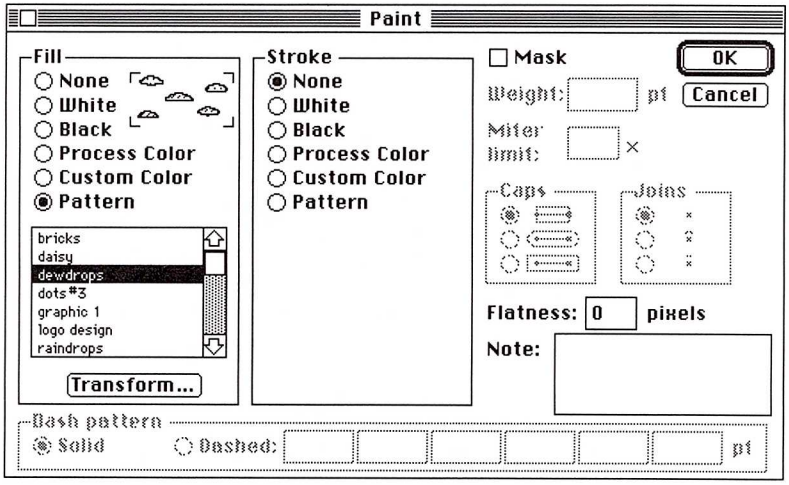
Using keyboard search

Whenever you open the Custom Color, Paint, Type, or Pattern dialog boxes, the names of colors, fonts, or patterns are listed alphabetically to make it easy for you to find the one you want. To make it even easier, you can use the built-in keyboard search capability to automatically search the lists for a name. Before you can start the search, you must first click in the scroll bar or on any name in the list. There must be no blinking insertion point in any editable field of the Paint dialog box.

To search, type one or more consecutive letters or numbers that are unique to the name you are searching for. The program will search the list from top to bottom. The first instance of a name containing the letters you typed will be selected.

Keyboard search is case-sensitive. You must type upper- and lower-case letters just as they appear in the on-screen name. Before you type, you must click once on any name in the list or in the list's scroll bar. If you pause for more than one second, the search will start again at the top of the list, looking for the last letter you typed.

Suppose that your list consisted of the six pattern names shown below. To search for dewdrops, type *dew*. If you typed only *d*, the first name containing the letter d would have been selected. In that case, you could immediately type *ew* and dewdrops would then be selected, since it is the only name containing all three letters.



Chapter 14: *Using Patterns*

This chapter describes how to create, paste, redefine, rename, delete, and preview patterns. It also discusses pattern tiling and pattern availability.

You can create your own unique patterns using any of the Adobe Illustrator 88 program tools. You can either create a pattern from scratch or use existing artwork as a pattern. The pattern can be simple or complex and can be painted with any of the paint attributes in the Paint dialog box.

Once the pattern is created, you can use it in two ways. You can

- Fill or stroke paths or text in one or more open artwork documents with the pattern
- Paste a copy of the pattern's definition into any open document

If you paint a path with a pattern, you can transform just the path, just the pattern, or both the pattern and the path. For information about painting with patterns and transforming patterns, see Chapter 13, "Painting."

If you paste a copy of the pattern into an open document, the program considers it a set of objects, not a pattern. You can treat the copy of the pattern just as you would any other object you copied into your document.

The more complex the patterns you use are, and the more complex the shapes filled by the patterns, the longer they take to print.

Creating patterns

You can create patterns from scratch with any of the tools in the Adobe Illustrator 88 program. In addition, existing artwork can be used in a pattern.

When you create a pattern, you automatically give it a definition, that is, you *define* exactly what its components are. You define a pattern by drawing or placing artwork inside a rectangle. A rectangle containing a pattern is known as a *pattern tile*. The rectangle is actually a masking object that masks the contents of the pattern.

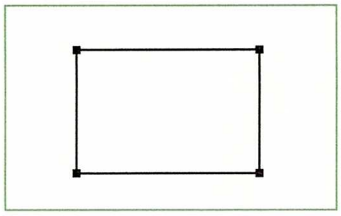
The placement of the rectangle around the pattern affects the tiling of the pattern. Be sure to read "Understanding Pattern Tiling," later in this chapter, for more information.

To create a pattern:

1. Open an Adobe Illustrator 88 document.

   If you want to draw your pattern from scratch, you might want to open a new document. If you plan to use existing as a pattern, open the document that contains that artwork.

2. Draw a rectangle.



   If you are using existing artwork, draw the rectangle around the part of it that you want to use as the pattern. Consider how the pattern will be tiled. If you are drawing from scratch, draw any size rectangle you want. You can use either the rectangle tool or the pen tool to draw the rectangle.

   If you use the rectangle tool, the corner radius must be 0. If you use the pen tool, the angle of constraint set in the Preferences dialog box must be 0.

   The rectangle can be as large as you want. You can draw a large rectangle to work in and then scale it down before you create the pattern. This is useful if you are creating a detailed pattern.

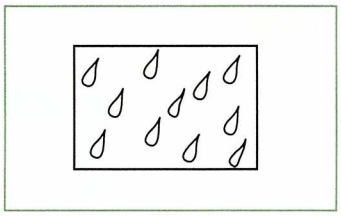
   IMPORTANT: The rectangle must be the backmost object of the pattern. Draw it first and draw or place other objects in front of it, or use the Send To Back command to place the rectangle in the back.

3. Paint the rectangle (if it is not already painted).

   Whatever fill attribute, if any, you use to paint the rectangle becomes the background of the pattern. You can specify no fill, or you can fill it with black, white, a shade of gray, or a process or custom color.

   If you want the boundary of the pattern tiles to remain invisible, do not stroke the rectangle. If you stroke it, the boundaries of the tiles will show up as part of the pattern.

4. Draw a pattern inside the rectangle (if you did not draw a rectangle around existing artwork).



You can also draw a pattern outside the rectangle and move the rectangle around it. Just be sure that the rectangle remains the backmost object.

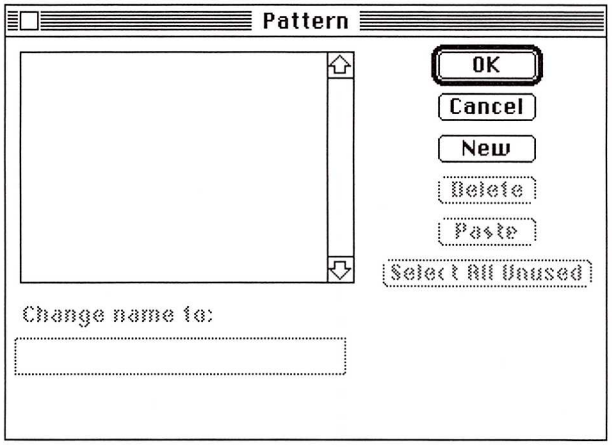
IMPORTANT: The pattern may not contain placed images, masked groups, or objects painted with patterns.

5. Select the rectangle and its contents.

   Use the selection technique that best suits your situation: Drag the marquee around the entire rectangle, choose Select All from the Edit menu, or click and use the Shift key to select the rectangle and all the objects in it.

6. Choose Pattern from the Style menu.

   The Pattern dialog box appears.

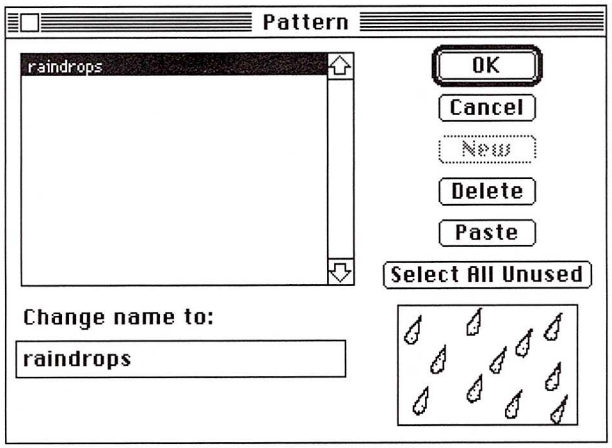


7. Click New.

   The name New Pattern followed by a number appears both in the pattern list and in the Change Name To field. It is selected in both places. A previewed image of the patternis scaled to fit into a box at the bottom right of the dialog box.

8. Enter a name for the pattern you created.

   The name can be up to 31 characters in length. The name you enter automatically appears in the Change Name To field as well as in the pattern list.



   If a pattern with the same name already exists, a message will ask you to choose a different name.

   The pattern is now created and named. It can be used to paint paths or type in an open document or treated as an object when pasted into an open document.

9. Click OK to close the dialog box and return to your artwork.

Pasting patterns

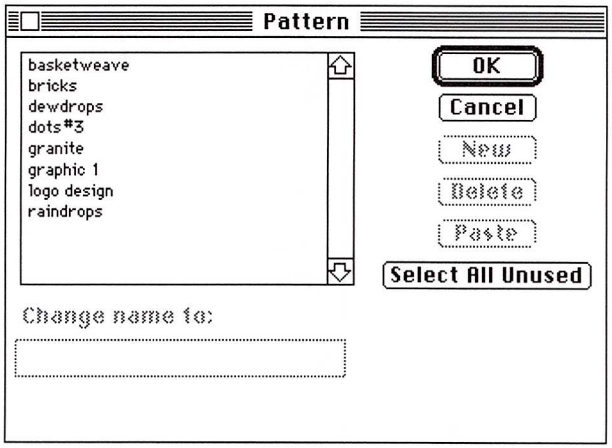
After you have created a pattern, you can paste a copy of it into any open artwork document. The program then considers the copy of the pattern to be an object, not a pattern. You can work with the copy of the pattern just as you would any other object in your document.

Pasting patterns is useful when you want to change the appearance of the copy or create a new pattern similar to the original.

To paste a pattern:

1. Open the document into which you want to paste a copy of the pattern.
2. Choose Pattern from the Style menu.

The Pattern dialog box appears, with a list of all the patterns contained in that document.



NOTE: If more than one document is open, the patterns contained in all open documents are listed, and are available for pasting. For more information, see "Understanding Pattern Availability," later in this chapter.

3. Click on the name of the pattern you want to use.
4. Click Paste.
5. Click OK to close the dialog box and return to your artwork.

   A copy of the pattern is pasted in the center of the active window of the open document.

   You can adjust, transform, or paint the copy of the pattern.

   If you change the copy of the pattern, you are not changing the pattern itself, but you are changing the object you pasted in.

   If you want to define the new object as a new pattern, you must select all of it and follow the pattern creation procedure described in the previous section, "Creating Patterns."

   Changing the *copy* of the pattern does not change the definition of the original pattern. To redefine the original pattern, see the next section, "Redefining Patterns."

Redefining patterns

After you have created a pattern, you can *redefine* it, that is, you can change the rectangle or its contents while keeping the original pattern name. Any existing objects that are painted with that pattern are automatically painted with the new definition rather than the old definition.

IMPORTANT: When you redefine a pattern, it is redefined in all open documents in which it is contained. 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.

To redefine a pattern:

1. Open the document containing the pattern you want to redefine.

   If you want the pattern's new definition to be similar to the old definition, follow steps 2 through 5 in the previous section,"Pasting in Patterns." If the new definition will be radically different, you may prefer to start from scratch, as described in "Creating Patterns," earlier in this chapter.

2. Select the rectangle and its contents.
3. Choose Pattern from the Style menu.
4. Select the name of the pattern to be redefined.
5. Click OK.

   Clicking OK saves the new pattern definition with the original pattern name. If you had clicked New instead of OK, you would have created a new pattern with the name New Pattern, which you could change.

   If you started by pasting the original definition, and you do not want the copy of the pattern to appear in your artwork anymore, delete it by choosing Cut or Clear from the Edit menu.

Renaming patterns

You can rename any pattern you have created. You may want to rename a pattern to avoid conflicts between patterns used in the same document.

For example, you might have previously created a pattern of small dots which you simply named "Dots." If you now want to call another pattern you have just created "Dots," you could rename the first pattern "Small Dots" and thus avoid any confusion between the two names.

Renaming a pattern does not change its definition. Any existing objects which were painted with the pattern are still painted with it, under the new name.

To rename a pattern:

1. Open the document containing the pattern you want to rename.
2. Choose Pattern from the Style menu.

   The Pattern dialog box appears, with a list of all the patterns contained in that document.
3. Click on the name of the pattern you want to rename.
4. Enter the new name for the pattern in the Change Name To field.

   The new name must be unique. It can be up to 31 characters in length. The name you enter automatically appears in the Change Name To field as well as in the pattern list.

   The pattern now has a new name but retains its original definition.
5. Click OK to close the dialog box and return to your artwork.

Deleting patterns

You can delete any patterns that you have never used or that you will no longer be using. Deleting a pattern removes the pattern from all open documents, making the pattern unavailable. If the same pattern appears in other closed documents, it will still be contained those documents.

You can also use a shortcut to delete all (or most) of the patterns not being used in currently open documents.

Use the following procedure to delete one or more patterns.

To delete a pattern:

1. Open one or more Adobe Illustrator 88 artwork documents.
2. Choose Pattern from the Style menu.

   The Pattern dialog box appears, containing a list of all the patterns contained in the open documents.
3. Click on the name of the pattern you want to delete.

   If you want to delete more than one, hold down the Shift key to select additional pattern names.
4. Click Delete.

   The name of the selected pattern is removed from the pattern list.
5. Click OK to close the dialog box and return to your artwork.

If you change your mind, you can choose Undo Delete from the Edit menu to undo the deletion immediately after closing the dialog box.

Any existing object painted with the deleted pattern will now be painted with 100 percent black instead.

To delete all unused patterns:

1. Open one or more Adobe Illustrator 88 artwork documents.
2. Choose Pattern from the Style menu.

   The Pattern dialog box appears, containing a list of all the patterns you have created.
3. Click Select All Unused.

   The program selects (highlights in the pattern list) the names of all patterns that are contained in the documents but are currently not being used. If you want to keep some of the selected patterns, perhaps because you intend to use them soon, hold down the Shift key to deselect the patterns you want to keep.
4. Click Delete.

   The names of all the selected patterns are removed from the pattern list.
5. Click OK to close the dialog box and return to your artwork.

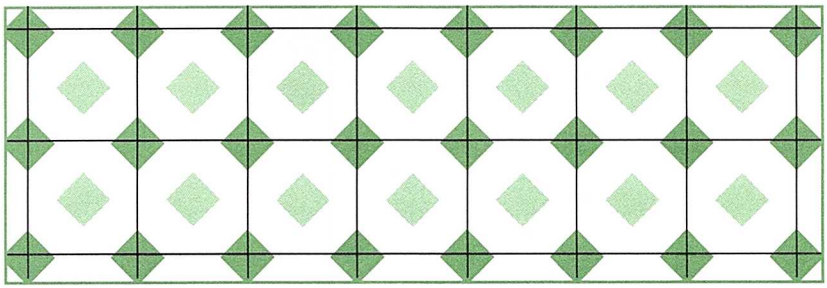
Previewing patterns

The Preview and Print Patterns checkbox in the Preferences dialog box lets you choose whether or not patterns used in your artwork appear in both the previewed and printed image that you see when you choose the Preview Illustration command. Previewed images of the pattern also appear in the Paint and Pattern dialog boxes when they are open and you click on the Pattern option.

The preset option for the Preview and Print Patterns checkbox is on. When the option is off, paths painted with a pattern will preview in the background color (or shade of black and white) of the pattern, and the previewing and printing processes are faster.

Understanding pattern tiling

Patterns are laid out in your artwork on one or more pattern tiles. The tiles themselves are not visible; only the patterns are. You determine the size of each pattern tile when you draw the rectangle that forms the boundary for the pattern. A pattern tile can be as large as your entire artwork. Usually, though, you create smaller tiles that are repeated in columns and rows across your artwork.

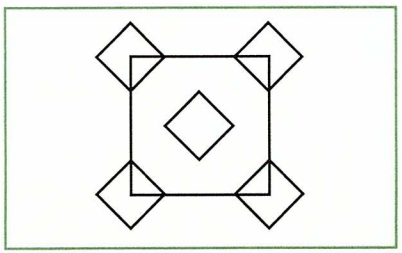


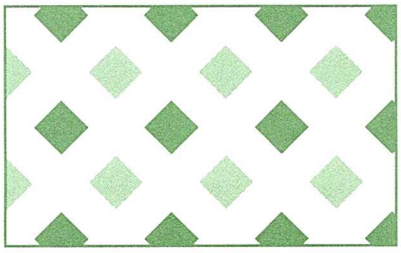
The lower right corner of the first pattern tile in your artwork always starts at the ruler origin of your artwork, unless the pattern has been moved. Be sure to adjust the ruler origin so that the pattern starts where you want it to. See "Changing the Ruler Origin" in Chapter 12, "Measuring and Constraining," for more information.

Laying out pattern tiles

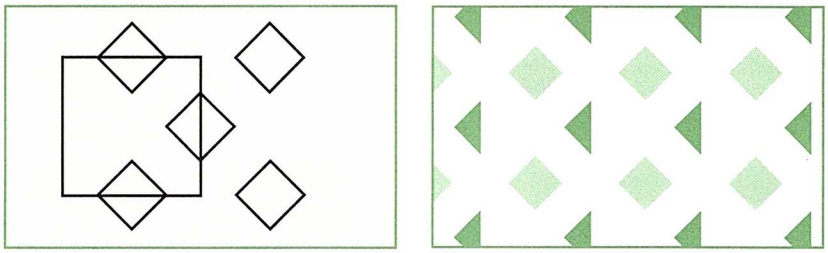
Since pattern tiles lie adjacent to one another in your artwork, you must plan the layout of your pattern when you either draw it in the bounding rectangle or place the rectangle around it. In particular, you must think about how the edges of tiles will interact.

The following example shows two ways of laying out a simple pattern, and the results of both layouts when tiled. When the tiling rectangle is centered on the diamonds, the pattern tiles as previewed on the right.



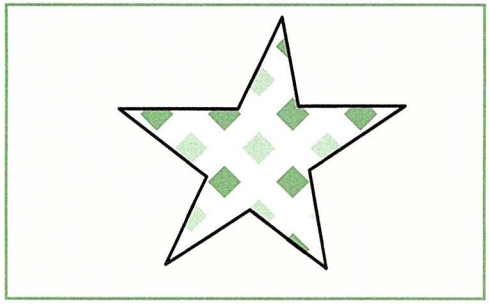


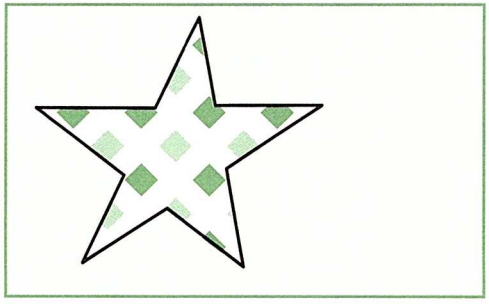
If the tiling rectangle were moved to the left, the pattern would tile in a different way.



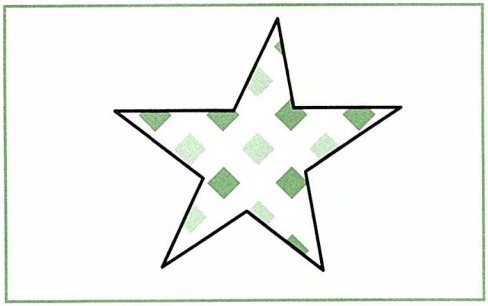
Moving pattern tiles

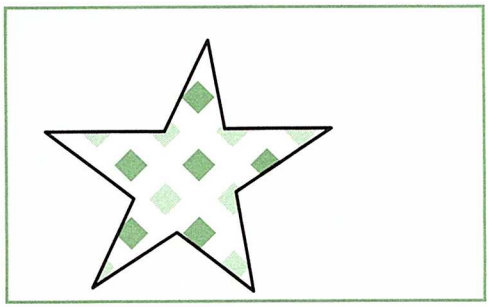
In both the Move dialog box and the Preferences dialog box, you are given the option to move the pattern tiles as well as the object. If you move the pattern tiles when you move the object, the pattern within the object remains the same.





You can also choose to move the object without moving the pattern. In that case, the pattern will appear somewhat differently on the object.





If you want to move only the pattern and not the object, you must use the Transform Pattern Style dialog box. See "Transforming Patterns," in Chapter 13, "Painting," for more information.

Transforming pattern tiles

In all the transformation dialog boxes and in the Preferences dialog box, you are given the option to transform the pattern tiles for a patterned object as well as the object itself. Transforming the pattern transforms all the pattern tiles in that object's paint layer in exactly the same way as the object is transformed.

If you want to transform only the pattern and not the object, you must use the Transform Pattern Style dialog box. See "Transforming Patterns," in Chapter 13, "Painting," for more information.

Understanding pattern availability

In the Adobe Illustrator 88 program, every pattern is contained in both the document in which it was created and in every document in which the pattern is used to paint a path.

In the Paint and Pattern dialog boxes, a list of all the patterns contained in the currently open documents is displayed. If more than one document is open, the list will include the patterns contained in all open documents. Any pattern on the list can be used in any of the open documents. Any pattern used in an object on the Clipboard is also included in the pattern list and is available for use.

In order to use a pattern in a document when that pattern is not already contained in the document, you need to open another document in which the pattern is contained.

For example, suppose that you wanted to use a pattern in document A that is currently contained in document B. You must have both document A and document B open. When you open the Paint dialog box in document A, all the patterns contained in both documents are listed and are available. You can then select the document B pattern you want from the list and use it in document A.

To eliminate some searching for patterns, you can create a document containing all of the patterns that you will probably be using over and over. That way, you can open only that one document and have many of the patterns you need available.

Patterns remain in documents until you delete them, even if all the objects which were once painted with them are no longer in the document. For more information, see "Deleting Patterns," earlier in this chapter.

Chapter 15: *Printing Documents*

This chapter describes how documents are tiled for printing, and how you can adjust the tiling. It also tells you how to set up pages for and print with the Apple LaserWriter or ImageWriter.

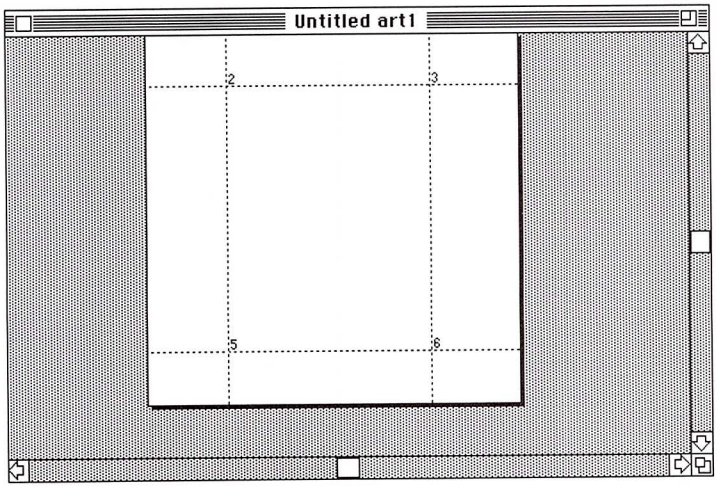
As you design your artwork, you may want to check your progress occasionally by printing the intermediate stages. Of course, you will also print the final version of your artwork. You can print Adobe Illustrator 88 artwork on any printer that supports the Adobe PostScript page-description language, such as the Apple LaserWriter. You can also print your work on an Apple ImageWriter, but the quality will not be high.

In addition, you can print your artwork on any color printer that uses a PostScript interpreter. The Adobe Separator utility provided with the program allows you to make a set of color-separation negatives of your artwork and send them to a professional printshop to be printed. For complete information about printing in color, see the *Adobe Illustrator 88 Color Guide* which accompanies this manual.

Understanding tiling

The Adobe Illustrator 88 working area is a square with 1008 points, or 14 inches, on each side. These dimensions do not match the paper sizes commonly used with printers.

When you print a document, the program subdivides the working area into rectangles that correspond to the paper size you are using in your printer. This subdivision is called *tiling*.



NOTE: If the tiling lines do not appear, it means that a printer has not been selected yet. Choose Chooser from the Apple menu and select a printer.

The tiling of the document is defined on your screen as a grid of dotted lines. Think of the boundaries of the grid as being the boundaries of paper "tiles" that are adjacent to one another, similar to ceramic tiles on a wall.

Sections of the tiled grid are visible as you scroll around in an open document; the entire grid is visible when you choose Fit In Window from the View menu. The preset options specify using U.S. letter size paper and printing at 100 percent. When you use these preset values, the document is tiled into nine pages numbered from left to right and from top to bottom, starting with 1. You can print all of the pages, or specify particular pages, when you choose the Print command. The page numbers for pages 2, 3, 5, and 6 appear for your reference only; the page numbers themselves are never printed.

If you choose Page Setup from the File menu to change the page orientation or to change the reduction or enlargement, the tiling and the page grid are adjusted accordingly and the changes are displayed in all views of the active document.

The page grid is never printed; it simply indicates the boundary between the printable surfaces of each sheet of paper.

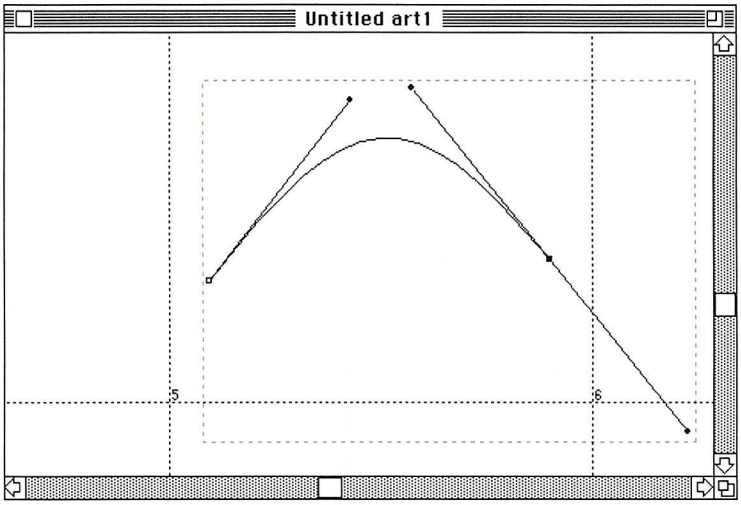
NOTE: On some printers, the printable surface is slightly smaller than the actual paper size. For example, the printable surface for 8.5-inch by 11-inch U.S. letter paper on the Apple LaserWriter is actually 7.68 by 10.16 inches.

Tiling documents into pages

When you plan your drawing and as you work, take into account the way in which your drawing relates to the boundaries of the page grid and to the total dimensions of the working area. Most of the time, your entire drawing will be within the boundaries of page 5. If your drawing spills over onto any other page, for example, page 6, part of your drawing will be printed on a separate sheet of paper that corresponds to page 6, even if you specified printing only from page 5 to page 5.

You can easily avoid this situation by adjusting the page grid as described in the next section. Another alternative is to either specify a reduction or change the page orientation when you set up pages, so that all of the artwork will fit on one page.

NOTE: As illustrated below, the artwork itself has an invisible *bounding box* around it. The program may print blank pages if the document is tiled in such a way that the bounding box of the artwork intersects pages that do not contain any artwork. If any direction points extend into pages that do not contain any artwork, blank pages will be printed, since the bounding box includes the direction points.



Adjusting the page grid

One way you can control how your artwork is tiled into pages is by adjusting the placement of the page grid on the working area, as described in the procedure that follows. You may find it easier to choose Fit In Window from the View menu first, so that you can see the entire document while you adjust the page grid.

To adjust the page grid:

1. Click on the page tool in the toolbox.

   The pointer becomes a dotted cross when you move it to the active window.

2. Drag the dotted cross around on the drawing area.

   As you drag, the program displays a dotted rectangle, which represents the printable surface of one printed page.

3. Release the mouse button when the page grid is where you want it.

   The program redraws the new placement of the page grid on all views of the active document.

If you change your mind, you can immediately choose Undo Page from the Edit menu to undo the new placement of the page grid.

Setting up pages

Before you print, you should specify how you want the pages to be set up. Page setup controls the printing of all the pages in the document.

The changes you make to the page setup affect only the current document, and the page-setup information you specify is saved along with your document.

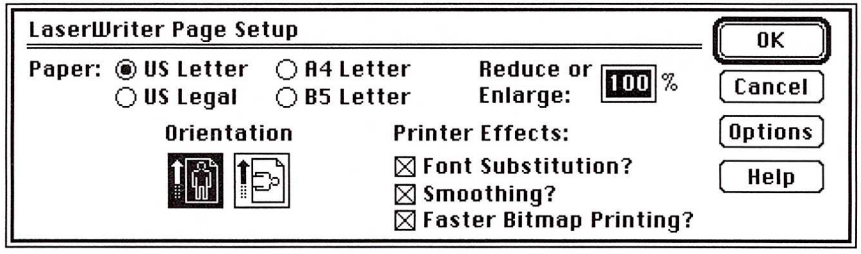
When you open a document, the Adobe Illustrator 88 program attempts to use the page-setup parameters that were saved with the document. The program can do so only if the printer currently chosen with the Chooser is the same printer that was specified when the document was saved. Be sure to choose the same printer if it is not already chosen. If the printers do not match, the program uses the page-setup parameters from the current printer's resource file, rather than those from the open document.

Since page setup affects the tiling of the document, you sometimes may want to specify how pages are set up before you start drawing, so that the page tiling, and consequently the working area, more accurately reflects the dimensions of the printed page. Be sure to select the printer you will be using in the Chooser first.

To set up the page for the Apple LaserWriter:

1. Choose Page Setup from the File menu.

   The LaserWriter Page Setup dialog box appears.



2. Click on the paper size you are using.

   The choices are

- US Letter — 8 1/2" wide by 11" tall (preset choice)
- US Legal — 8 1/2" wide by 14" tall
- A4 Letter (European) — 210mm wide by 297mm tall
- B5 Letter — 176mm wide by 250mm tall

3. Click on the page orientation you want.

   The preset page orientation is portrait, which is a vertical orientation. The other page orientation is landscape, which is a horizontal orientation.

4. Specify any reduction or enlargement, as a percentage of the original size of the artwork.

   The preset option is 100 percent. Specifying 80 percent, for example, means that the final printed output will be reduced so that it is 20 percent smaller than the artwork's actual size.

   For the Apple LaserWriter, you can choose any value between 25 percent and 400 percent.

5. Click OK.

   Clicking Cancel voids any changes you have made.

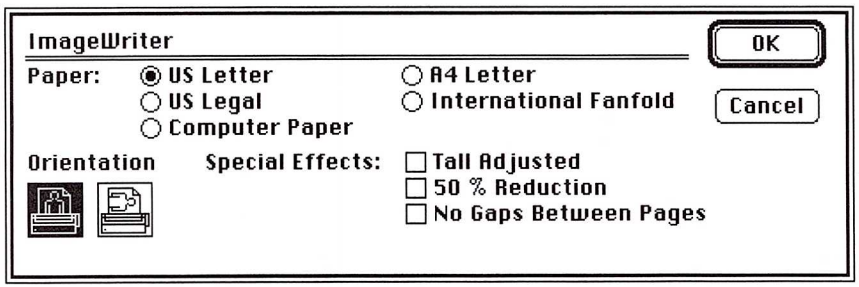
   Clicking Options brings up the Options dialog box. You can print Adobe Illustrator 88 documents using any of these options. However, when you are printing complex drawings, the results may be unpredictable.

   The program ignores the Smoothing printer effect. Font Substitution has no effect on the appearance of printed output.

To set up the page for the Apple ImageWriter:

1. Choose Page Setup from the File menu.

   The ImageWriter Page Setup dialog box appears.



2. Click on the paper size you are using.

   The choices are

- US Letter — 8 1/2" wide by 11" tall (preset choice)
- US Legal — 8 1/2" wide by 14" tall
- Computer Paper — 8 1/2" wide by 11" tall (fanfold)
- A4 Letter (European) — 210mm wide by 297mm tall
- International Fanfold — 210mm wide by 297mm tall

3. Click on the page orientation you want.

   The preset page orientation is portrait, which is a vertical orientation. The other page orientation is landscape, which is a horizontal orientation.

4. Click on Tall Adjusted so that it is turned on.

   This ensures that the proportions of your image are not distorted due to the fact that the ImageWriter prints a different number of pixels per inch vertically than it does horizontally.

5. Specify 50 percent reduction if you want it.

6. Click OK.

   Clicking Cancel voids any changes you have made.

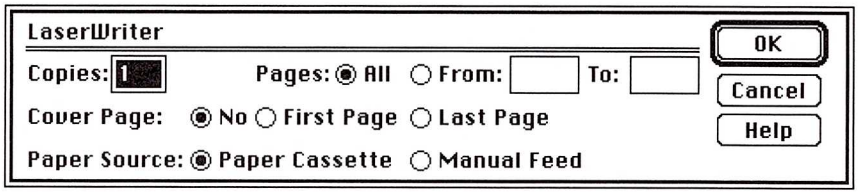
Printing

Before you print any artwork on a LaserWriter or an ImageWriter, be sure to choose the printer you want with the Chooser on the Apple menu. Also be sure to connect the printer to your Macintosh with the Control Panel and to specify the settings you want in the Page Setup dialog box.

To print with a LaserWriter:

1. Choose Print from the File menu, or press ⌘-P.

   The LaserWriter Print dialog box appears.



2. Enter the number of copies you want to print in the Copies field.

   The preset option is 1.

3. Indicate which pages you want printed.

   The preset option is All. When All is chosen, the program prints any pages that intersect with the artwork's bounding box. If you want to print a particular page or range of pages, click on From and enter the beginning and ending page numbers to be printed in the appropriate fields. Usually, you will indicate that you want to print from page 5 to page 5.

4. Indicate whether or not to print a cover page.

   The preset option is No. If you want the first page to be the cover page, click on First Page. If you want the last page to be the cover page, click on Last Page.

5. Click on either Paper Cassette or Manual Feed to indicate the paper source.

   The preset option is Paper Cassette.

6. Click OK to start printing.

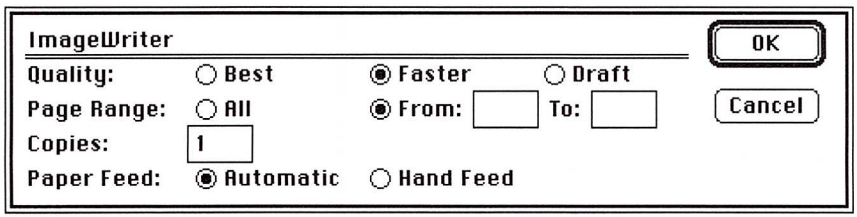
   Click Cancel if you decide not to print and want to resume drawing. While the program establishes a connection to the LaserWriter and initializes it (if necessary), a dialog box with the message "Waiting to print...Press ⌘-period to cancel" appears.

   After printing begins, the message changes to "Printing page n" where n is the number of the page being printed.

To print with an ImageWriter:

1. Choose Print from the File menu, or press ⌘-P.

   The ImageWriter Print dialog box appears.



2. Click on either Best or Faster in the Quality options.
3. Indicate which pages you want printed.

   The preset option is All. When All is chosen, the program prints any pages that intersect with the artwork's bounding box. If you want to print a particular page or range of pages, click on From and enter the beginning and ending page numbers to be printed. Usually, you will indicate that you want to print from page 5 to page 5.
4. Enter the number of copies you want to print in the Copies field.

   The preset option is 1.
5. Click on either Automatic or Hand Feed to indicate the paper source.

   The preset option is Automatic.
6. Click OK to start printing.

   Click Cancel if you decide not to print and want to resume drawing.

   After printing begins, the message changes to "Printing page n" where n is the number of the page being printed.

Chapter 16: *Working with Other Applications*

This chapter tells you how to place artwork from the Adobe Illustrator 88 program into other applications, and how to place scanned images or images from other applications (saved in EPS format) into Adobe Illustrator 88 documents. It also describes how to convert MacDraw documents (saved in PICT format) to Adobe Illustrator 88 documents.

Placing Adobe Illustrator 88 artwork into other applications

You may sometimes want to place Adobe Illustrator 88 artwork into documents created with page composition software or other software.

The application into which you place your artwork must accept the Aldus/Altsys/Adobe Encapsulated PostScript file format (EPS). To find out if it does, consult the manual for the program or contact the software developer. Applications that support this format display an image representative of your Adobe Illustrator 88 artwork on the screen for placement, scaling, and cropping, and they send appropriately transformed PostScript language code to the printer.

To place Adobe Illustrator 88 artwork into another application:

1. Save the Adobe Illustrator 88 document with either an Apple Macintosh or an IBM PC preview, whichever is appropriate.
2. Open the document that is to receive the Adobe Illustrator 88 artwork.
3. Follow the usual procedure in the other application for placing documents.

   See the user's manual for the other application if you need help.

Placing EPS files

You can use the Place EPS command to place elements of files saved in the EPS file format into an Adobe Illustrator 88 document, much as you would place an artwork image into a page layout program.

Scanned images, as well as images created with applications such as Aldus Freehand™, CricketDraw™, ImageStudio™, MacPerspective™, Mac Publisher II™, PageMaker®, Pixel Paint™, Pro3D™, or Super3D™ can be saved in the EPS file format and placed in your artwork.

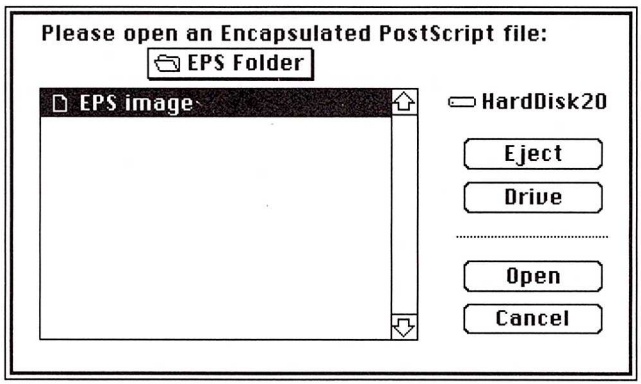
An image of the EPS element you place appears in a box in your Adobe Illustrator 88 artwork. You can move, scale, rotate, reflect, or shear the EPS image in the same way as you would any other Adobe Illustrator 88 object, but you cannot adjust any of its anchor points, segments, or paths, or use the Paint or Type commands. If you place a file containing text, the text cannot be edited. The image box always remains a parallelogram, even if you transform it.

If the image contains color elements, it will print in color on a color printer, but will preview only in black and white, even on a color monitor. You can place as many EPS images as you want in an Adobe Illustrator 88 document, but you can place only one image at a time.

To place EPS files:

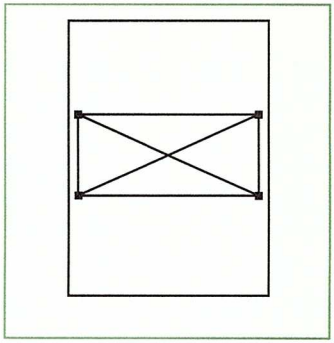
1. Start the Adobe Illustrator 88 program.
2. Open the document into which you want to place the EPS file.
3. Choose Place EPS from the File menu.

   A dialog box appears, containing a list of all EPS files.



4. Click on the name of the EPS file that you want to place.
5. Click Open.

   You are returned to the active window of your artwork document.

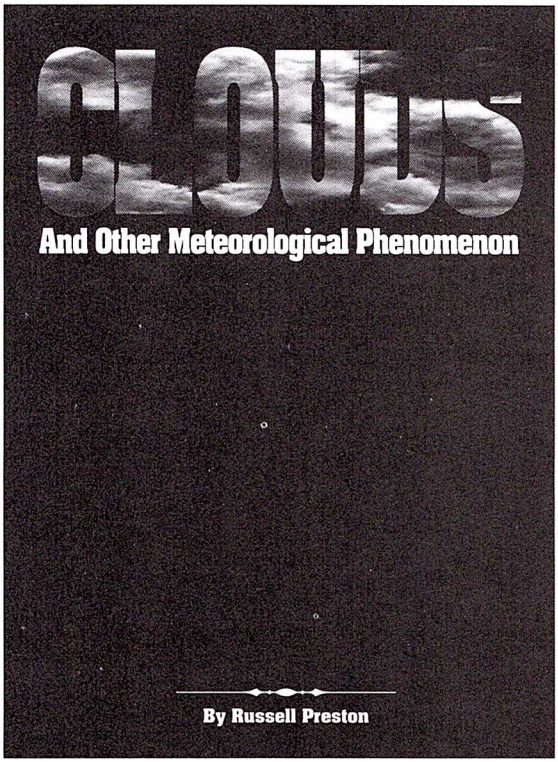


An outlined box appears, with diagonal lines crossing from corner to corner. This box defines the EPS file's dimensions. The box is placed in the center of the active window, in front of all other artwork in your document, and it is selected.

6. Move the box to its final position.

   When you preview your artwork, either the box will become gray or you will see a rough image of the EPS file you placed, depending on the application you used to create the image.

   In the following finished Adobe Illustrator 88 artwork, a placed EPS file containing an image of clouds was masked by the word "clouds." Other text and graphics were then added.



Saving artwork with placed EPS files

Adobe Illustrator 88 artwork containing placed EPS format images cannot be completely re-created without the corresponding EPS files. Usually, you will have both files on the same disk, and the EPS format image will appear in your artwork both when you preview and when you print. If you do open an Adobe Illustrator 88 document without the necessary EPS files, you will see a white area on the screen where the EPS image had been placed. If you print the document, nothing will print in that spot.

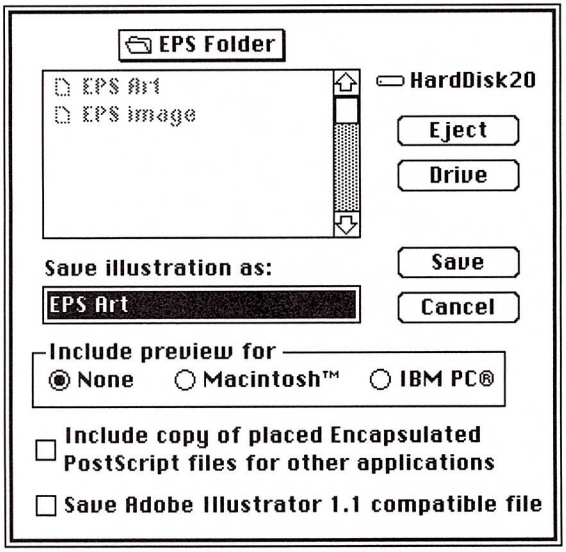
If you are going to use Adobe Illustrator 88 artwork containing placed EPS images with another application, or give your artwork file to someone else, you need to be sure to save the EPS file information with the Adobe Illustrator 88 file, as described in the procedure that follows.

IMPORTANT: Be sure to keep copies of the EPS files that contain the placed images in the same folder as your Adobe Illustrator 88 artwork document so that the program can refer to them. Do not throw them out until you delete the placed image from your artwork.

To save artwork with a placed EPS file:

1. Open the Adobe Illustrator 88 artwork containing placed EPS images.
2. Choose Save As from the File menu.

   The Save As dialog box appears.



3. Click in the Include Copy of Encapsulated PostScript Files for Other Applications checkbox.
4. Click OK.

   The placed image and corresponding EPS file are saved with your Adobe Illustrator 88 artwork.

Converting MacDraw files using DrawOver

You can use the DrawOver application that is included with this program to convert MacDraw (version 1.9 or 1.9.5) files into Adobe Illustrator 88 documents.

The objects converted from MacDraw are rendered in Adobe Illustrator 88 as follows:

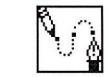
- Straight line paths and curved paths are rendered accurately.
- Rectangles, squares, ovals, and circles are rendered accurately.
- Black, white, and shades of gray are rendered accurately.
- Lines drawn with the MacDraw freehand tool are rendered using vectors, so that there are many anchor points all along the lines.

The converted file becomes a document that is compatible with both the Adobe Illustrator version 1.1 program and the Adobe Illustrator 88 program. If you open it using the Adobe Illustrator 88 program, you can create blends with the blend tool and paint objects with custom color, process color, or patterns.

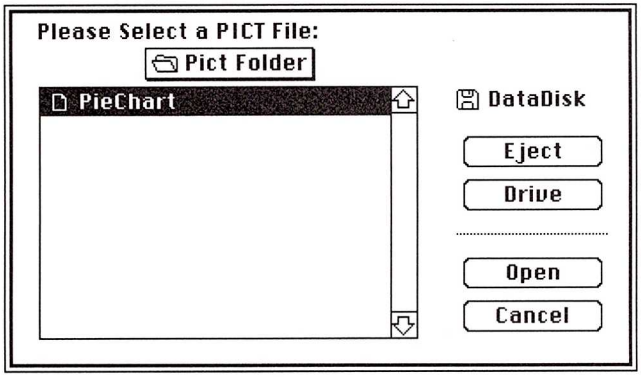
To convert MacDraw files using DrawOver:

1. Save the MacDraw document that you want to convert, specifying PICT format.

   Rename the MacDraw document, adding the extension .PICT.
2. Quit MacDraw.
3. Double-click on the DrawOver application.

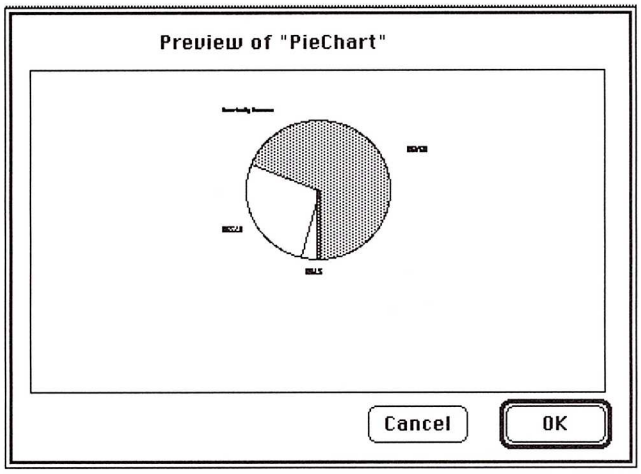


The DrawOver dialog box appears, with a list of MacDraw documents saved in the PICT format.



4. Click on the name of the document you want to convert.
5. Click Open.

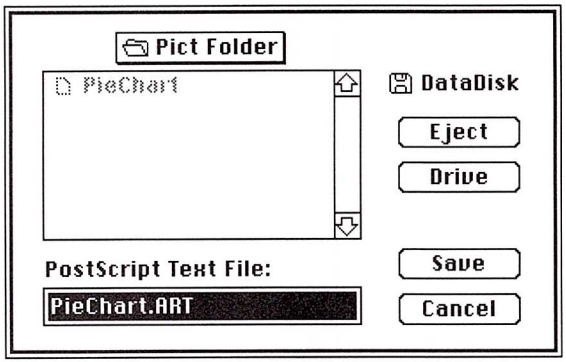
   A box containing a preview image of the MacDraw artwork appears.



6. Click OK if the box displays the artwork you want to convert.

   Otherwise, click Cancel and select another MacDraw PICT file.

After you click OK, the DrawOver dialog box reappears, displaying the name of the MacDraw PICT file with the extension .ART.



7. Click Save.
   A message appears informing you of the progress of the conversion from PICT to the PostScript language and allowing you to cancel the process. When conversion is complete, the DrawOver dialog box appears again.

8. Click Cancel.

The converted file is now an Adobe Illustrator 88 document and appears on the desktop under its new name.

To open a converted MacDraw document:

1. Double-click on the Adobe Illustrator 88 icon to start the program.
2. Choose Open from the File menu, or press ⌘-O.

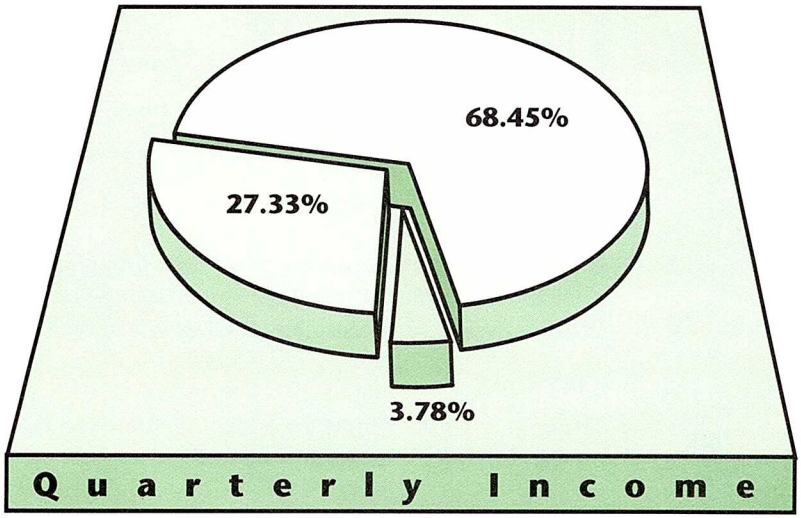
   A list of available Adobe Illustrator 88 documents appears, including converted MacDraw documents.
3. Click on the name of the document you want to open.

   A list of MacDraw documents appears. You are asked if you want to use the corresponding MacDraw document as a template for the converted artwork you are opening.
4. Click on the name of the corresponding MacDraw document to be used as a template.

   Click None if you do not want to use it.
5. Click Open.

The converted document is opened, displaying Adobe Illustrator 88 artwork and the corresponding MacDraw template, if you chose one.

Once you have opened the converted artwork, you can use the Adobe Illustrator 88 program to manipulate it in any way you want.



Section 3: *Appendices*

Appendix A: *Problems and Solutions*

Anchor points refuse to be selected

Problem: I'm clicking on an anchor point, but the program refuses to select it.

Cause: The object is locked, or there is an anchor point on top of the anchor point you want to select.

Solution: If you think the object might be locked, choose Unlock All from the Arrange menu. 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 are through, choose Unlock All again.

Jumping anchor points

Problem: I'm trying to position an anchor point precisely, but it keeps jumping to a nearby anchor point.

Cause: The Snap To Point option is chosen. When this option is set, an anchor point that you are dragging will snap to any anchor point that is within 2 pixels of its position.

Solution: Choose Preferences from the Edit menu, and click the Snap To Point checkbox so that the option is no longer chosen. Then click OK to return to your document. If you prefer to leave Snap To Point set, use the zoom tool to magnify your document so that you have more control.

Mysterious blank pages

Problem: When I print, I get extra blank pages.

Cause: You are drawing too close to the Adobe Illustrator 88 program's page border. A direction point in one of your curves may extend to another page.

Solution: 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. See Chapter 15, "Printing Documents," for information on the page tool.

Corners don't line up properly

Problem: Stroked shapes that appear to be aligned in my artwork do not line up when I preview or print.

Cause: The miter line join style is causing the corner points to extend way beyond the actual anchor points. When this style of line join is specified, 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.

Solution: Select the path that has the jutting corners, and choose Paint from the Style menu. Change the line join style by clicking on either the bevel (flat) join button or the round join button in the Joins options. Another solution is to specify a lower miter limit for mitered corners. The lower this limit, the sooner the program switches from a miter join to a bevel join.

Sharp spikes in stroked letters

Problem: When I print, some of the letters, such as M and W, have long, sharp corner points.

Cause: The miter line join style is causing the corners to extend too far.

Solution: See the solution to the previous problem.

Blank screen in preview mode

Problem: When I preview my artwork, all I see is a blank screen.

Cause: 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. This is especially likely to happen if you have inadvertently assigned the mask attribute to the center point of a rectangle or oval.

Solution: Choose Select All from the Edit menu, and then choose Paint from the Style menu. Click in the Mask checkbox to turn the masking option off for all objects in the document. You may have to click twice before the box becomes blank. Be sure to ungroup any rectangles and ovals you use as masking objects and to delete their center points. For more information, see the discussion of masking in Chapter 14, "Painting."

Rotated/reflected/sheared object disappears

Problem: I rotated/reflected/sheared an object with the dialog box, and now I don't see it anymore.

Cause: You have rotated/reflected/sheared the object off the screen.

Solution: Scroll to display the object in its new location.

Rectangles or ovals appear at an angle

Problem: The rectangles or ovals I draw are all set at an angle.

Cause: The *x* and *y* axes have been rotated. When you draw a rectangle or oval, its sides are placed parallel to the current axes.

Solution: Choose Preferences from the Edit 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 into the correct position.

Symbols don't appear in text

Problem: I typed an Option-Shift key combination to produce a math symbol, but I didn't get the symbol I wanted.

Cause: Some programs reencode fonts with symbols from other fonts, meaning that if a font does not contain the character you want, the program will bring it in from another font, such as the Symbol font. The Adobe Illustrator 88 program does not do this, and thus you are limited to the characters available in the font that is currently selected.

Solution: If you require a specific symbol that is not in the font you are using, you must enter your type in separate blocks. Enter the symbol in its own block, assigning it the font that contains the character you need. Sandwich this symbol block between blocks containing the text that is to appear before and after the symbol, so that the blocks appear to be an unbroken string.

Patterns not available

Problem: I can't stroke or fill with patterns; the option is dimmed.

Cause: The Pattern option is dimmed because no patterns are available.

Solution: Either create one or more patterns for the document or open a document containing the patterns you want to use.

Program won't draw a long path

Problem: When I draw a very long path, I get a message telling me to shorten the path.

Cause: The PostScript interpreter limits the number of anchor points in a single path, based on the amount of memory available. Your path has exceeded that limit.

Solution: To shorten the path, break it into two paths in which the endpoint of one path lies directly on top of the other path's endpoint. Use the scissors tool to do this. This solution will not work for filled paths.

Program won't open an Adobe Illustrator 88 document

Problem: I can't open an Adobe Illustrator 88 document. The program displays a dialog box telling me that the document contains an illegal operator.

Cause: You have started version 1.1 of the program by mistake. This can happen if you have both versions on your hard disk. Any document that uses an operator not supported in the older version of the program cannot be opened by that version.

Solution: Quit the program, and start the Adobe Illustrator 88 program.

Paths streaked with white

Problem: When I preview a filled shape, it has a funny white streak.

Cause: The path is not closed.

Solution: Find the anchor points that are not connected (zoom in to magnify the artwork if necessary), and use the Average and Join commands to close the path.

Appendix B: *Adobe Illustrator 88 Error Messages*

Message: ***A dash pattern length is missing!***

Cause: One of the fields in your dashed line pattern is blank.

Solution: Enter a measurement for each consecutive dash and gap that you want to specify. It is all right to leave blank fields at the end of the pattern.

Message: ***Adobe Illustrator 88 requires a LaserWriter file version 3.1 or later!***

Cause: The System Folder on your disk contains an old version of the LaserWriter driver.

Solution: Install a LaserWriter driver with a version number of 3.1 or later. To see the version number, click once on the LaserWriter icon on the Finder's desktop, and then choose Get Info from the File menu.

Message: ***Adobe Illustrator 88 requires a Macintosh Plus!***

Cause: The Adobe Illustrator 88 program will not run on models of the Macintosh earlier than the Macintosh Plus.

Solution: Start the program on a Macintosh Plus or a later model.

Message: ***Not enough memory to run Adobe Illustrator 88!***

Cause: There is not enough free memory in your system to run the Adobe Illustrator 88 program.

Solution: If you are running under MultiFinder or Switcher, try to free up more memory by quitting from other programs you are currently running. If your system has 1 MB of memory or less, you will not be able to run the Adobe Illustrator 88 program under MultiFinder. Specify Finder as the startup system and restart your Macintosh.

Message: *Adobe Illustrator 88 (Separator) requires Macintosh System Software Version 4.2 or later.*

Cause: Your disk contains an old version of the Macintosh System Folder.

Solution: Install a System Folder version 4.2 or later. No system software is provided with the Adobe Illustrator 88 program. See your Apple dealer for the most recent version.

Message: *Can't average the points!*
Can't blend the paths!
Can't change the paint style!
Can't change the style!
Can't change the type style!
Can't clear the objects!
Can't copy the illustration!
Can't copy the objects!
Can't create a definition point!
Can't create a new illustration!
Can't create a new window!
Can't create an oval!
Can't create a path! Please draw a shorter curve.
Can't create a pattern definition from the Clipboard contents!
Can't create a rectangle!
Can't create type!
Can't cut the objects!
Can't define a new pattern from the selection!
Can't delete the selected pattern or patterns! (Probably out of memory.)
Can't finish the preview!
Can't group the objects!
Can't join the points!
Can't make new custom color!
Can't move the objects!
Can't open the desk accessory!
Can't open the illustration!
Can't paste the objects!
Can't redefine the selected pattern! (Probably out of memory.)
Can't reduce/enlarge the objects!
Can't reflect the objects!
Can't rename the custom color!

Can't rename the selected pattern! (Probably out of memory.)
Can't rotate the objects!
Can't save the illustration!
Can't scale the objects!
Can't scissor the path!
Can't send the objects!
Can't shear the objects!
Can't show the Clipboard!
Can't ungroup the objects!
Can't update the Clipboard!

Cause: The specified operation cannot be performed for the reason listed. Out of memory is the most common reason. The other possible reasons are as follows: The disk is full. I/O error. The disk is locked. The file is locked or in use. The message "Can't open the illustration!" may also occur if the file you are trying to open is not an Adobe Illustrator file.

Solution: Correct the problem, if possible. If you are out of memory, make sure the RAM cache is turned off in the Control Panel. If you have more than one window open, close all but the one in which you are working. If you are running more than one program concurrently under MultiFinder or Switcher, quit from all programs except the Adobe Illustrator 88 program.

Message: ***Can't prepare the illustration for printing! Please open the Chooser and select a printer.***

Can't print the illustration! Please open the Chooser and select a printer.

Cause: These messages usually occur because your printer is turned off or not connected or because no printer is specified in the Chooser.

Solution: Correct the problem with the printer, or select Chooser from the Apple menu and specify a printer.

Message: ***Can't preview a path! Please shorten the path or increase its flatness.***

Cause: One of the paths in your document is too long.

Solution: Shorten the path by breaking it in two (use the scissors tool for this), or select the path, display the Paint dialog box, and increase the value in the Flatness field.

Message: ***Nearly out of memory! Please free up more memory immediately.***

Cause: Your system is running out of memory. This can happen if you are working on a complex illustration, have a number of windows open, or are running more than one program at once.

Solution: Close all windows but the one in which you are working. Make sure that the RAM cache is turned off in the Control Panel. If you are running under MultiFinder or Switcher, quit from any other programs that you are running. If these tactics don't work, you may have to specify Finder as the startup system and restart your Macintosh.

Message: ***Out of memory, can't create a path! Please draw a shorter curve.***

Cause: There is not enough free memory in your system to draw the curve you are attempting.

Solution: Draw a shorter curve, or try to free up memory by turning off the RAM cache in the Control Panel, closing open windows and, if you are running under MultiFinder or Switcher, quitting other programs.

Message: ***Out of memory! You will be asked to save changes to your work and then Adobe Illustrator 88 will quit.***

Cause: Your system is out of memory. This can happen if you are working on a complex illustration, have a number of windows open, or are running more than one program at once.

Solution: Save your work. Make sure that the RAM cache is turned off in the Control Panel. If you are running under MultiFinder or Switcher, quit from any other programs that you are running and try restarting the Adobe Illustrator 88 program and working with the document. If there is still insufficient memory, you may have to specify Finder as the startup system and restart your Macintosh.

Message: ***Please select two endpoints of ungrouped and open paths to join!***

Cause: You chose the Join command while an inappropriate number of points was selected, or one or both of the selected anchor points is either not an endpoint or forms part of a group.

Solution: Before choosing the Join command, be sure that you have selected exactly two endpoints and that the path or paths you are joining are not grouped.

Message: ***Please select two or more points to average!***

Cause: You chose the Average command with fewer than two anchor points selected.

Solution: Select the anchor points you want to average, and then choose the Average command.

Message: ***Please use the blend tool on a selected endpoint of an ungrouped open path!***

Please use the blend tool on a selected point of an ungrouped path!

Cause 1. One or both of the paths you are blending is grouped.

Solution: Select both paths, and choose Ungroup from the Arrange menu. If either of the paths was created with the oval or rectangle tool, delete the center point after you ungroup the object.

Cause 2. One or both of the anchor points you are clicking on with the blend tool is not selected.

Solution: After you have selected the blend tool, click on two corresponding selected anchor points to set up the blend operation.

Cause 3. If you are blending open paths, you may not be clicking on an endpoint.

Solution: After you have selected the blend tool, click on one endpoint of each open path .

Message: ***Please use the blend tool on two different paths!***

Cause: You have clicked with the blend tool on two points on the same path.

Solution: With one or more anchor points selected in each path, click on the blend tool and then click once on each path.

Message: ***Please use the blend tool on two open or two closed paths!***

Cause: One of the paths you are blending is open and one is closed.

Solution: You cannot blend an open path with a closed one. Either close the open path or open the closed one.

Message: ***Please use the scissors tool/Option key combination on a segment of an ungrouped path!***

Cause: The segment to which you are trying to add an anchor point is part of a grouped path.

Solution: Ungroup the path before you add the anchor point. You can group it again afterward.

Message: ***Please use the scissors tool on a segment or an anchor point (but not an endpoint) of an ungrouped path!***

Cause: With the scissors tool selected, you clicked on the endpoint of an open path or on a grouped path.

Solution: If you did not click on an endpoint, select the path and choose Ungroup from the Arrange menu.

Message: ***That name is too long! Please use a name shorter than 31 characters.***

Cause: You have entered a name for a pattern or custom color that is too long.

Solution: Enter a name with fewer than 31 characters.

Message: ***That text block is too long! Please use a block shorter than 255 characters.***

Cause: The block of text you entered in the text box of the Type dialog box contains too many characters.

Solution: Each block of type must have 255 or fewer characters. If you need to have more characters in one sequence, create several blocks of type.

Message: *The angle must be between -1008 and 1008 degrees!*
The black value must be between 0 (white) and 100 (black) percent!
The blend percentage values must be between -100 and 200 percent!
The cyan value must be between 0 (no cyan) and 100 (maximum cyan) percent!
The dash lengths must be between 0 and 1008 points!
The dash lengths must not be all zero!
The distance must be between -1008 and 1008 points!
The distance must be between 0 and 1008 points!
The flatness must be between 0 (default flatness) and 100 pixels!
The freehand tolerance value must be between 1 and 10 pixels!
The from and to values must be between 0 and 1008 points, and the scale must be between -10080 and 10080 percent!
The kerning must be between -1008 and 1008 points!
The leading must be between -1008 and 1008 points!
The magenta value must be between 0 (no magenta) and 100 (maximum magenta) percent!
The miter limit must be between 1 (always beveled) and 10 (very long spikes)!
The auto trace gap distance must be between 0 and 2 pixels!
The oval height must be between 0 and 1008 points!
The oval radius must be between 0 and 1008 points!
The oval width must be between 0 and 1008 points!
The rectangle height must be between 0 and 1008 points!
The rectangle width must be between 0 and 1008 points!
The scale must be between -10080 and 10080 percent!
The size must be between 0 and 1008 points!
The spacing must be between -1008 and 1008 points!
The steps value must be between 1 and 100!
The stroke weight must be between 0 and 1008 points!
The tint value must be between 0 (no tint) and 100 (maximum tint) percent!
The yellow value must be between 0 (no yellow) and 100 (maximum yellow) percent!

Cause: The value you entered in the specified field is invalid.

Solution: Enter a value within the range indicated in the message.

Message: ***The illustration contains an illegal operand.***
The illustration contains an illegal operator. The illustration contains an illegal or misplaced operator.
The illustration contains an incomplete or garbled object description.
The illustration does not have the correct number of operands for an operator.
The illustration doesn't contain the "%%BoundingBox" comment.
The illustration doesn't start with the "%!PS-Adobe-" comment.
The illustration ended unexpectedly.
The illustration exceeds an implementation limit.

Cause: There is a problem with the PostScript language code that describes the illustration. This usually occurs if the file is not an Adobe Illustrator document or if the file is damaged.

Solution: Be sure that you are opening a file created with the Adobe Illustrator program. If you think the file may be damaged, try recovering it from a backup copy.

Message: ***The pattern is too complex.***

Cause: The pattern you are attempting to define has too many elements.

Solution: Try to find ways to simplify the pattern.

Message: ***There are no patterns associated with this artwork.***

Cause: You have not defined any patterns for the illustration.

Solution: Define patterns before using them to fill and stroke paths. To use patterns defined in another document, you must have that document open.

Message: ***To define a pattern, the backmost selected object must be a rectangle defining the tile boundary!***

Cause: You have not correctly defined the boundary of the pattern.

Solution: Select the rectangle that is to serve as the tile boundary for the pattern, and place it behind the pattern by selecting the pattern and then choosing Paste In Back from the Edit menu. Be sure that the rectangle is selected.

Appendix C: *Adobe Illustrator 88 Program Update*

If you already have the Adobe Illustrator program version 1.0 or 1.1, here is a list of all the features that are new or different in the Adobe Illustrator 88 program. See the appropriate sections of this guide for complete details on these features.

New tools

Blend tool

The blend tool creates intermediate shapes between two paths. Depending on how you paint the paths you can produce smooth blends between two different shades of gray, colors, or line weights. You can also use the blend tool to create animated effects.

Freehand tool

The freehand tool allows you to draw by dragging the pointer in the working area. It is provided as an alternative to the pen tool, for times when you want to produce a fast sketch rather than precise lines and curves.

Measure tool

The measure tool calculates the distance between any two points in the working area.

Auto trace tool

The auto trace tool automatically draws artwork over template shapes and lines.

New features

Color

You can fill and stroke objects in your artwork with color. The Adobe Separator program, included in this package, allows you to print color-separation negatives. You can produce negatives for printing in custom

ink colors or ones for printing with the four-color process. See the *Adobe Illustrator 88 Color Guide* for more information.

Masking

You can define any path as a masking object. This masking object then masks (forms a boundary around) any objects that lie in front of it and are grouped with it. If part of a masked object falls outside the mask boundary, it is hidden from view when you preview or print.

Patterns

You can create your own patterns using any of the Adobe Illustrator 88 program tools. You can then use the patterns to fill and stroke objects in your artwork. When you transform or move objects filled or stroked with a pattern, you have the option of transforming or moving the pattern as well.

Command changes

File menu

The Place command has been added to allow you to import documents in the EPS format created in other applications into Adobe Illustrator 88 documents.

In the Save As dialog box, a checkbox has been added to allow you to include copies of placed EPS files in the PostScript language code for the illustration. Another checkbox has been added to allow you to save your Adobe Illustrator 88 program artwork as Adobe Illustrator program version 1.1 artwork.

Edit menu

The Bring To Front and Send To Back commands have been added. These commands make the selected object the frontmost or backmost layer, respectively, in the illustration.

The Show Clipboard command has been moved to the Window menu.

The Preferences command has been added. It displays the Preferences dialog box, which contains the following options:

Snap To Point: Indicates whether an object should jump to an anchor point whenever the pointer is within 2 pixels of that anchor point.

Preview and Print Patterns: Indicates whether patterns should appear when you preview or print the illustration.

Transform Pattern Tiles: Indicates whether to transform pattern tiles when an object painted with a pattern is moved or transformed.

Constrain Angle: Specifies the angle by which the *x* and *y* axes should be rotated. This was formerly a command on the Arrange menu.

Corner Radius: Specifies the radius of a circle used to make rounded corners in any rectangles you draw.

Cursor Key Distance: Specifies the distance by which a selected object will move when you press one of the cursor (arrow) keys.

Freehand Tolerance: Controls the sensitivity of the freehand tool to variations in your hand movement.

Auto Trace Gap Distance: Determines the largest gap across which the auto trace tool will jump as it traces a template

Ruler Units: Sets the unit of measure displayed in the ruler and used in many dialog boxes.

Change Progressive Colors: Brings up a dialog box that allows you to adjust your color display from within the Adobe Illustrator 88 program.

Arrange menu

A dialog box now appears when you choose the Join command after selecting two coincident endpoints (one directly on top of the other). It allows you to indicate whether the resulting anchor point is to be a corner point or a smooth point.

A dialog box now appears when you choose the Average command. It allows you to specify whether averaging is to occur along the horizontal (*x*) axis, the vertical (*y*) axis, or both axes.

The Lock command has been added. It locks the selected object so that it cannot be selected. The Unlock All command has been added. It unlocks all locked objects in the illustration.

The Hide command has been added. It removes the selected object from the window temporarily. The Show All command has been added. It shows all objects in the artwork.

The Constrain command is now an option in the Preferences dialog box, available from the Preferences command on the Edit menu.

View menu

The Preview command has been renamed Preview Illustration.

The New Window (formerly New View) and Show/Hide Toolbox commands have been moved to the Window menu.

The ruler origin is preset at the bottom left of page 5, rather than the bottom right.

Style menu

In the Paint dialog box, the Process Color, Custom Color, Pattern, and Overprint options have been added to both the Fill and Stroke option groups. You use the Pattern command to define and work with patterns. You use the Custom Color command to create your own custom colors. In addition, the Mask option has been added. (See "Masking," under "New Features" earlier in this section.)

In the Type dialog box, the Kerning field is now called the Spacing field. The function of this field has not changed.

Window menu

This menu is new. It contains the following commands:

Show/Hide Clipboard (moved from the Edit menu)

Show/Hide Toolbox (moved from the View menu)

New Window (replaces New View command, formerly on the View menu)

The Window menu also lists all documents currently open on the desktop. You can bring any document to the front and make it the active window by choosing its name from the Window menu.

Toolbox changes

Several of the tool icons have been redesigned.

Four new tools have been added: The freehand tool, the auto trace tool, the blend tool, and the measure tool. See "New Tools," earlier in this section, for more information.

The origin of the page tool is preset at the bottom left of the screen, rather than the top left.

The square tool has been renamed the rectangle tool. The circle tool has been renamed the oval tool.

A dialog box has been added to the rectangle and oval tools, allowing you to enter the height and width of the shape you want to create. You can also specify a corner radius value in the Rectangle dialog box so that you can create rectangles with rounded corners.

Other program changes

The Preview Illustration and Select All commands are no longer dimmed when the illustration contains no objects.

A checkbox that allows you to transform pattern tiles along with the object being transformed has been added to the dialog box for each of the transformation tools and to the Move dialog box. This checkbox works in coordination with the checkbox of the same name in the Preferences dialog box.

Section 4: *Glossary*

Glossary

alignment How lines of type are stacked. You have three choices: left alignment (flush left, ragged right), center alignment (ragged left, ragged right), and right alignment (ragged left, flush right). The alignment of a block of type is indicated by the position of its alignment point.

alignment point The point on which a block of type is aligned. Each block of type has one alignment point. The point appears as a solid square when the block of type is selected and otherwise appears as an x.

anchor point The point that determines where a segment starts or ends. Anchor points are invisible unless any segment of the path they form is selected. Anchor points that end curve segments have direction lines and points associated with them. A single anchor point, with no segments connected to it, appears as an x when not selected.

artwork The paths and type that constitute a single document created with Adobe Illustrator 88. Stroke and fill attributes are not visible in an artwork image. Compare with *preview image* and *template*.

auto trace To trace around the shapes or lines in a template automatically.

auto trace gap distance A setting in the Preferences dialog box that determines the number of pixels that the auto trace tool jumps over as it traces a path around a template shape.

average To move selected anchor points to a position that is the average of their original locations. Compare with *join*.

baseline The line upon which type rests. In Adobe Illustrator 88, the baselines of a block of type are visible when the type is selected. You click on a baseline to select type and drag it to move type.

bevel join A style of line join in which the corner point looks as though it were sliced off diagonally. Compare with *miter join* and *round join*.

Bezier curve A curve, named after Pierre Bezier, that is defined mathematically by four control points. These control points are the four direction points at the ends of the two direction lines that are tangent to each curve. All curves in Adobe Illustrator 88 are Bezier curves. See also *curve*.

bitmap A graphic image consisting of a matrix of dots (pixels). Templates and preview images are bitmap images.

blend To create a series of successive shapes or shadings between two selected paths.

butt cap A style of line cap that is squared off perpendicular to the line. The cap does not extend beyond the end of the path. Compare with *projecting cap* and *round cap*.

cap See *line cap*.

click To press and then immediately release the mouse button.

clip art Off-the-shelf art for the Macintosh. Clip art pieces are stored as MacPaint documents.

closed path A path with no endpoints, that is, a path that has no obvious beginning or end. Compare with *open path*.

coincident Occupying the same position. In a straight line, an anchor point and its two direction points are coincident.

collinear Occurring along the same straight line. The anchor point and two direction points of a smooth point are collinear.

constrain To restrict a draw or move operation or a transformation to an angle that is a multiple of 45 degrees, relative to the angle of constraint you specified in the Preferences dialog box.

corner point An anchor point that joins two straight lines, a straight line and a curve, or two curves that are not continuous. In the case of two curves, the anchor point and its two direction points do not lie on a straight line when they form a corner point. Compare with *smooth point*.

corner radius The radius of the circle used to form rounded corners in a rectangle.

current attributes The paint and type attributes currently in effect. These attributes are assigned to new paths or blocks of type you create. The current attributes appear in the Paint dialog box when no objects are selected.

cursor key distance The distance that selected objects move each time that you press a cursor (arrow) key.

curve A smooth trajectory defined by two anchor points and two direction points. The anchor points define where the curve starts and ends. The direction points determine the shape of the curve.

custom color An ink color that you assign to objects in your drawing. With custom color, you produce one negative for each color used in the artwork. Compare with *process color.*

dash pattern The pattern of lines and gaps that makes up a dashed line. You create a dash pattern for a stroked path by entering in the Paint dialog box the length, in points, of each dash and of each gap between the dashes.

define (pattern) To draw or place artwork inside a rectangle and then give it a name in the Pattern dialog box.

digitizer See *scanner.*

direction line The straight line between an anchor point and its direction point. The direction line touches the curve at the anchor point.

direction point A point that defines the direction in which a curve enters or leaves an anchor point. The position of a curve's two direction points determines the shape of the curve.

drag To hold down the mouse button while you move the pointer.

DrawOver An application that converts MacDraw files to Adobe Illustrator 88 documents.

Encapsulated PostScript (EPS) format A file format that describes a document written in the PostScript language and that contains all of the code necessary to print the file.

endpoint An anchor point at the beginning or end of an open path.

EPS See *Encapsulated PostScript format.*

fill To paint an area enclosed by a path with a gray shade, a color, or a pattern.

flatness The maximum distance, in device pixels, of any point on a rendered curve from the corresponding point on the true curve.

freehand tolerance A value that controls how sensitive the freehand tool is to variations in your hand movement.

group To combine two or more objects so that they act as a single object.

hide To remove a path or block of type from the artwork temporarily. Objects that are hidden do not preview or print.

insertion point A blinking vertical line that indicates where characters you type will appear.

interpreter Software that converts commands written in a computer language into primitive instructions that the device on which the software is running can understand. A PostScript interpreter built into a printer or typesetter converts PostScript language commands into a form the printer can use to draw an image.

join (noun) See *line join*.

join (verb) To connect two endpoints with a straight line segment. When you join the endpoints of an open path, the program closes the path. When you join the endpoints of two open paths, the program combines them into one longer path. Compare with *average*.

landscape A horizontal printing orientation in which the top of the page is one of the long edges of the page. Compare with *portrait*.

layer To place objects in layers that are in front of one another. See also *painting order*.

miter limit The ratio that determines the angle at which Adobe Illustrator 88 switches from a mitered (pointed) line join to a beveled (squared-off) line join. The miter limit is equal to the maximum ratio of the diagonal line through a line to the width of the lines producing the join. The smaller the miter limit, the less sharp the angle at which the program switches from a mitered to a beveled line join.

object An anchor point, segment, path, or block of type, or a group of anchor points, segments, paths, and blocks of type.

open path A path with two endpoints, that is, a path that has a beginning and an end. Compare with *closed path*.

overprint To specify that a colored object show through another colored object that overlaps it. Normally, the object underneath is hidden by the object in front.

paint To fill a region defined by a closed path with a shade of gray, a color, or a pattern, or to stroke a line that is centered on a path with a shade of gray, a color, or a pattern.

painting order The sequence in which the objects in a document are painted. Objects are painted from back to front, meaning that in a number of layered objects the frontmost object will obscure all or part of the objects that lie behind it.

path One or more connected segments.

pattern One or more objects that has been bounded by a rectangle and defined as a pattern. Once defined, patterns can be used to paint paths.

pattern tile The rectangle within which a pattern is defined.

pica Twelve points, or one-sixth of an inch.

pixel A single dot on a computer display. Templates and bitmaps are collections of pixels.

PICT format A format used for transferring QuickDraw graphics between programs on the Macintosh. Before Adobe Illustrator 88 can read a MacDraw document, it must be saved in PICT format.

place To import a scanned image or an EPS format file into an Adobe Illustrator 88 document.

point A unit of measure, used in Adobe Illustrator 88 for specifying type and line attributes. There are 72 points in an inch.

point of origin A fixed spot that you specify in your artwork from which a transformation begins.

portrait A vertical printing orientation in which the top of the page is one of the short edges of the page. Compare with *landscape*.

PostScript language A computer language invented by Adobe Systems that is used to define the appearance of type and images on the printed page. When you save an Adobe Illustrator 88 document, you are actually saving a PostScript language program.

preset values The values in effect for all fields in Adobe Illustrator 88's dialog boxes when you start the program. These are the program's defaults.

preview image The view of your Adobe Illustrator 88 artwork as it will appear when printed. The artwork is displayed on your screen as a bitmap image. You can specify whether paint and pattern attributes appear in the preview image. A version of the preview image is saved along with the PostScript language code for the artwork document when you specify one of the preview options before saving your artwork. Compare with *artwork*.

process color One of the four colors—cyan, magenta, yellow, and black—blended to produce colors in the four-color process. With process color, you produce a maximum of four negatives, regardless of the number of colors used in your artwork. Compare with *custom color*.

progressive colors The four process colors plus white and the various combinations of cyan, magenta, and yellow. The Change Progressive Colors option in the Preferences dialog box allows you to adjust the appearance of the progressive colors on your computer display.

projecting cap A style of line cap that is squared off perpendicular to the line. It extends one-half of the line's width beyond the endpoint of the path. Compare with *butt cap* and *round cap*.

QuickDraw A graphics language built into the read-only memory (ROM) of the Macintosh.

redefine (pattern) To change the definition of a pattern by altering the pattern's content but not its name.

reflect To create a mirror image of an object across an axis of reflection that you specify.

resolution The number of dots per inch displayed on a screen or printed on a printer.

rotate To revolve an object about a specified point.

round cap A semicircular line cap placed at the end of a solid or dashed line. The diameter of the cap is equal to the width of the line. Compare with *butt cap* and *projecting cap*.

round join A style of line join in which the corner formed by two segments is rounded. Compare with *bevel join* and *miter join*.

scale To change the size of an object vertically, horizontally, or both.

scanned image The image that results when a photograph, illustration, or other two- or three-dimensional image is converted into a bitmap. On the Macintosh, scanned images are stored as MacPaint documents.

scanner An electronic device that converts a photo, illustration, or other two-dimensional image into a bitmap. A video camera is a scanner that converts three-dimensional objects into bitmaps.

segment A line or curve that is defined by two anchor points and their respective direction points.

select To define an object to be acted upon by the next command or mouse operation. You must select an object before you can change or edit it in any way. You generally select an object by clicking on it with the selection pointer or by dragging the selection marquee around it.

selection marquee A dashed rectangular region used to select objects.

selection pointer An arrow-shaped pointer used for selecting and moving objects.

shear To slant or skew an object vertically, horizontally, or along an arbitrary line.

smooth point An anchor point that lies on a straight line between its two direction points. The curve segments connected to such an anchor point form a continuous curve. Compare with *corner point*.

spacing The amount of space, in points, that is added or removed between every pair of characters in a type block. Spacing affects the amount of white space in a type block.

stroke To paint a line that is centered on a path.

tangent Touching a line or curve at only one point. The direction line is tangent to the curve at the anchor point.

template A bitmap image, such as a scanned image or a graphic from a program such as MacPaint, that you trace over to create artwork in Adobe Illustrator 88. The template appears on the screen as a gray image behind the artwork; it is not part of the final printed document. Compare with *artwork* and *preview image*.

tile (page) To divide Adobe Illustrator 88's drawing area into pages for the page size currently specified in the Page Setup dialog box.

tile (pattern) To repeat a pattern in columns and rows across the layer of the document in which that pattern paints a path.

tint A percentage of one of the process or custom colors.

toggle A command that lets you switch between two settings. The Show/Hide Rulers command is an example of a toggle.

toolbox The set of tools displayed to the left of the drawing area when a document is open.

ungroup To separate a group into individual objects or into subgroups.

unlock To remove the lock attribute from an object so that it can be selected.

x axis The horizontal reference line to which objects are constrained.

y axis The vertical reference line to which objects are constrained.

zoom To magnify or reduce your view of the current document.

Colophon

The equipment

Word processing—MacWrite and Microsoft Word on the Macintosh Plus and Macintosh II

Illustrations—Adobe Illustrator 88, MacDraw, and SuperPaint on the Macintosh Plus, and Macintosh II

Scanned images and templates—VersaScan Plus on the Microtek scanner

Page compostion—Frame Maker on the Sun Workstation 3/50

Page proofs—Varityper VT600, LaserWriterII NTX

Color separation—Tutorial and User Guide: Process black and custom color separations using Adobe Separator on the Macintosh II

Color Guide: Four-color process and custom color separations using Adobe Separator on the Macintosh II

Camera-ready art—Linotronic 300 typesetter

Typeface—The Stone family of typefaces was used throughout this book

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