METACREATIONS LOGOMOTION

INTRODUCTION

What LogoMotion Is

LogoMotion is a 3D flying logo tool that turns your computer screen into a synthetic, three-dimensional World. This 3D World has real properties – height, width, depth, and (in the sense of animation) time. You will learn how to create flying logos and exciting animations using a variety of tools, all within this 3D World. This manual is designed to help you work in 3D as easily as possible, while having fun.

You don't have to be a rocket scientist to use LogoMotion, although if you are one, you'll have as much fun as anyone else. LogoMotion exists, in part, because so much 3D software tends to be intimidating and it's no fun to use a program that's hard to control.

What LogoMotion Is Not

LogoMotion is not an expensive, complicated animation package. It offers a specific feature set that is streamlined for creating animated 3D flying logos and presentations.

LogoMotion is not "instant 3D." It's as close as you can get, but be prepared to spend some time building, fine-tuning, and rendering your 3D work. By nature, 3D graphics are quite complex (far more complicated than their 2D equivalents), and creating them can be slow. LogoMotion gives you speedy and intuitive 3D. We've done a good job of making it simple, but there's a great deal going on behind the scenes. Be aware, too, that creating complex scenes may push the limits of your particular system. But LogoMotion will let you create animations that would have required the use of a very expensive workstation only a few years ago.

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MetaCreations LogoMotion

Minimum System Requirements

Windows

Pentium computer running Windows 95 or Windows NT 4.0

A minimum of 16MB RAM

A minimum of 30 MB hard disk space. You'll need additional space to store any scenes you create

A 14-inch monitor supporting 16-bit color

A CD-ROM drive

Macintosh

Power Macintosh or compatible model running System 7.6.1 or later

A minimum of 16 MB of free RAM

A minimum 30 MB hard disk space. You'll need additional space to store any scenes you create

A 14-inch monitor supporting 16-bit color

A CD-ROM drive

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CHAPTER 1

WELCOME TO LOGOMOTION

Welcome to LogoMotion™, the simplest 3D program for multimedia artists, business presenters, and Web designers. LogoMotion is ideal for quickly creating animated 3D graphics for multimedia or business presentations, for Web sites, for trade shows—any type of demonstration where you want to create an impact with your logo using the power of 3D and animation.

LogoMotion's easy animation features let you create great animations for any kind of demo or presentation, whether it's on the Web, in the board room, or at a company meeting. Your own creativity in combination with LogoMotion's Stagehands™ help you quickly produce fully animated 3D worlds. Imagine your company logo in shining 3D chrome, rising against a backdrop of starlit sky as the camera flies up and over your logo. Using LogoMotion, you can create this type of flying logo in much less time than it would take using traditional, bulkier 3D modeling programs.

What's New in LogoMotion

LogoMotion has new tools, features and improvements from earlier versions. For those upgrading, the following overview provides a head start on locating, learning, and taking advantage of these additions.

Here's what's new in version 2.0:

- New shading mode. LogoMotion's new Best quality shading mode provides even better image quality than in the past with the addition of a Phong shading rendering engine. Using this shading mode, you can produce broadcast-quality output.
- Shadow casting. Objects can cast shadows, which you view using the new Best shading mode.
- Texture mapping. Apply images and movies to any object in your 3D world. You can create woods, marbles, and other surfaces, which you view using the new Best shading mode.
- Drag and drop interface. Enhanced drag and drop ability lets you quickly drag items such as surfaces bevels, backdrops, cameras, lights, and more from a control panel and drop them in your scene. No more going from dialog to dialog to create objects and edit your scenes. Plus, new sliders and buttons graphically update your scene as you make changes, giving you further fine-tuned control over your scenes.
- New Navigation tools. New Hand and Magnifying Glass tools help you move around in the view windows. These tools function similarly to those found in 2D applications.
- Extended Bevel Control. Using the Bevels Control Panel, you can choose from new bevel types and place them on your text or extruded objects.
- Custom StageHands. Save those cool cameras and other objects you've created by making them into your own personal StageHands. This lets you use them time and time again and pass them around to your friends.

Here's what's new in version 2.1:

- QuickDraw 3D™. Available on both Macintosh and Windows platforms, QuickDraw 3D lets you manipulate solid, texture-mapped objects in real time. This lets you build 3D animations more easily than in Wireframe mode and is a lot more fun.
- Spline-form workshops. The new Extrude and Lathe Workshops let you build very smooth, accurate 3D models. You can tweak logos and text to perfection using bezier spline handles like those found in vector-based applications such as Adobe Illustrator™ and Macromedia Freehand™.

About Your User Guide

This manual provides all the information you need to get the most out of LogoMotion. It will help you learn the application and serve as a reference as you attempt more sophisticated procedures and effects.

This user guide assumes you are already familiar with basic Macintosh and Windows concepts—menus, dialogs, and mouse operations, such as clicking and dragging. If you need more information on these subjects, or on the Macintosh Finder or the Windows Desktop, refer to the Macintosh User's Manual or the Microsoft Windows User's Guide, respectively.

The best way to learn LogoMotion is to read the chapters "LogoMotion Overview" on page 3 and "Basics" on page 17 then complete the lessons in "Tutorial" on page 23. The tutorial leads you through the process of creating and modifying objects, creating animations, and using StageHands as shortcuts to speeding up the process.

After you complete the tutorial, open a new file and start building your own scene.

Conventions

The LogoMotion User Guide is for both Macintosh and Windows. By convention, Macintosh commands precede Windows commands in the text. For example, Command/Ctrl+I, is equivalent to the Macintosh Command-I and the Windows Ctrl+I. For simplicity, the term folder refers to directories as well as folders. The LogoMotion interface for Macintosh and Windows platforms is identical, unless otherwise specified. The convention to a menu follows the rule of the menu name> menu item.

Modifier Keys

When a modifier key differs between the Macintosh and Windows platform, the Macintosh modifier is listed first followed by a slash and the Windows modifier key. Option/Alt means Macintosh users press the Option key and Windows users press Alt.

GETTING STARTED

Windows Installation

1. Insert your Digital Image Productivity Software Suite Disk 2 into your CD-ROM Drive.

2. Using the Explorer, locate the LogoMotion Program Files folder on the CD.

3. Find the setup.exe file and double-click it.

4. Follow the on-screen instructions to complete the installation.

To access StageHands:
1. Place your Digital Image Productivity Software Suite Disk 2 in your CD-ROM drive.

2. Launch LogoMotion.

3. Choose Windows>StageHands to switch to StageHands mode.

Macintosh Installation

1. Turn off any virus protection and compression programs and close any other applications currently open.

2. Insert the LogoMotion CD-ROM into your CD drive.

3. Double-click the Installer icon from the CD-ROM and follow the instructions on screen.

CHAPTER 2

OVERVIEW

Introduction

This chapter introduces some of the major features and concepts of LogoMotion.

With LogoMotion you can quickly create high-quality animated 3D logos and text. Logos stored as EPS files can be instantly converted into a 3D object in LogoMotion. Objects in LogoMotion can undergo rapid transformations using StageHands, LogoMotion's collection of pre-animated props, cameras, lights, and backdrops.

LogoMotion is the ideal tool for easily and quickly creating 3D animations without having to learn complicated modeling and motion concepts traditionally required by 3D animation programs.

Application Overview

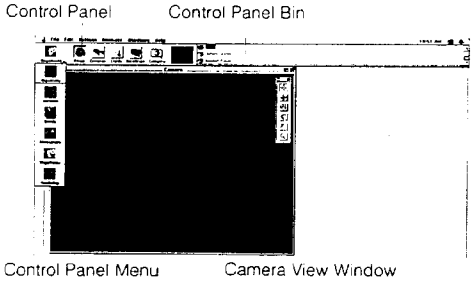
The following sections describe the components that make up LogoMotion's user interface:

- The scene, where you create your 3D world.
- The view windows, where you view your scene from various angles.
- The world coordinate system, which helps you stay oriented in the 3D world.
- The Toolbox, which contains tools to create and manipulate objects.
- The Extrude and Lathe Workshops, where you create complex objects.
- The Control Panels, where you can set detailed options for the scene and the objects within it.
- The Sequencer, which you use to create animations.

What Is a Scene?

In LogoMotion, a "scene" is an independent and unique three-dimensional world that can contain various objects: text objects, lathed and extruded objects, props, lights, backdrops, cameras, and more. The objects in the scene can move over time, creating an animation. A scene and all its objects appear in the Camera View window.

A new scene opens each time you launch LogoMotion. LogoMotion lets you have more than one scene open at a time, limited only by the resources available on your computer.



A new LogoMotion scene.

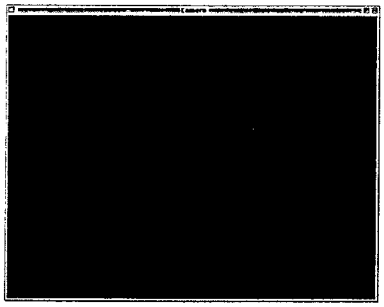
The LogoMotion View Windows

There are four interrelated view windows in LogoMotion:

- Camera View
- Top View
- Front View
- Right View

The Camera View Window

Each scene has a Camera View window, which is the main window you work with in LogoMotion. With the Camera View, you can look at the 3D world contained within it from any position and orientation. The view inside the window is connected to a camera object that exists in the 3D world. In Camera View, you don't see the camera as a separate object.



The Camera View window displays the scene as seen through the lens of a camera.

When you move the camera object in the world (you move the camera object itself from the standard views), the Camera View updates accordingly. You can have only one camera object in a scene at any time.

You can resize the Camera View by dragging the lower right corner of the window. Note that when you resize the Camera View, the relative scale of the objects in the scene stays the same. Making the Camera View larger doesn't bring more of an object into view, but simply makes the scene appear larger on the screen.

Tip: Keeping the Camera View small helps conserve memory.

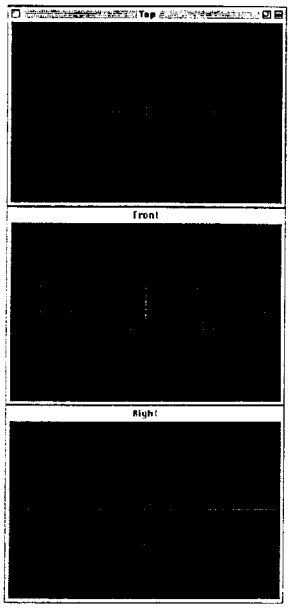
Standard View Windows

In addition to the Camera View window, you can also open three different standard view windows:

Each of the standard views offers a different perspective of the 3D scene. These views are always fixed to a plane. Looking through the three standard views is like looking through the top, front, and right sides of a fish tank; your 3D models represent the items inside the tank.

Of course, the items look different depending on which view you're looking at. For example, you may be able to read the letters in a text object in Front View, but you won't in Top View because you're only seeing the top of the 3D letters.

In addition, you can see the camera object itself in the scene from any of the standard views.



Top View

Front View

Right View

The standard view windows.

Standard views never swivel or rotate, and thus provide a helpful reference when navigating through the scene.

You might want to keep one or more of the standard views open at any time to help you arrange objects in the scene. Because their primary purpose is for alignment, the standard views don't show objects in perspective. Grid planes are provided in the standard views to help you align objects more precisely. Standard views can be resized in the same way as the Camera View: by dragging the lower right corner of the window.

The World Coordinate System

Because LogoMotion is a 3D program, its 3D world contains three dimensions: width, depth, and height. These dimensions correspond to three coordinate axes of motion: X, Y, and Z.

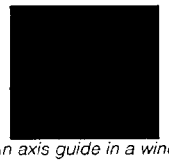
- Width is represented by X. Think of X as running across your screen from left to right.
- Depth is represented by Y. Think of Y as stretching from the front surface of your monitor to the back.
- Height is represented by Z. Think of Z as reaching from the top to the bottom of your screen.

The world coordinate system lets you specify any object's position in the 3D world using X, Y, and Z coordinates. While using the Front View window, moving an object left and right moves it along the world's X axis. Moving it in an in-and-out motion (that is, towards or away from you) moves it along the Y axis. Moving it up and down moves it along the Z axis.

As you might guess, the center of the 3D world is 0, 0, 0. The numerals represent coordinates (or locations) along each of the axes. All the view windows start out "looking" at the center of the world. The coordinates of the objects in the 3D world are relative to the center point of the world. In the Front View, for example, as you move an object along the X axis, the X value increases or decreases.

Showing the Axes in the World

In each of the views, you can display an axis guide, which represents the axes in relation to the view. You use the axis guides to help you figure out the positive direction along an axis.

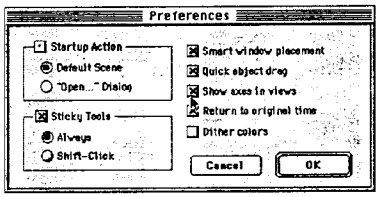


An axis guide in a window

By default, LogoMotion displays the axis guides on startup. You can remove them if you like.

To remove axis guides:

Choose Edit> Preferences and deselect the Show Axes in Views option in the Preferences dialog.



Turn axis guides on or off with the Preferences dialog.

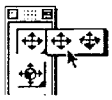
The Toolbox

The Toolbox contains tools that make it easy to work with 3D objects in your scene. The Toolbox appears on the far left side of the screen when you first launch LogoMotion. It's free-floating, so you can drag it anywhere on the screen. It stays visible above any open view windows.

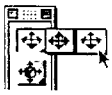
The Move Tools

One of the most common things you'll do in LogoMotion is dragging objects around in the 3D world. There are two Move tools located in the top position of the Toolbox:

- The V-Plane tool, which you use to move an object left, right, up, or down along an imaginary vertical plane.



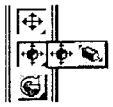
- The H-Plane tool, which you use to move an object left, right, in, or out along a horizontal plane.



Both tools help you move an object through the scene along one particular plane of motion. Together, these two tools let you place an object anywhere in the scene.

When moving an object away from you with the H-Plane tool in the standard views (Top, Front, or Right), you might intuitively expect the object to get smaller. However, the standard views display objects orthographically, which means that there is no perspective. No matter how far away an object is, it always appears to be the same size in the standard views.

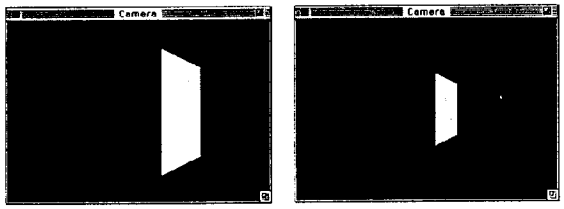
The Scale Tools



The Scale tools let you change the size of an object. You can either keep the object's proportions the same (using the Uniform Scale tool), or skew the object's proportions to create a different effect (using the Squash and Stretch tool).

The Uniform Scale Tool

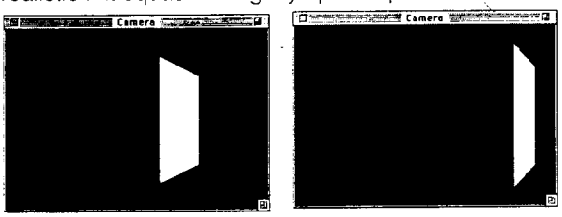
While working in LogoMotion, you might want to change an object's size, making it larger or smaller but not changing its basic shape. You can change an object's dimensions along all three axes at once with the Uniform Scale tool.



This cube is smaller after being scaled down with the Uniform Scale tool. Notice that the basic shape hasn't changed; its proportions remain the same.

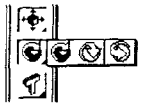
The Squash and Stretch Tool

As its name implies, the Squash and Stretch tool compresses or lengthens an object without keeping its original proportions. You use the Squash and Stretch tool to scale an object along only one axis. Squashing and stretching are particularly useful when creating certain animation sequences. For example, a ball bouncing on a table looks more realistic if it squashes slightly upon impact.



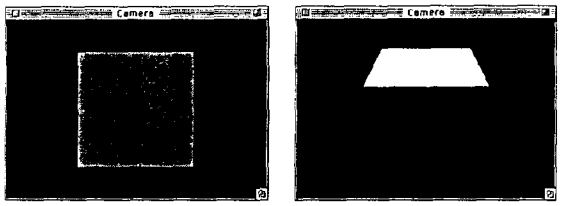
A cube is stretched with the Squash and Stretch tool to form a new shape.

The Rotate Tools



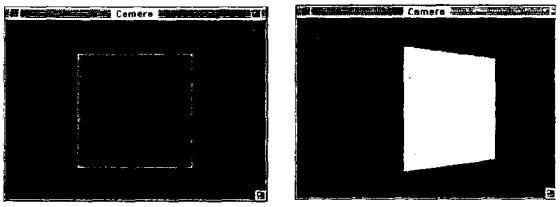
Three Rotate tools let you rotate an object around its center point in practically any direction.

The Rotate Towards/Away Tool
The Rotate Towards/Away tool rotates an object toward or away from you in any view.



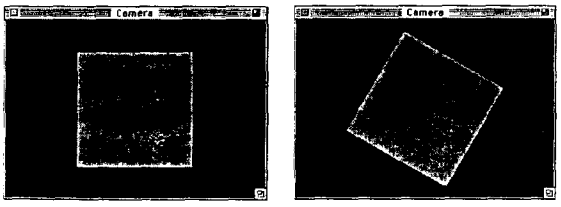
A cube before and after it's rotated towards the viewer with the Rotate Towards/Away tool.

The Rotate Left/Right Tool
The Rotate Left/Right tool rotates an object left or right in any view



A cube before and after it's rotated to the right with the Rotate Left/Right tool.

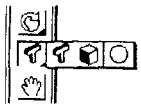
The Rotate Around Tool
The Rotate Around tool rotates an object sideways in either direction in any view.



A cube before and after it's rotated sideways to the right with the Rotate Around tool.

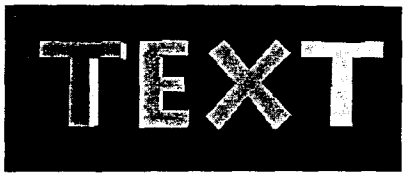
The Rotate tools, like the Move tools, work in relation to what you see on the screen. For example, the Rotate Left/Right tool always rotates an object left or right relative to your eye, regardless of the window you are using it in.

The Object Creation Tools



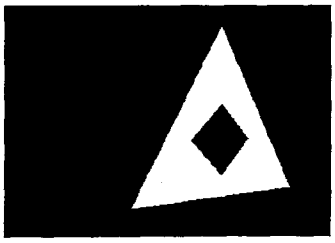
The Object Creation tools are used to place objects into the scene. They include the Text tool, the Extrusion tool, and the Lathe tool.

The Text Tool
The Text tool places extruded 3D text into the scene.The fonts available for the text object are the fonts you have installed on your computer



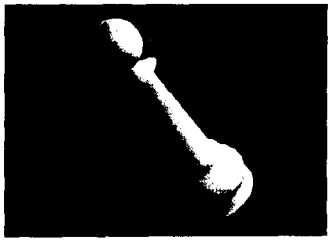
A text object created with the Text tool.

The Extrusion Tool
The Extrusion tool places a default extruded object (a cube) into the scene. The object shown in the following illustration began as a cube and was edited in the Extrude Workshop.



An object created with the Extrusion tool.

The Lathe Tool
The Lathe tool places a default lathed object (a sphere) into the scene. The object shown in the following illustration began as a sphere and was edited in the Lathe Workshop.

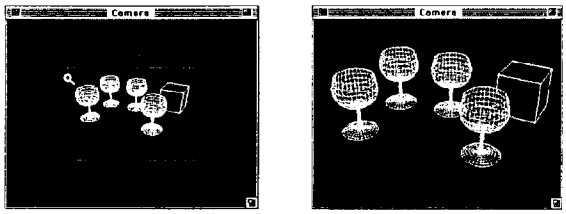


An object created with the Lathe tool.

The Hand Tool
The Hand tool is used for window navigation. It lets you move your view into the scene up, down, left or right in any view window (Camera, Top, Right, or Front). When you click within the window and drag, the scene shifts to reflect the new position.

The Magnifying Glass Tool

The Magnifying Glass tool lets you zoom in and out of any of the view windows. Zooming in and out does not change the position of the camera in the scene in the same way the Hand tool does. Dragging right with the Magnifying Glass tool zooms in, making the objects appear bigger on your screen. Dragging left with the tool zooms out, letting you see more of the objects in the scene.



A scene before and after it's zoomed in with the Magnifying Glass tool.

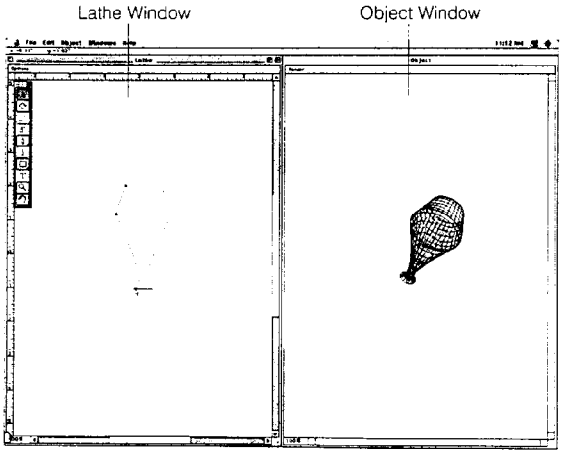
Sticky Tools

LogoMotion contains a feature called "Sticky Tools," which lets you keep a tool selected in the Toolbox after you use it. Enabling Sticky Tools is particularly useful if you're adding or scaling many objects. You can turn Sticky Tools on or off by choosing Edit> Preferences and making your choice in the dialog that appears. When Sticky Tools is on, you can specify that it be active all the time or only when Shift-clicking a tool.

The Extrude and Lathe Workshops

Two special environments in LogoMotion—the Extrude and Lathe Workshops—let you create complex objects by editing objects that began as simple cubes and spheres.

When you enter a Workshop, its two workshop windows (the Object window and the Extrude or Lathe window) fill the screen. You work with a cross section of an object in the Extrude or Lathe window, modifying its shape and points. You use the Object window to preview the changes you're making.



An object in the Lathe Workshop.

The Control Panel

LogoMotion's Control Panel is your command center for creating 3D worlds and animations. It's located below the main menu bar and stretches across the top of the screen.

The Control Panel has six different modes, each serving a different purpose. The modes are Object Info, Surfaces, Bevels, Atmosphere, StageHands, and Rendering.

The six different control panel modes.

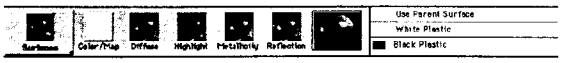
Object Info Mode

Object Info mode lets you numerically manipulate every object in your 3D scene. You can edit an object's name, uniform scale, surface, shadow-casting ability, visibility, position, orientation, and dimension.

You can always use the tools in the Toolbox to modify objects. The Toolbox tools can be more intuitive but can also be imprecise. Use Object Info mode when precision is important. Enter values directly into the boxes on the right side of the Control Panel.

When dragging objects, the values in the Object Info Control Panel update automatically.

Surfaces Mode



Surfaces mode lets you interactively apply new surfaces to objects. Various surfaces are available in the bin on the right side of the Control Panel. All you have to do is drag a surface from the bin onto an object in the scene.

You can edit surface parameters while in Surfaces mode. These parameters include the surface's color, diffuse shading, highlight, metallicity, and reflectiveness.

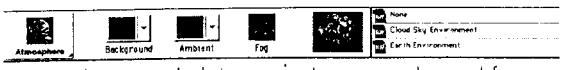
Also, you can assign any 2D PICT image or QuickTime movie as a new surface in this mode. To apply it, you "texture map" the image so that it wraps around any 3D object in your scene.

Bevels Mode

Bevels are curves or angles added to the edges of objects. These edges help the object catch and reflect light. In Bevels mode you can assign bevels to any text or extruded object in the scene. You can add a bevel to an object by dragging a bevel in the bin on the right side of the Control Panel onto an object in the scene. Bevels mode lets you set parameters to

individually control how dramatic or subtle a bevel is for each object.

Atmosphere Mode



Atmosphere mode lets you set a general mood for your scene. For example, you can create a scene where the objects look like they exist in murky fog. The background color, ambient lighting, fog levels, and environment mapping can be adjusted in this mode.

Modeling and animating objects in a 3D computer world is somewhat like working in a vacuum. There is nothing in the scene's surrounding space to be reflected by your objects. With nothing to reflect, even the shiniest sphere will look dull.

Environments can give your reflective objects something to reflect. A metallic environment is automatically loaded when the first object in a new document is shaded. The effect is obvious when viewing objects in Best mode; it may not be as apparent in Fast mode.

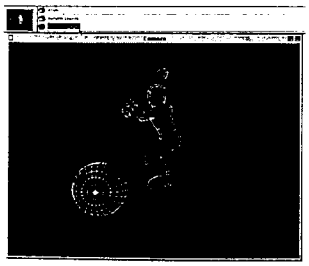
StageHands Mode

StageHands let you create 3D animations without having to create the individual components yourself. StageHands include props, cameras, lights, and backdrops. Each StageHands object is ready-to-go, complete with animation (when appropriate). All you have to do is drag the StageHands elements you want from the bin on the right side of the Control Panel into your scene.

There are four different types of StageHands available in the StageHands Control Panel: props, cameras, lights, and backdrops. The following sections briefly describe each of them.

Props

Props are pre-animated objects that you can place in your scene. This makes it easy to start working in 3D without having to create your own animated models. Of course, you can modify a prop's shape and animation, but the basic work is already done for you. You can add as many props as you want to your scene.

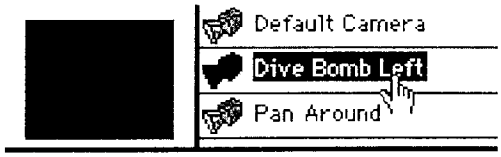


An animated baseball player prop.

Props with many parts often have an invisible parent. This parent object lets you manipulate all of the parts of the prop (moving it, scaling it, and so on) at the same time.

Cameras

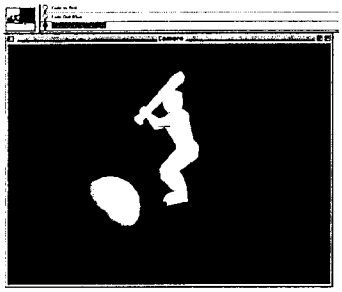
Think of the camera as your eye in the 3D world. There are a number of pre-animated cameras to choose from that offer several ways to view your scene. These cameras are probably the simplest way for you to create stunning flying logos. When you use StageHands mode to add a camera, the existing camera object in the scene is replaced and animation information is updated in the Sequencer. There can be only one camera in the scene.



Use ready-to-go camera moves to fly through a scene.

Lights

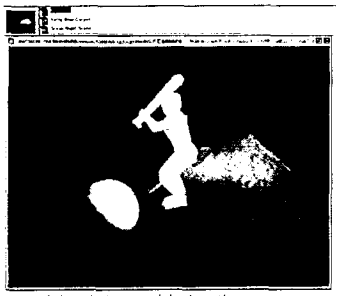
Lights illuminate your 3D scenes. StageHands offer you several pre-animated lights to provide a variety of illumination effects. While you can use as many lights as you want, you should be aware that each light you add increases rendering time. Consequently, it's a good idea to limit the number of lights in a scene and to delete any unnecessary lights.



A light added to the scene highlights the objects in it.

Backdrops

Backdrops provide a background upon which you can stage your 3D production. Backdrops are still images, and on Macintosh computers, can be QuickTime movies. They are part of the background and remain unaffected by changes you make to other elements in the scene. For example, you can aim the camera in a different direction, but the backdrop will not change.



A backdrop added to the scene.

There are several StageHands backdrops, but you can also use your own images as backdrops. Just place them in the **Backdrops** folder on your hard drive, and they'll appear in the bin on the right side of the Stagehands Control Panel. You can then drag them into your scene.

For Macintosh computers, you can specify a movie as a backdrop. It plays behind your animated objects. This is a great way to place flying 3D text over digital video.

Category Pop-up
The Category pop-up in StageHands mode is where you select a folder whose elements appear in the bin at the far right of the Control Panel. To switch folders, simply click and choose a different category. You can then scroll through the bin to see the various choices. Each StageHand has a real-time preview that appears in the preview area when selected.

StageHands on CD-ROM
Included with the full version of LogoMotion is a supplemental CD-ROM that contains a StageHands folder with hundreds of additional StageHands. In order to access them, load the LogoMotion CD-ROM in the CD drive before launching LogoMotion.

Rendering Mode

Rendering mode lets you determine the size and the image quality of your camera window. These controls let you set the shading quality, the anti-aliasing, and whether the object casts shadows or not. Turning the Visible button on forces LogoMotion to show all invisible objects.

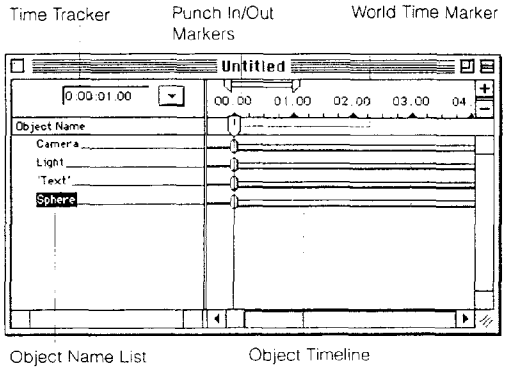
In Rendering mode, you can also choose from a selection of default Camera View sizes or customize the window to fit your exact needs.

If QuickDraw 3D is loaded on your system, clicking its button enables you to drag shaded objects in real time in the view windows. You don't have to wait as long for the screen to redraw.

QuickDraw 3D gives you real-time manipulation of shaded objects. It helps show you what final, high-quality images will look like, but it isn't suitable for final movies.

The Animation Sequencer

The Animation Sequencer is your headquarters for creating animations. The Sequencer keeps track of the objects in the scene and how they change over time.

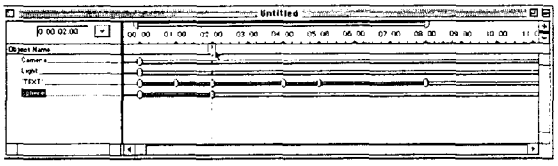


How objects appear in the Sequencer.

Each time you add a 3D object to the scene, it appears in the Object Name list in the Sequencer. (Backdrops and environments are not 3D objects, so they do not appear in the Sequencer.) You can use the Sequencer to move within your animation to different points in time.

Eventmarks

Every object name in the Sequencer has at least one small oval, called an eventmark, beside it. Each eventmark contains information about an object, such as size, color, orientation, and position in the 3D world. If an object has multiple eventmarks connected by blue or pink lines, it indicates that the object is animated.



Objects with blue or pink lines are animated.

Animation Preview

You can use the Sequencer to preview animations. StageHand props, cameras, and lights are generally pre-animated, so when you add them to your scene, you'll probably want to preview the animation so you can see how they move together.

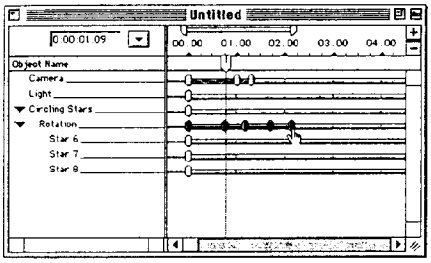
When you preview an animation, you see how the animated objects move in the scene. All the objects appear in Bounding Box mode (as cubes) for faster playback.

Keeping Track of Objects

The Object Name list appears on the left side of the Sequencer. This list contains the names of every object in your scene—even invisible ones. Objects that have "child" objects linked to them have triangles beside their names. Clicking a triangle either shows or

hides the children of that object.

For example, if you add a prop composed of several objects, a parent object appears in the Object Name list. Click its triangle to see a list of all the objects linked to it —its children.



This graphic shows a parent object (Circling Stars) and all its children beneath it.

Chapter 3

BASICS

Overview

This chapter describes some of the basic operations you'll need to know when creating 3D illustrations and animations in LogoMotion.

Setting up LogoMotion

Launching LogoMotion

The first time you launch LogoMotion, you're prompted to type in your name, organization, and serial number. The serial number can be found in your LogoMotion package.

To launch LogoMotion on a Macintosh computer:

- Double-click the LogoMotion icon in the LogoMotion folder.

To launch LogoMotion on a PC running Windows:

- From the Start menu, choose Program Files> MetaCreations LogoMotion 2.1> LogoMotion 2.1.exe.

Increasing the Memory Partition for LogoMotion

On Macintosh computers, each application has an associated memory partition size, which tells the computer how much memory to allocate to the application when it is launched. It's best to give LogoMotion as much memory as possible so that it can render high-quality animations as quickly as possible.

To change the memory partition size on Macintosh computers:

1. Quit LogoMotion if it is running.
2. Select the LogoMotion application icon in the Finder.
3. Choose File> Get Info. The Info window appears
4. Set the Minimum Size field to the smallest amount of RAM (in kilobytes) you want LogoMotion to use and set the Preferred Size to the largest amount of RAM you'd like LogoMotion to use.

16,000K is the lowest size you should specify for the Minimum Size field.

5. Close the Info window.

Creating a New Scene

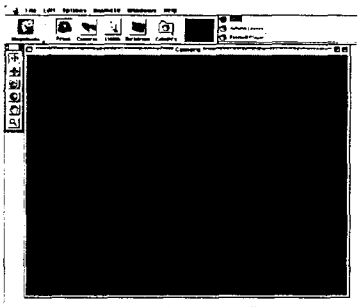
The 3D world document where you create your animations is called a "scene." Each scene is an independent and unique 3D world where you can build, animate, and save models.

When you launch LogoMotion, by default a new scene automatically opens. You can have more than one scene open at a time.

To create a new scene:

- Choose File> New.

A new, blank scene appears in the Camera View window.



A LogoMotion scene file.

Opening an Existing Scene

You can open files you've saved in LogoMotion to continue working on your scenes.

To open an existing scene:

1. Choose File> Open, then locate and select the scene file you want to open.
2. Click Open.

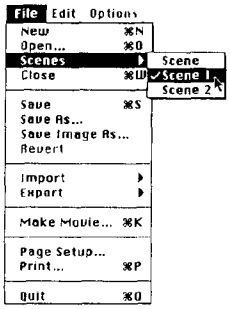
The scene appears in the Camera View.

Switching Between Scenes

You can work on more than one scene at the same time.

To switch between open scene files:

- Choose File> Scenes, then select the scene you want to work on.



You can work on several scenes in the same session.

Saving a Scene

As with almost any software application, it's a good idea to save your LogoMotion scenes periodically.

Saving a scene is different from making a movie of your scene, although the operations look similar. When you save your scenes, you're saving them to a native LogoMotion file format. This lets you open and close the files as needed so you can continue modifying and refining your scenes as much as you want.

Making a movie is a one-shot operation. After you make a movie, you can't edit the movie in LogoMotion unless you go back to the original scene file, make your changes, then make a movie again.

You can also save a scene to an image file format such as PICT or TIFF. Like movie files, once you save a scene as an image, you can't modify the image file in LogoMotion. You need to return to the scene file to make changes, then save it as an image file again.

To save a scene in LogoMotion:

1. Choose File> Save. The Save dialog appears.
2. Type a name for your scene, select a location for it, then click Save/OK.

LogoMotion saves your scene.

Opening and Closing Standard Views

In addition to the Camera View, which is the main window where you create scenes, you can open three standard view windows: Top View, Front View, and Right View.

The Camera View shows you the scene as if you were looking through a camera lens. In contrast, the standard views seem to stand further away from the scene. They show you the scene from different angles, including where the camera object is in relation to the other objects in the scene.

You can have one, all, or none of the standard views open at a time.

To open a standard view:

- Choose Windows> Top View (or Front View or Right View).

Open windows have a checkmark next to them in the Windows menu.

To close a standard view:

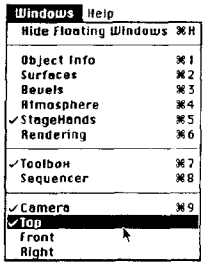
- Click the Close box in the upper left corner of the view's window.

Or

- Deselect the view in the Windows menu.

Making a View the Active Window

Clicking anywhere on any view makes it the active window. You can work in only one window at a time. However, all views update when an object in any one window is manipulated.



Checkmarks in the Windows menu tell you which views are open.

Setting LogoMotion Preferences

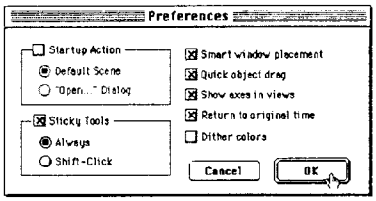
There are various preferences you can set in LogoMotion to suit your own personal working style. The following sections describe the options you can set.

You set options in the Preferences dialog.

To open the Preferences dialog:

- Choose Edit> Preferences.

The Preferences dialog appears.



Start-up Action

You can change the way LogoMotion appears when you launch it:

- Default Scene starts LogoMotion with the Camera View and Sequencer open.
- 'Open...' Dialog starts LogoMotion displaying the Open dialog, which lets you open any scene files you created.

To bypass both of these options, deselect the Startup Action checkbox. LogoMotion launches displaying a dimmed menu bar and Toolbox.

Sticky Tools

The Sticky Tools option lets you keep a tool selected in the Toolbox after you use it. You can toggle Sticky Tools on or off with the checkbox. When Sticky Tools is on, you can have it active at all times (Always), or only when holding down the Shift key.

Quick Object Drag

If you have more than one view open—Camera View and all the standard views for example—moving objects in a window can seem sluggish because the objects have to change in all the views. When Quick Object Drag is turned on, only the window you're working in shows the changes. The other open windows won't reflect the changes until you're done positioning the object. With Quick Object Drag turned off, all the views update interactively.

Show Axes in Views

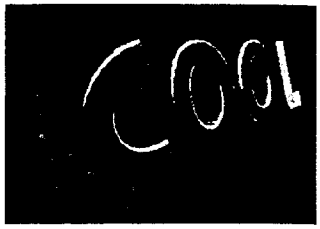
The Show Axes in Views option toggles the axis guides on and off in the views. When you toggle the axis guides on, they appear in every view window. You can't display the guides in only one view; when turned on, they appear in every view.

Return to Original Time

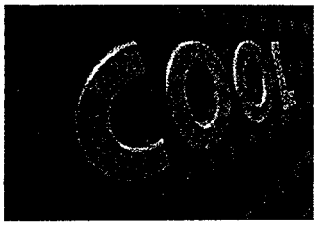
When turned on, this option returns the World Time Marker to its original position in the Sequencer after rendering an animation or detailed preview. If this option is deselected, the World Time Marker remains on the last frame of your animation.

Dithering

Dithering is a method used to trick the eye into seeing a greater range of colors than are actually present in an image. For images represented by fewer than 24 bits of color per pixel, dithering can improve the image quality dramatically. Turn this option on to dither images.



A 4-bit image without dithering.



A 4-bit image with dithering.

Quitting LogoMotion

Before quitting LogoMotion, be sure to save any of your scenes that are in progress.

To quit LogoMotion:

- Choose File> Quit.

Chapter 4

TUTORIAL

Welcome

Welcome to the LogoMotion tutorial. The tutorial introduces you to three of the main tasks in creating a flying logo: creating an object, animating the object, and rendering the scene.

The tutorial is divided into three sections. In the first section, you'll use your name to create a three-dimensional looking logo in chrome.

The second section introduces you to the camera, which "flies" you through the scene, creating an animation.

In the last section, you'll perform similar tasks that are slightly more complex, but you'll use StageHands to get the job done. StageHands are LogoMotion's library of ready-to-use, pre-animated objects, lights and cameras.

Before You Begin

Before you start working through the tutorial, be sure to launch LogoMotion and to place the LogoMotion CD-ROM in the CD-ROM drive so that you'll have access to StageHands. For information about launching LogoMotion, refer to "Launching LogoMotion" on page 17.

See Your 3D Name on the Screen

In this section, you'll use the Text tool to create an object in a scene. You'll then learn how to change the object by modifying its shading and position and by adding a backdrop. Finally, you'll learn how to save your work in LogoMotion.

Lesson 1: Adding a Text Object to a Scene

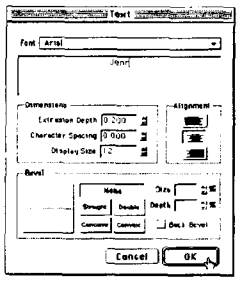
A logo is usually the name of a company displayed in a distinctive font or manner. LogoMotion makes it easy to add a name (or whatever combination of words you want) to the scene by using the Text tool.

To add text to a scene:

1. Choose File> New to create a new scene.

A new, blank scene appears in the Camera View.

2. Select the Text tool from the Toolbox.



3. Click the center of the Camera View window.

The Text dialog appears.

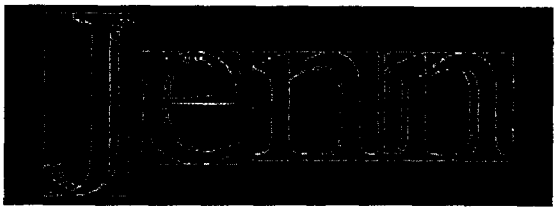
4. Type your name in the text field and choose a font from the font pop-up list.

The fonts you can choose from are the fonts you have installed on your computer.

5. Select the Straight Bevel button to add a beveled edge to your name.

A bevel gives your objects an angled edge, which creates the illusion of depth and helps catch and reflect light.

6. Click OK.



The dialog disappears and in a few moments your name appears in Wireframe mode in the Camera View.

The letters of your name are enclosed in red bounding boxes, which means that your text object is selected.

Lesson 2: Changing Shading Mode

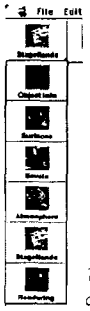
As you work in LogoMotion, you'll find you need to change shading modes quite often, depending on the task you're trying to accomplish. Shading modes let you see the objects in your scene in different ways.

At this point, your name is shown in Wireframe mode. Wireframe mode is like showing you a skeleton of an object—all you see is the underlying structure of the object.

In this next set of steps, you'll change the shading mode of the object so that it appears solid.

To change the shading mode:

1. Click the left-most button in the Control Panel and choose Rendering from the drop-down menu to switch to Rendering mode.



The Control Panel changes to show you various rendering options.

2. Click the Quality button in the Control Panel and choose Fast for the shading option.

In a few moments, LogoMotion redraws your name on the screen.

The letters of your name now appear solid.

If you have QuickDraw 3D installed, click the QuickDraw 3D button to use it. While working within LogoMotion, you'll find that objects shade faster when QuickDraw 3D is activated.

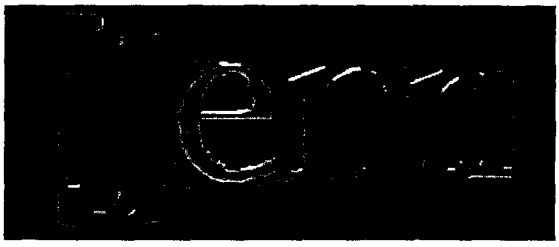
Lesson 3: Changing the Object's Position

You can move objects in almost any direction within a scene. In the last lesson, your name appeared solid after you changed the shading mode. Here, you'll rotate the object a bit to create a greater illusion of depth in the scene.

To rotate your name:

1. Select the Left/Right tool from the Toolbox.

2. In the scene, grab your name by clicking the object, then drag the pointer to the right slightly.



The text rotates slightly and gives a sense of depth to the scene that wasn't there before. The first few letters of your name seem closer to you and look bigger; the last letters look smaller as if they are farther away.

Lesson 4: Adding a Backdrop

Backdrops can easily add special effects to your scenes without requiring you to do a lot of work. The next set of steps shows you how to showcase your name by adding a backdrop to your current scene.

To add a backdrop:

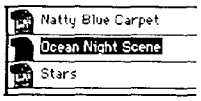
1. Switch to StageHands mode by clicking the left-most button in the Control Panel and choosing StageHands from the menu.

The Control Panel changes to show you StageHands options.

The StageHands Control Panel.

2. Select Backdrops on the StageHands Control Panel.

A list of background images appears in the bin to the right.



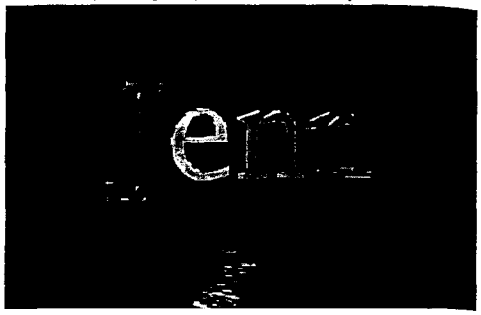
The Backdrops bin in the StageHands Control Panel.

3. To preview an image, click it.

A preview appears in the Control Panel.

4. Select the Ocean Night Scene backdrop, then drag it to the Camera View to add it to your scene.

The backdrop image appears behind your name.



If QuickDraw 3D is turned on in the Rendering Control Panel, backdrop images do not appear.

Lesson 5: Changing Image Quality

So far in this tutorial, you've seen how objects appear when they're rendered in Wireframe and Fast modes. You can increase the quality of the image by setting a new shading option and changing to Rendering mode again.

Typically, you create objects and set up your scene in the faster rendering modes (Bounding Box, Wireframe, Fast) and then switch to higher quality rendering (Better, Best) when you're ready to check how the scene will look when you're done.

The next set of steps shows you how to set options for a high-quality final rendering of your name.

To render a high-quality image:

1. Switch to Rendering mode by clicking the left-most button in the Control Panel and choosing Rendering from the menu.

Anti-alias

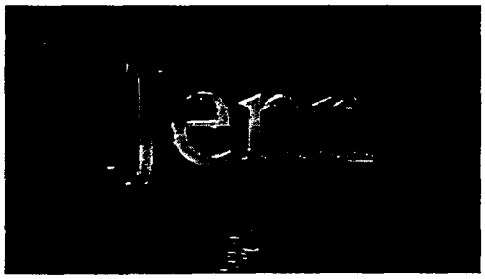
2. Click the Anti-alias button to turn on anti-aliasing.

Anti-aliasing smooths jagged edges in the image. Turning this option on increases rendering time, but is important for obtaining the best quality for your final image.

Quality

3. Click the Quality button and choose Best to change the shading mode.

LogoMotion takes a few moments to render your name smoothly in 3D chrome.



Changing the shading option to Best renders the highest quality image.

Lesson 6: Saving your image

You can save your snazzy, chrome name as a separate image file you can view in other applications.

On Macintosh computers, you can save images as PICT or TIFF files. On Windows computers, you can save images as TIF, JPG, BMP, and other common file formats.

To save your image:

1. Choose File> Save Image As.

A Save dialog appears.

2. Type a name for the file and specify the location where you want to save it.

3. Click Save.

LogoMotion saves your image.

You can view your image in any application capable of displaying common image file formats. Usually, double-clicking the image launches an appropriate viewing application.

Moving On

Congratulations! You've completed the first lesson of the LogoMotion tutorial. At this point, you can quit LogoMotion by choosing File> Quit or proceed to the next section. If you're ready to start the next section, leave LogoMotion running, but choose File> Close to close the current scene.

Make a Flying Logo

This section introduces you to the basics of animation. It shows you how to import an existing EPS logo to use as an object in your scene. It also introduces you to some different tools in the Toolbox and explains how to set up the camera and "fly" it through the scene to create motion.

Lesson 1: Importing an EPS Logo

EPS, which stands for Encapsulated PostScript, is a standard file format available in many image editing applications. If you have a logo image that was created in another application and saved to EPS, you can import it into LogoMotion and use it as an object in your scene.

To import an EPS file:

1. Launch LogoMotion if it's not already running and create a new scene by choosing File> New.

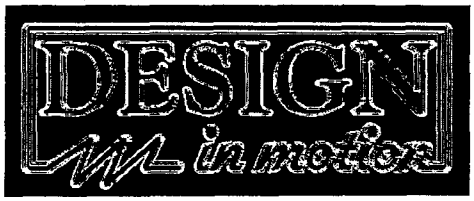
2. Choose File> Import> EPS.

An Open dialog appears.

3. Select the file called Sample EPS located on the LogoMotion CD-ROM in the LogoMotion: Manual's Tutorial Files: Manual Tutorial #2 folder.

4. Click Open.

The Sample EPS file appears in the scene as a 3D extruded object.



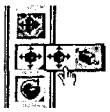
An imported EPS file.

Lesson 2: Resizing an object

Earlier in the tutorial, you saw how to manipulate an object by rotating it in the scene. This next lesson introduces you to the Uniform Scale tool, which lets you proportionally change the size of an object.

To change the size of an object:

1. Click the Uniform Scale tool in the Toolbox.



2. In the Camera View, click the logo object to select it, and holding down the mouse button, drag slightly to the right.

The logo enlarges to fit better in the Camera window.

Generally, dragging to the right with the Uniform Scale tool enlarges an object; dragging to the left shrinks it. The Uniform Scale tool enlarges or shrinks an object along all three axes so that the object always remains in proportion.

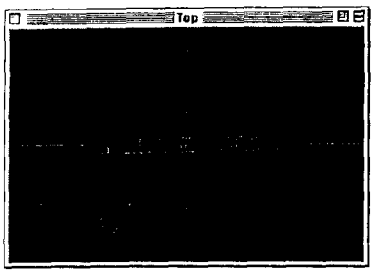
Lesson 3: Setting Up and Moving the Camera

So far in this section, you've imported an EPS file and enlarged it. This next set of steps introduces you to the tools and windows you need to position the camera and make it move through time.

To set up the Camera:

1. Choose Window> Top to open a top view of the Camera window.

A separate window called Top View appears on the screen next to the Camera View.



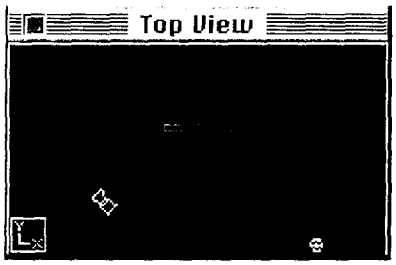
The Top View window

2. Find the camera object. (The camera object only appears in the standard views; it does not appear in the Camera View.)

Depending on the size of your screen and how your desktop is set up, you might not see the camera object in the Top View window, even though it's there. If this is the case, use the Hand tool to move in the Top View until you spot the camera object.

3. Drag the camera object using the V-Plane tool until the camera object is to the right and in front of the text object.

4. Choose Options> Point At> Object to point the camera at the text object.



The camera object points at the text object in the Top View window.

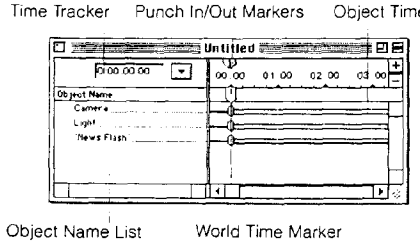
Lesson 4: Flying the Camera Through Time

Changing the position of the camera over time creates motion—an animation. Now that you've set up the camera, you're ready to move it from one point to another. This lesson shows you how to fly the camera through the scene so that the camera looks at the text object from one angle and then another.

To move the camera:

1. Choose Windows> Sequencer to open the Animation Sequencer.

The Sequencer appears on the desktop beneath the Camera View.



The Sequencer.

2. Choose Animate> Snapshot.

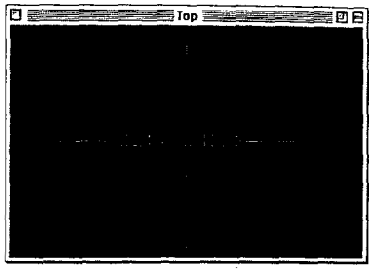
This marks a camera position at a certain point in the animation. The World Time Marker moves forward a half second in time.

3. Return to the Top View and drag the camera object across to the left of your logo

The timeline in the Sequencer shows a bar representing a change to the camera object over time.

4. Choose Options> Point At> Object to point the camera object at the text object again.

This keeps the camera pointing at the text object, even though the camera's position has changed.



The camera still points at the text object.

5. Choose Animate> Preview to preview your animation thus far.

The camera object moves in the Top View window to show you the change in its position.

6. Save your work by choosing File> Save, naming the scene, and clicking Save.

It's a good idea to save your work before rendering an animation.

Lesson 5: Making a Movie

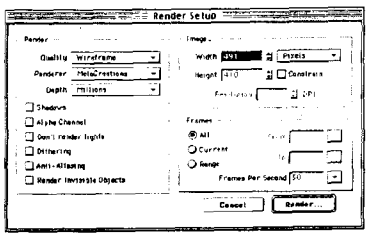
So far in this section you've imported an EPS file to make a text object, enlarged it, set up the camera, and moved the camera position. In this lesson, you'll see how to turn your objects and animations into a movie by rendering.

When you set LogoMotion to rendering, it generates frames for your movie and saves them to disk. Later, you can play the movie and watch the objects in the scene move across your screen.

To make a movie:

1. Choose File> Make Movie.

The Render Setup dialog appears.



2. Set Quality to Best and Frames Per Second to 15, then click Render.

The Save dialog appears.

3. Type a name for your movie and choose a location on your computer to store it.

4. Click Save.

The Render window and Status dialog appear, and LogoMotion begins creating the frames of your flying logo movie. This might take a few minutes to complete.

5. When your movie is finished rendering, close the Render window by choosing File> Exit.

6. Quit LogoMotion by choosing File> Quit when your movie has finished rendering.

Lesson 6: Viewing Your Movie
Once your movie has finished rendering, you can play it.

To view your movie:

- From the desktop, double-click your movie's icon to launch a movie player and watch your movie.

Moving On
Congratulations! You've completed the second section of the LogoMotion tutorial. At this point, you can proceed to the final section or quit LogoMotion by choosing File> Quit. If you're ready to start the last section, leave LogoMotion running and close the scene by choosing File> Close.

Using StageHands

This section builds on the previous sections in the tutorial by showing you how to create a more complex animated movie. Adding complexity, however, is easy when you use LogoMotion's StageHands.

StageHands are a collection of built-in camera moves, light positions, props, and backdrop images. Using StageHands, you can create more complicated animations without having to build every object from scratch.

Lesson 1: Setting up the Scene
In this next lesson, you'll create a new scene, add a text object to it, change the shading mode, and open the Animation Sequencer.

To set up the scene:
1. Launch LogoMotion if it's not already running and create a new scene by choosing File> New.

2. Add a text object to the scene and type the words "News Flash" in the text box.

3. Resize the text object if necessary to make it fit in the window.

4. Change the shading mode from Wireframe to Fast.

5. Open the Animation Sequencer by choosing Windows> Sequencer.

Lesson 2: Applying a Surface to a Text Object
When you change the shading mode to Fast, the text object changes so that it appeared to be made out of a solid material.

A surface is what makes the object appear solid, and the default material surface is chrome. This next lesson shows you how to change the surface of the object.

To change an object's surface:
1. Click the Control Panel and choose Surfaces from the menu.

A list of available options appears in the bin to the right of the Control Panel.

2. Scroll the list of available surfaces, clicking different ones that interest you.

As you click different surfaces, the sphere in the Preview area changes to show the effects of the surface on an object.

3. Once you've settled on a surface you like, drag the name of the surface from the bin and drop it onto the text object in the Camera View.

LogoMotion takes a few moments to redraw the object with its new surface in the Camera View.

Your text appears with the surface you chose.

Lesson 3: Adding a Prop to Your Scene
Props are part of the StageHands collection. They're pre-animated 3D objects you can bring into your scene. They save you time because you don't have to build and animate objects from scratch.

In this next lesson, you'll add a prop to your scene.

To add a prop:
1. Click the Control Panel and choose StageHands from the drop-down menu, then click the Props button.

2. Scroll the list of available props in the bin on the right, clicking different ones that interest you.

As you click different props, the prop in the Preview area changes so you can see what it will look like in the scene.

3. Once you've settled on a prop you like, drag the prop icon from the bin and drop it into the Camera View.

The prop appears in your scene. Notice that the prop's name also appears in the Sequencer and has animation information associated with it.

Lesson 4: Adding a Light to Your Scene
So far in this section, you created a text object, assigned it a new surface, and added a prop to the scene to create some interest. Now you're ready to add some lighting to brighten the scene.

Lights create various effects in scenes and are used to illuminate your flying logos. This next lesson shows you how to add a light using StageHands.

To add a light:

1. Click the Lights button in the StageHands Control Panel.

2. Scroll the list of available lights in the bin on the right.

As you click different lights, the light in the Preview area changes so you can see what it will look like in the scene.

3. Once you've settled on a light you like, drag it from the bin to the Camera View window.

The light appears in the scene and in the Sequencer.

You can see lighting effects (shading for example) in Camera View if Rendering mode is set to Fast, Better or Best. You can't see lighting effects when Rendering mode is set to Bounding Box or Wireframe.

Lesson 5: Deleting the Default Light
In 3D animation applications, the more lights or other effects you add to your scene, the more time it takes to render the scene. Plus you'll find that your objects begin to look washed out when you add lots of lights, so it's a good idea to delete extra lights.

This next lesson shows you how to delete the default light. This light is unnecessary for the scene you're creating.

To delete a light (or any other 3D object in the scene):

1. Choose Options> Select Object> Light. (Light is the name of the default light in this scene.)

2. Press the Delete key to delete the light object from the scene.

LogoMotion redraws the scene using the light you added in the previous task to highlight the scene.

Lesson 6: Adding a Camera to Your Scene
To give your scene a sense of action, you can bring in an animated camera using one of the StageHands cameras. This saves you from having to manipulate the camera object's position and orientation in order to create an animation.

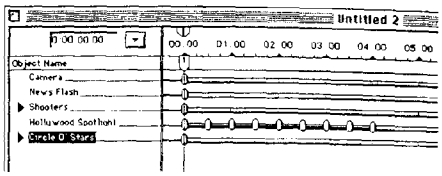
To add a camera:

1. Click the Cameras button in the StageHands Control Panel.

2. Scroll the list of available cameras in the bin on the right.

3. Once you've settled on a camera you like, drag it from the bin to the Camera View window.

The existing camera in the scene is replaced by the one you chose, and the Sequencer updates to show the new camera at the bottom of the list.



The new camera appears in the Sequencer.

Lesson 7: Finishing the Scene

At this point in the section, you've set up a scene that's just about ready to make into a movie. There are a few final tasks: adding a backdrop, saving your work, and of course, making and viewing the movie.

To finish the scene:

1. Add a backdrop.

2. Save your work.

It's a good idea to save your work before rendering an animation.

3. Choose File> Make Movie.

The Render Setup dialog appears.

4. Set Quality to Best and Frames Per Second to 15, then click Render.

A standard Save dialog appears.

5. Name your movie, pick a file format (QuickTime for Macintosh; AVI for Windows), and specify the desktop as the location to save it to.

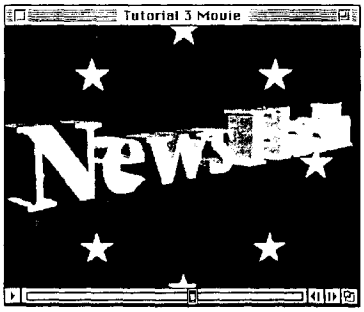
The Render window and Status dialog appear and LogoMotion begins rendering your movie. You can watch the animation frame by frame in the Render window.

Because this scene is more complex than the scenes in the previous sections, it may take longer to render than you expect.

6. When your animation is finished rendering, choose File> Exit to return to the Camera View.

7. View the movie by double-clicking the movie icon on your desktop.

A movie viewing application launches and displays your movie.



Your movie plays on your screen.

On Macintosh computers, the Movie Player Utility plays your movie. On Windows computers, Active Movie plays your movie.

Wrapping Up

Congratulations on completing the LogoMotion tutorial! Now that you've finished the lessons, you might be asking yourself where to go from here? The best way to learn LogoMotion is to experiment on your own. The techniques outlined in this tutorial are only the beginning. You can apply the skills you've learned to any project you have in mind.

The remaining chapters in this User Guide explain in detail the features and functions of LogoMotion, but remember, you can return to this tutorial at any time to brush up on fundamental LogoMotion techniques.

Chapter 5

CREATING OBJECTS FOR YOUR SCENE

Introduction

This chapter describes the tools you use to create objects for your scene. It also explains the Extrude and Lathe Workshops, areas you enter to modify the basic shapes you create. The last part of the chapter gives you information about other ways to create objects, including using StageHands.

Types of Objects

There are three basic types of objects you can create in LogoMotion:

- Text objects—Text objects are 3D objects made up of text strings. LogoMotion automatically extrudes your text string to give it a three-dimensional appearance. You create text objects with the Text tool.
- Extruded objects—Extruded objects are 3D objects that have the same cross section all the way through and are pulled out along a path. An industrial I-beam is an example of an extruded object. You create extruded objects with the Extrusion tool.
- Lathed objects—Lathed objects are 3D objects that have a circular cross section. A wine goblet or a water bottle are examples of lathed objects. You create lathed objects with the Lathe tool.

Creating Basic Objects

This section explains how to create a basic object using each of the object creation tools.

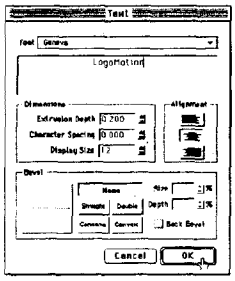
Text Objects

Use the Text tool to create basic text.

To create a text object:

1. Select the Text tool in the Toolbox.
2. Click within the Camera View.

The Text dialog appears.



The Text dialog.

3. Type the text you want to use in the text box.
4. Select a font from the Font pop-up.
5. If you like, change the value in the Extrusion Depth field value if you want a thinner or thicker text object.

Extrusion Depth specifies how far the text will be extruded along the Z axis (that it, how deep it will appear).

6. If you want to bevel your text object, select a

bevel type. Bevels are the angles that extend from the edges of your type characters.

7. Click OK.

You can also create text in the Extrude Workshop.

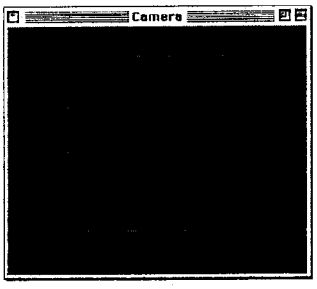
Extruded Objects

Use the Extrusion tool to create an extruded object. The basic extruded object that LogoMotion automatically creates is a cube.

To create an extruded object:

1. Select the Extrusion tool in the Toolbox.
2. Click within the Camera View.

A wireframe cube appears.



3. Before releasing the mouse button, drag to resize the cube so that it's the size you want.

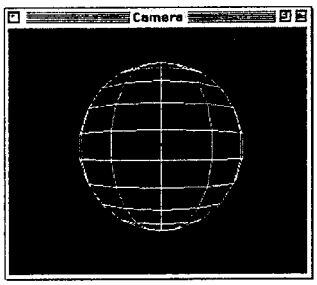
Lathed Objects

Use the Lathe tool to create a lathed object. The basic lathed object that LogoMotion automatically creates is a sphere.

To create a lathed object:

1. Select the Lathe tool in the Toolbox.
2. Click within the Camera View.

A wireframe sphere appears.



3. Before releasing the mouse button, drag to resize the sphere so that it's the size you want.

Editing Objects

You can edit basic objects in LogoMotion to create sophisticated 3D modeled objects. This section describes how to edit text objects you've created. It also explains how to use the Lathe and Extrude Workshops, which are special environments where you can make complex refinements to any lathed or extruded objects.

Editing Text Objects

After you've created a text object, you may decide you want to change it slightly. For example, perhaps you misspelled a word, or maybe you specified a concave bevel when you really wanted a convex bevel. It's easy to make these kinds of changes to text objects.

To edit a text object:

1. Using the H-plane or V-plane tool, double-click the text object you want to change.

The Text dialog appears.

2. Make the changes you want, then click the OK button.

The object updates in the scene with the changes you specified.

Break Text Into Characters

There might be times when you want to edit the letters of a text string as individual extruded objects. LogoMotion lets you break a text string into characters. When you do this, the first letter is designated as a parent object; the remaining letters are linked as child objects. For more information on parent-child linking (also known as hierarchical modeling), see "Using Hierarchical Models" on page 57.

To break a text string into characters:

- Select the text object and choose Options> Break Into Characters.

Breaking text objects into characters is an action that cannot be undone. It also applies to all points in time. Make sure you use it with caution.

Editing Lathed and Extruded Objects

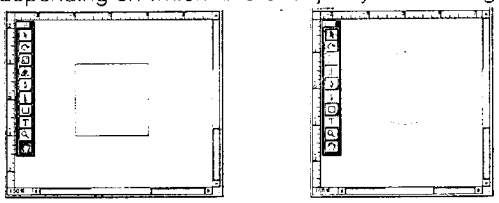
Lathed and extruded objects are edited in special areas of the application called the Extrude and Lathe Workshops. Using the Workshops, it's easy to create a wide variety of complex 3D objects that begin with simple sphere and cube objects.

The Extrude and Lathe Workshops are very similar. Most of the tools and functions work the same in both workshops, but some of the tools are unavailable in the Lathe Workshop.

The next several sections give you an overview of the Workshops and provide details on the Workshops' tools. Differences between the Extrude and Lathe Workshops are also explained.

Workshop Overview

Two large windows appear when you enter the Workshop. One of the windows is the Object window, which shows a preview of your 3D object. The other window is either the Lathe or Extrude window, depending on which kind of object you're editing.



The Extrude window on the right and the Lathe window on the left.

To enter the Workshop:

1. Using the V-Plane tool, double-click a lathed or extruded object (a sphere or cube).

Or

Select a lathed or extruded object, then choose Options> Edit Object. .

Or

With a lathed or extruded object selected, press Command/Ctrl-E.

2. Click OK if you see a message that asks "Convert the primitive into an editable spline object?"

Cubes and spheres are considered primitive objects and are stored in an optimized format. When you change them into spline-based objects, they take slightly longer to render.

When you're through editing an object, you can leave the Workshop.

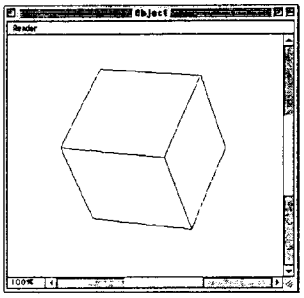
To exit the Workshop:

- Choose File> Exit Workshop.

LogoMotion returns you to your scene.

The Object Window

The Object window provides a 3D view of the object. This view isn't used to build objects, but simply shows a preview of your work in progress.



The Object window shows a 3D view of your object.

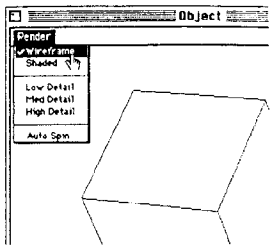
You can use three tools from the Toolbox in the Object window:

- The Rotate tool, which rotates the preview so it can be viewed at any angle
- The Magnifying Glass tool, which zooms in or out of the Object window
- The Hand tool, which repositions the preview in the window.

These tools are described in more detail later in the chapter.

The Render Menu

In the top left corner of the Object window is the Render menu. The Render menu lets you choose the way you want the preview in the Object window to render.

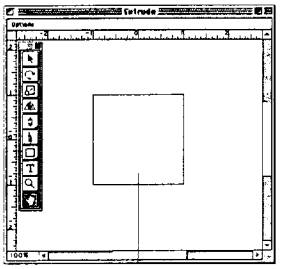


The Render menu in the Object window

- Shaded uses QuickDraw 3D to show a solid, shaded object. If QuickDraw is not active, LogoMotion shows a gray shaded object in the Object window.
- Low Detail, Medium Detail, or High Detail determines the quality of the preview. High Detail is useful for viewing detailed objects.
- Auto Spin continuously spins the preview, which is useful if you want to see the object from all sides. First, choose Auto Spin, then rotate the preview with the Rotate tool.

The Extrude Window

If you've brought an extruded object (a cube) into the Workshop, the Extrude window appears across the top of the screen above the Object window.

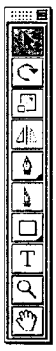


Cross section outline

The Extrude window in the Extrude Workshop.

The Cross Section Outline

The outline in the Extrude window is called a cross section. LogoMotion extrudes the outline through space to create a 3D object. A default cube outline automatically appears in the Extrude window when you first enter the Workshop. You modify the outline using the tools from the Toolbox. The next section describes the tools in the Toolbox.



The Toolbox

The Workshop Toolbox contains tools you can use to draw outlines, which in turn creates 3D objects. These tools will probably seem familiar to you if you've used a 2D drawing application such as Adobe Illustrator.

The Toolbox for the Lathe window

Some tools are available only for certain windows. For example, only three of the tools in the Toolbox can be used in the Object window. The rest of the tools are unavailable and appear dimmed. If a tool appears dim, it means it's not appropriate to use it in the active window.

The Arrow Tool

The Arrow tool is used to select, move, and edit points in the Extrude window. Points define the shape of an object's cross section. Multiple points are connected by lines in a "connect-the-dots" fashion, creating an outline.

There are a few ways to select points with the Arrow tool:

- Click a point on the object outline.
- Drag a marquee around the points you want to select in the Extrude or Lathe window.
- Hold down the Shift key and click multiple points. To deselect a point, hold down the Shift key and click the point again.
- Choose Edit> Select All to select all points at once.

To move points, select them and drag them to a new location. To move an entire outline, click a spot on the outline that doesn't contain a point and drag it to a new location.

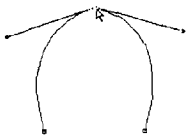
Editing Points with the Arrow Tool

You can also use the Arrow tool to edit points. There are four types of points in the Workshop: plain, corner, curve and smooth.

Plain points create sharp corners and straight lines.

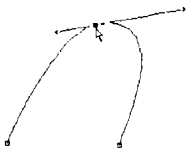
A plain point.

Corner points have bezier spline handles. These handles control the shape of the lines extending from the point. Spline handles on corner points can be manipulated independently of one another.



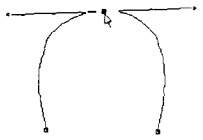
A corner point.

Curve points have spline handles of different lengths but which always remain parallel. This prevents sharp corners or seams on curve points.



A curve point.

Smooth points have pline handles that are both parallel and of the same length. Smooth points ensure the smoothest, roundest curves in an outline.



A smooth point.

To change a point from one kind to another:

1. Select the point.
2. Choose Object> Type of Point.

You can change the shape of a outline by dragging the spline handles on a point.

If a spline handle is moved so close to its parent point that the handle disappears, simply click the parent point and drag the handle away from it.

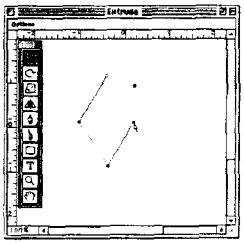
Tip: Holding down the Shift key while dragging a spline handle constrains a point's rotation to 45 degree increments.

Joining Points

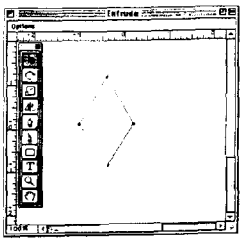
Sometimes you might find it useful to join two points that are not connected.

To join two points:

- Select two end points of a curve and choose Object> Join Points.



The top graphic shows points before being joined; the bottom graphic shows points after being joined.



Splitting Points

Other times you might want to split two adjacent, connected points.

To split connected points:

- Select the points and choose Object> Split Points.

The Rotate Tool

The Rotate tool rotates selected points around a center of rotation.

To rotate points:

1. Select the point(s) you want to rotate.
2. Click the Rotate tool.

A small cross-hair appears in the Extrude or Lathe window.

3. Click a spot in the window around which you want the selected points to rotate.

The cross-hair moves to that spot.

4. Drag the cross-hair to rotate the selected points.

In the Object window, the Rotate tool simply spins the object preview.

The Scale Tool

The Scale tool scales selected points towards and away from a chosen location.

The scale tool works in the same fashion as the Rotate tool.

To scale points:

1. Select the point(s) you want to scale.
2. Click the Scale tool.

A cross-hair appears in the Extrude or Lathe window at the place from which your selected points will scale.

3. Click a spot in the window that you want the selected points to scale to.

The cross-hair moves to that spot.

4. Drag the cross-hair to scale the points.

The Flip Tool

The Flip tool lets you flip selected points over an arbitrary line and rotate them afterwards. This tool functions like the Rotate and Scale tools.

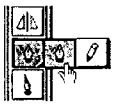
To flip points:

1. Select the points you want to flip.
2. Choose the Flip tool.

A cross-hair appears in the Extrude or Lathe window.

3. Click a spot in the window around which the points will flip.
4. Click and drag the pointer.

A line appears between the mouse and the cross-hair, over which the selected points flip. If you continue to drag the pointer, the points rotate.



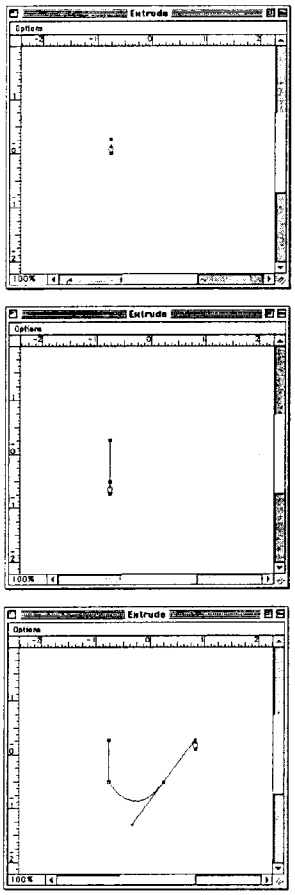
The Pen and Pencil Tools

The Pen and Pencil tools are used to draw new outlines.

Both of these tools occupy the same space on the Toolbox. To switch between the two, click the icon on the Toolbox and pick one from the pop-up.

The Pen Tool

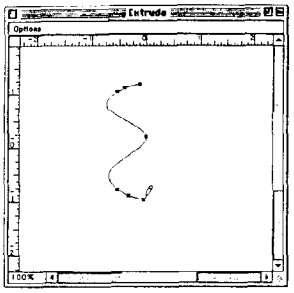
You can create new outlines with the Pen tool. Click the Pen tool several times in the Extrude or Lathe window to create a chain of points. Clicking and dragging lets you drag the spline handle of the newest point. This can help you easily create smooth, curved shapes.



1) Click with the Pen tool to create an anchor point.
2) Click again to add a straight line.
3) Click and drag to create a smooth curve.

The Pencil Tool

You can draw freehand outlines with the pencil tool. Simply drag the pointer in the Extrude or Lathe window as if it were a pencil. LogoMotion creates a series of spline points to smoothly fill in the path you draw.



The Pencil tool draws freehand curves.

Adding and Removing Points

You can add new points into an existing outline or remove points from an outline with the Pen or Pencil tool.

To add points to an existing outline:

1. Select the Pen or Pencil tool and place it on the path at the spot where you want to add a point.
2. Hold down the Option/Alt key.

A small + (plus sign) appears beside the pointer.

3. Click to add a point to the path at the location of the pointer.

To remove points:

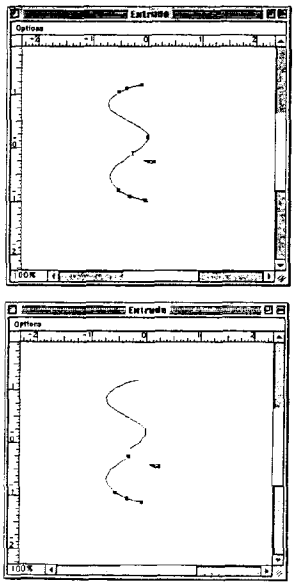
1. Select the Pen or Pencil tool and place it directly on top of the point you want to remove.
2. Hold down the Option/Alt key.

A small – (minus sign) appears beside the pointer.

3. Click to remove the point.

The Razor Tool

The Razor tool splits outlines in the same way that scissors cut paper.



The first graphic shows an outline before using the Razor tool; the second shows the outline after it's been cut.

The Polygon Tools

The four polygon tools create closed outlines. They occupy the same space on the Toolbox. To switch between the tools, click the icon on the Toolbox and pick one from the pop-up.

The four types of polygons you can create are rectangles, ellipses, rounded rectangles, and regular polygons (such as hexagons).

To create a polygon:

1. Select the polygon tool you want to use.
2. Click in the Extrude or Lathe window and drag the pointer until the polygon is the size you want.

Tip: Holding down the Shift key while using one of the Polygon tools constrains the polygon to equal proportions. This creates perfect circles, squares, and so on.

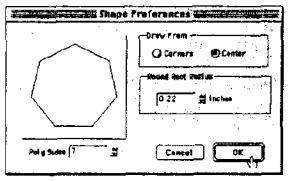
To change the number of sides of a regular polygon:

1. Double-click the Polygon tool.

The Shape Preferences dialog appears.

2. Set the number of sides you want for the polygon in the Poly Sides field.
3. Click OK.

The next time you use the tool, it draws a polygon with the number of sides you specified.



Change how the Polygon tools work in the Shape Preferences dialog.

The Text Tool

The Text tool allows you to create text outlines. These are no different from other outlines created in the Extrude Workshop, so they can be edited with the Toolbox tools.

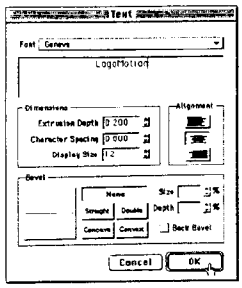
Usually, the quickest way to create text in a scene is to use the Text tool from the main Toolbox and place text in the Camera View. The advantage to using the Text tool in the Workshop and manipulating it in the Extrude window is that you can create unusual effects by manipulating the individual points in the text outlines.

The Text tool is not available in the Lathe Workshop.

To create text in the Extrude window:

1. Click the Text tool, then click in the Extrude window.

The Text dialog appears.



The Text dialog.

2. Choose the font, text, and spacing you want, then click OK to add the text to the Extrude window.

The Magnifying Glass Tool
The Magnifying Glass tool lets you change the view by zooming in or out of a window.

To zoom in on a workshop window:
1. Click the Magnifying Glass tool.
2. Drag a marquee around the area you want to zoom.

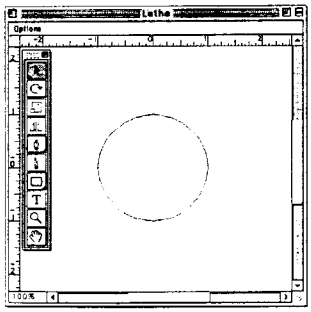
To zoom out of a workshop window:
1. Click the Magnifying Glass tool.
2. Hold down the Option/Alt key and click in the window.

The Hand Tool
The Hand tool lets you reposition your view of the contents in a window. This is useful when an outline or object preview is not centered in a window; the Hand tool lets you position it where you like.

To reposition your view:
- Click the Hand tool, then drag in the Extrude or Lathe window to reposition the contents of the window.

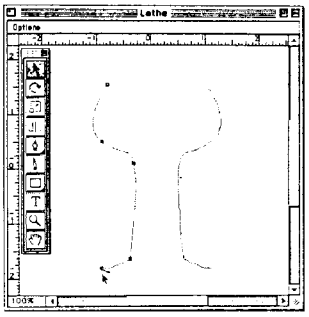
The Lathe Window

If you double-click a lathed object (such as a sphere) in the Camera View window, you enter the Lathe Workshop. The Lathe window in the Workshop looks similar to the Extrude window, but the Lathe window sits side-by-side of the Object window, rather than on top of it as in the Extrude Workshop.



The Lathe window

While the Lathe and Extrude windows look very similar, the outline in the Lathe window functions in a different manner. The outline is spun around a vertical axis to create a 3D object.



When spun around a central axis, this outline creates a vase-shaped object.

The best way to build a lathed object is to work on one side of the vertical axis in the Lathe window ("0" on the ruler at the top of the window). Any outline you create is mirrored on the other side of the axis. There can only be one outline in the Lathe window; the mirror outline is shown on the other side of the vertical axis.

Using Tools in the Lathe Workshop

The Lathe window's Toolbox looks identical to the Toolbox in the Extrude window, but not all tools are available for use. The unavailable tools appear dim on the Toolbox. The tools that are unavailable in the Lathe Workshop are

- The Uniform Scale tool
- The Rotate tool
- The Razor tool
- The Text tool

The Lathe Workshop Toolbox

The remainder of the tools function as they do in the Extrude window, but because the outline must be a single "string" of points, you can't have multiple, separate outlines in the Lathe window.

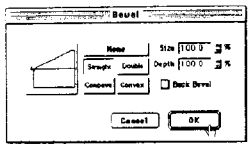
Adding Bevels in the Extrude Workshop

You can add bevels to extruded objects in the Extrude Workshop.

To add a bevel to an extruded object:

1. Choose Object> Bevel.

The Bevel dialog appears, from which you can apply and customize a bevel of your choice.



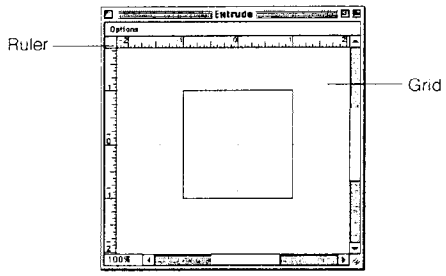
The Bevel dialog in the Extrude Workshop.

2. Choose the kind and height of a bevel you want, then click OK.

LogoMotion applies the bevel to your object in the Workshop. The object remains beveled when you exit the Workshop and return to the scene.

Rulers, Grids and Guides

Rulers are visible across the top and left side of the Extrude and Lathe windows. Rulers can be very useful when precisely positioning or aligning points.



Rulers and grids appear by default.

Grids

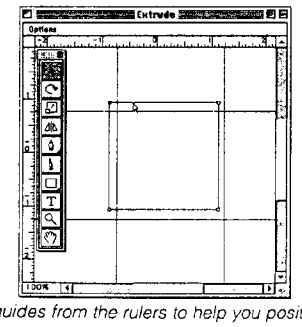
Grids also help you position points in the windows. By default, each grid mark represents one quarter of an inch, but you can change this setting by choosing Edit> Rulers. You can also change other ruler settings such as magnification by choosing Edit> Preferences.

To make points snap to grid points:

- From the Extrude or Lathe window title bar, choose Options> Snap to Grid.

Guides

Guides can be very handy when precise measurements are required. You can add vertical and horizontal guides to the Extrude and Lathe windows by clicking a ruler and dragging a guide into the window. To remove a guide, simply drag it back onto the ruler.



Drag guides from the rulers to help you position points.

To make points snap to guides:

- From the Extrude or Lathe window title bar, choose Options> Snap to Guides.

Locking guides makes them unmovable, preventing them from interfering with point manipulation.

To lock guides

- From the Extrude or Lathe window title bar, choose Options> Lock Guides.

Creating Other Objects in LogoMotion

There are a few other ways to create objects in LogoMotion:

- You can cut, copy, and paste objects from other scenes
- You can import 2D EPS files
- You can import models created in other applications
- You can add pre-made StageHands to your scene

Cutting, Copying and Pasting Between Scenes

You can cut, copy and paste objects, object hierarchies, and object animation information between scenes. This is a quick way to add objects into your scene. It also allows you to build up libraries of objects in different files for easy access.

For instance, it's probably more convenient to create an object you want to use over and over (such as a logo) by itself in its own file, and then copy and paste that object into a complex, animated, flying-logo scene later.

Note, however, cutting, copying, and pasting must take place during the same session. You cannot copy an object, quit LogoMotion, re-launch it, and paste in your objects.

When you cut or copy an object, LogoMotion also copies the surfaces and animation information for each object. When you later paste the object, you're also pasting the surfaces and animation associated with it.

Importing EPS Files

3D objects can be built from 2D EPS files created with applications such as Adobe Illustrator™, Macromedia Freehand™ and CorelDRAW™.

You can import an EPS file while working in the Camera View or while in the Extrude or Lathe Workshops. If you import an EPS file while in Camera View, you have the choice of extruding or lathing the object. If you import an EPS file while in either the Extrude or Lathe Workshops, it's extruded or lathed automatically.

To import an EPS file:

1. Choose File> Import EPS.

An Open dialog appears.

2. Choose the EPS file you want to import

Extruding an EPS file means that the outline stored in the EPS file will be pulled through 3D space to create an object like a 3D logo or text. Lathing an EPS file means that the outline will be spun around a central axis, creating glasses, cones, spheres, and similar shapes.

If an EPS file is imported directly in the Extrude or Lathe workshop, it will be extruded or lathed, depending upon which workshop is open when you import. It's more common to extrude EPS outlines; there are a few things to consider when lathing them:

- Because lathed objects are built from a single "open" outline, your EPS file must contain only one chain of points.
- The outline contained in the EPS file will be used as the left edge of the object, which is then spun to create the solid, 3D object.

Sometimes LogoMotion is unable to import an EPS file because the file has no valid path outlines. Raster images (such as photos and scans) and text generally fall into this category. If this is the case, you need to convert whatever is stored in the file into path outlines. To do this, use an application such as Adobe Illustrator, Adobe PhotoShop, or CorelDRAW.

Importing Models

LogoMotion can import 3DMF files, and most DXF files. Imported objects can be used the same way objects created in LogoMotion are used. The only restriction is that imported 3D objects cannot be edited in the Workshops.

To import objects in either format:

1. Choose File> Import> Objects.

The Import Object dialog appears.

2. Select either 3DMF or DXF formats in the pop-up, select the file you want to import, then click Open.

DXF import

Although the Import Object dialog shows all existing DXF files, only those that contain 3D Polyline information can be imported. Standards for the DXF file structure are very general and each application that outputs DXF files does so slightly differently. Approach the use of a DXF file with care because the results may be unpredictable.

The LogoMotion DXF import filter supports most commands in DXF files, except for the 3D Polyface Mesh command. Most DXF files do not use this command.

When you import a DXF file, you have the option of making the model render as a smooth object. After you choose the file you want to import, a dialog appears, presenting you with these choices for interpreting the model:

- Always Smooth. LogoMotion forces all the faces of the object to appear as smooth as possible.
- Never Smooth. LogoMotion forces the object to be as faceted as possible.
- Smoothing Angle. You can specify the angle under which the edges of the model are smoothed. Edges with angles sharper than the smoothing angle remain unsmoothed and sharp.
- Scale and Center. Regardless of the imported object's natural size and position, Scale and Center causes it to appear in the center of the scene at a manageable size.
- One Object Per Layer. This option causes the file to be stored in an internal format that performs efficiently. If you have difficulty importing large DXF files, be sure this option is checked.
- Link Objects. If a DXF file contains many individual objects, Link Objects brings them into LogoMotion as a hierarchy so they can be moved and animated more easily as a group.
- Use Color Info. If this box is checked, DXF objects are imported with colors if color information was saved in the DXF file to begin with.

3DMF Import

3DMF files are very similar to DXF files, but the file format is more standardized than the DXF file format. 3DMF files are most common on Macintosh computers, but can be used under Windows 95 or Windows NT 4 if the QuickDraw 3D DLL files are present on the computer.

You import 3DMF files the same way you import DXF files. The import options are identical between except for these items:

- One Object Per Layer is not an available option.
- Use Color Info is not an available option.
- Force Backfaces is an option appropriate for 3DMF files only. Colors on 3DMF objects are automatically used in LogoMotion. The Force Backfaces option forces LogoMotion to draw both sides of the object—the side facing the camera and the hidden side. (Normally, LogoMotion shades only the visible side of objects). If a 3DMF object seems to have pieces missing, re-import the object and make sure Force Backfaces is checked.

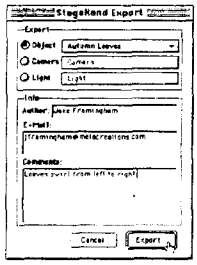
Creating Object with StageHands

StageHands let you add premade objects to your scene. With LogoMotion, you're not limited to using the StageHands that come with the program. You can easily create your own props, cameras, and lights.

To create your own StageHands:

1. Create an object using the tools and information provided earlier in the chapter.
2. Choose File> Export StageHand.

The Export StageHand dialog appears.



3. Select the type of StageHand that you want to create: prop, camera, or light.
4. Choose the object in the scene you want to export.
5. Enter details about the object, such as your

name, address, e-mail, and other comments.

6. Click Export.

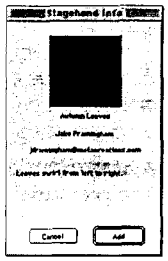
On Macintosh computers, a QuickTime preview is automatically generated for your new StageHand. On Windows computers, an AVI preview is created.

Once you have your new StageHand, you can use it in different projects or post it online to share with others.

You can create your own custom folders in which to store your new StageHands. Just create new folders inside the Props, Cameras, or Lights folder on your hard drive. This way, the folder name appears when you press the Category pop-up in the StageHands Control Panel. This helps you organize your StageHands for future use.

Viewing StageHand Information

If you double-click a StageHand in the bin in the StageHands Control Panel, the StageHands Information dialog appears. If the StageHand is a custom-made object, you'll find information such as the name of the person who created the StageHand, his or her e-mail address, and additional comments. If the StageHand is one that came with your LogoMotion package, the dialog displays only the StageHand name. Click the Add button to place the StageHand into your scene.



The StageHand Info dialog.

Chapter 6

ARRANGING OBJECTS IN YOUR SCENE

There are various ways to arrange the objects in your scene. You can quickly use the tools in the Toolbox, or you can precisely place objects by entering and changing values in a Control Panel. This chapter explains the various ways you can adjust and position the objects in your scene.

Working Directly in Your Scene

The simplest way of arranging objects is to use the tools in the Toolbox.

Moving Objects

Use the V-Plane or H-Plane tool to move an object left, right, in, out, up, or down in a scene. For additional information about the V-Plane and H-Plane tools, refer to "The Move Tools" on page 6.

To move an object:

1. Select an object in the scene.
2. Click either the V-Plane or H-Plane tool.
3. Drag the object to the location you want.

Tip: If you have lots of objects in a scene, the objects can start to get in the way of other objects, making it difficult to select or drag an object that is obscured. If this happens, hold down Command/Ctrl and click the object you want to select. A pop-up menu containing the names of all objects beneath the pointer appears, from which you can choose the object you want.

Tip: If you hold down the Option/Alt key while moving the object with the H-plane or V-plane tool, it is duplicated and repositioned. This is the quickest way to clone objects.

Constraining the Move Tools

As you're creating your scene, you may want to position objects accurately. One way to do this is to restrict an object's movement to a single direction when moving it. When you click an object, its red bounding box appears to show you that it is selected. If you hold down the Shift key while dragging the pointer over one of the sides of the bounding box, the object is constrained to move along only one axis.

Scaling Objects

Use the Uniform Scale tool or the Squash and Stretch tool to change the size of an object in the scene. The Uniform Scale tool changes the overall size of the object without changing its proportions. The Squash and Stretch tool compresses or lengthens an object in the direction you specify.

To uniformly scale an object:

1. Select an object in the scene.
2. Click the Uniform Scale tool.
3. Drag the object's bounding box so that it grows larger or smaller, whichever you prefer.

The object expands or contracts in all directions at once.

To squash or stretch an object:

1. Select an object in the scene.
2. Click the Squash and Stretch tool.
3. Drag the pointer over any face of the object's bounding box.

The object squashes or stretches in that direction.

Rotating Objects

Use one of the rotate tools to rotate an object in any direction. You can rotate an object towards or away from you, left or right, or around.

To rotate an object:

1. Select an object.
2. Click one of the rotate tools.
3. Drag the object in the direction you want it to rotate.

Editing Objects in Object Info Mode

You can make changes such as visibility, shadow-casting, position, orientation and scale to objects in Object Info mode.

Visibility

There will be times when you want individual objects to be invisible. Invisibility can be especially useful with lights so that they won't appear when rendering your final scene. When you turn the Visible button off, the object is invisible throughout world time.

You can make an object seem to disappear during an animation by double-clicking an eventmark in the Sequencer and clicking End Animation in the dialog that appears. For more information about end animation, refer to "Ending Animation" on page 86.

Shadows

Objects have the ability to cast shadows on other objects. This ability, on by default, can be turned off or on by clicking the Shadows button in Object Info mode.

Shadow casting cannot be animated. It is either on or off for the entire sequence. Objects that cast shadows take a bit longer to render than objects that do not cast shadows, but shadows can add a dramatic sense of depth to scenes with overlapping objects.

Shadows appear only when shading is set to Best mode. Be sure that lights in the scene are set to cast shadows, and that shadows are turned on in the Rendering Control Panel before making your final movie.

Editing Object Values

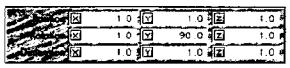
When you select an object in a scene, values representing that object's exact position, orientation, and dimension appear in the Object Info Control Panel for the current point in time. Values are given in world coordinates that are relative to the center of the world (0,0,0), unless the object is part of a hierarchy. (If it is part of a hierarchy, values are relative to the object's parent.)

To the left of each value box is a lock. Each value can be frozen by clicking its lock. By locking these values, you can restrict an object's ability to move or rotate, or restrict its scale. If you lock all nine locks, you freeze the object entirely. If you unlock all nine locks, you can freely move, rotate and scale the object.

Objects can be manipulated with the Object Info Control Panel by simply changing values and clicking the Apply button.

Setting an Object's Position

The Object Info Panel is often used to position objects.



The Object Info Panel.

To position an object at the center of the world:

1. Select an object.
2. Select the text in the X Position box in the Object Info Control Panel.
3. Type 0 (zero), then press the Tab key to move to the Y Position box.
4. Type 0 (zero) for the Y position, then press the Tab key to move to the Z Position box.
5. Type 0 (zero) and click the Apply button.

LogoMotion redraws the object at the exact center of the world.

Follow the above steps to position objects elsewhere in the world, substituting new values for the 0 values you entered.

Setting an Object's Orientation

The orientation (rotation) of an object can be adjusted in the same manner as position—all you have to do is adjust the values and click the Apply button. Using the Object Info Control Panel is a good way to precisely rotate an object. For example, you could rotate an object exactly 90 degrees.

When you rotate an object with the rotate tools in the Toolbox, the rotation is relative to the view you're working in. In contrast, the orientation values in the Object Info Control Panel are determined in relation to the world's X, Y, and Z axes.

Setting an Object's Dimension

You change dimension values in Object Info mode the way you change position or rotation values.

Dimension values are determined relative to the object. Changing the Z scale value, for instance, always scales the object along its own Z axis, regardless of its orientation.

If you enter a value of 0 (zero) in all the Dimension value boxes, the object disappears. It still exists, but becomes so thin that it is invisible.

Using the Object Info Panel to Lock Values

As mentioned earlier, LogoMotion allows you to lock the values of an object's position, orientation, or scale using Object Info mode. Using a lock freezes that value until you open the lock.

Locking can be helpful if you have a scene with many objects. It prevents you from inadvertently moving, rotating, or scaling an object you didn't intend to change.

Position Locks
Locking position values prevents an object from being moved along an axis.

Notice the lock icons on the values that are frozen.

To lock an object's position:

- Click the lock next to the axis you want to lock.

The lock icon changes to the locked position, preventing you from moving the object along that axis. If you lock all three position axes, the object is completely frozen in space. (The object is still free to scale or rotate, however.)

To unlock an object:

- Click the lock again. Unlocking a lock lets you move the object along that world-relative axis.

Orientation Locks
You lock an object's orientation in the same way you lock its position—by clicking the orientation locks next to the axes you want to lock. When an axis is locked, the object cannot be rotated around that axis. If all axes are locked, you cannot rotate the object at all. Unlocking an axis allows the object to be freely rotated around that axis.

Dimension Locks
Locking an object's dimension is similar to locking its position or rotation. By locking the dimension values, you can prevent an object from changing size along its own X, Y, or Z axis.

Selecting Obscured Objects

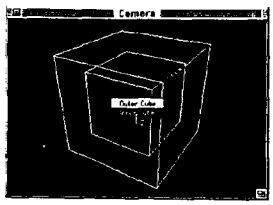
Sometimes it's impossible to select an object by clicking it in one of the view windows (for example, if an object is completely inside another object). LogoMotion provides a solution to this problem by allowing you to select from a list of overlapping objects when working in a view window.

To select an obscured object:

1. Place your pointer over any object or group of overlapping objects in a view window.
2. Hold down the Command/Ctrl key and click.

A pop-up menu showing available objects (based on the pointer's position) appears.

3. Select the object you want from the list.



Hold down the Command/Ctrl key while clicking to select the inner cube.

This technique works best when you descriptively name your objects. (For information about naming your objects, see "Visibility" on page 54.) The other ways to select obscured objects are

- Choose an object by name in the Sequencer. For more information about the Sequencer, refer to "The Sequencer" on page 79.
- Choose Object> Select Object and pick the item from the pop-up.
- Select the object from the Object pop-up in the Object Info Control Panel.

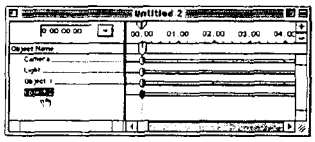
Using Hierarchical Models

One of LogoMotion's powerful features is its ability to attach objects together to form object "hierarchies." Building object hierarchies is a convenient way of organizing your objects and creating complex models out of simpler component parts. Changes you make to a complex object, such as rotating it, affect all the objects linked to it.

Creating Object Hierarchies
Object hierarchies are formed by attaching one or more child objects to a parent object. A child is dependent on the parent; the position and orientation of the child are calculated relative to the parent, and the locks that you apply to the child restrict its motion relative to the parent. When you move the parent object, the child or children always follow. An object may be the child of a parent, and at the same time be a parent to another child that you hierarchically link to it.

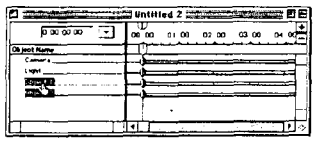
To attach an object to another object:
1. Open the Sequencer window by choosing Windows> Sequencer.

The names of all the objects in the scene are listed in the left side of the Sequencer window.



Objects listed in the Sequencer.

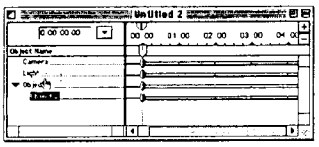
2. Drag the name of the object you want to be the child onto the name of the object you want to be the parent.



Object 2 is being dragged onto Object 1.

3. When the parent object's name is highlighted, release the mouse.

The child object's name appears indented under the parent object's name



Object 2 is now a child of Object 1.

The objects are now attached hierarchically. If you use any of the manipulation tools in the scene on a parent object, the child object(s) attached to it are affected as well.

A child object can only have one parent object. You can attach a child to a different parent; just drag the child from the existing parent object to a new object. The link to the previous parent is automatically broken and the new object becomes the parent object.

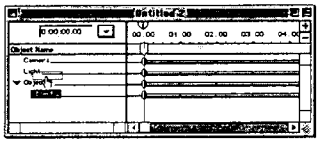
Unlinking Objects

Separating child objects from their parents is as easy as attaching them.

To separate linked objects:

1. Open the Sequencer by choosing Windows> Sequencer.

2. Drag the name of the child object you want to free to a space between object names, above the parent's name (so that no other object names are highlighted).



Breaking the link between Object 1 and Object 2.

3. Release the mouse button.

The object is separated from its parent and appears in the object name list with no indentation.

Once an object is unlinked, it is no longer influenced by the manipulation of other objects.

Resizing Object Hierarchies

The Scale tools provide a great deal of flexibility when working with object hierarchies.

When you scale a parent object with the Uniform Scale tool, any children of that parent scale in proportion to the parent.

The Squash and Stretch tool ignores object hierarchies. It works with individual objects only. Use the Squash and Stretch tool to manipulate any object individually, whether or not it is a part of an object hierarchy.

When using this tool, the object is squashed or stretched towards or away from the side of the bounding box that you clicked.

Duplicating Objects

Duplicating objects can be a great time-saver when arranging objects in a scene. When you duplicate an object, LogoMotion makes an exact copy. All of the original object's surface and animation information is copied and the duplicated object is placed in the scene slightly offset from the original. If the object is a parent object, any child objects are also duplicated, retaining the same hierarchy.

To duplicate an object:

- Choose Edit> Duplicate.

Or

- Hold down the Option/Alt key while dragging the object with a Move tool.

Manipulating Centerpoints

Every object in LogoMotion has a centerpoint. This centerpoint is adjustable and allows you to control an object in specific ways.

There are two different classes of centerpoints: object centerpoints and world centerpoints. In the scene, every object has a centerpoint that is used for rotation purposes. These centerpoints can make objects easier to control during an animation.

The second type of centerpoint is the location of a lathed or extruded object's centerpoint, as defined in the Workshop. This centerpoint is most useful when designing objects and when controlling squash and stretch effects for animation.

World Centerpoints

The world centerpoint for all objects is, by default, the exact center of the object's geometry. You can adjust this centerpoint by dragging the object in the world while holding down the Control/F2 key.

As you move the object with the Control/F2 key held down, you'll notice that the object moves, but the centerpoint for that object is left behind.

Adjusting the world centerpoints is most useful for controlling objects during an animation. For instance, if you want the camera object to rotate around a sphere while remaining focused on the sphere, you can adjust the camera so that the centerpoint is located at the center of the sphere and the Camera object is located at a distance from this centerpoint. Then, when you rotate the Camera, it will rotate around the adjusted centerpoint, and revolve perfectly around the sphere while continuing to aim towards it.

Object Centerpoints

Lathed and extruded objects have an object centerpoint. This object centerpoint determines how the model is built, and consequently, how it will react to squash and stretch techniques for animation.

In each of the Workshops, you'll notice horizontal and vertical axes that cross at 0, 0. This intersection is the object's centerpoint. If you design a wine glass with the Lathe Workshop and you place the profile so that it is centered on the horizontal axis, it will squash or stretch evenly when you use the Squash and Stretch tool in the scene.

Chapter 7

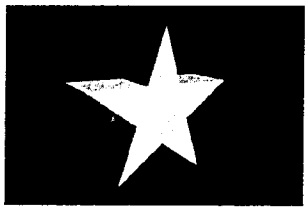
BEVELS AND SURFACES

Bevels and surfaces affect the outer layer of objects. Bevels determine what the edge of an object looks like and surfaces are the type of material that covers an object.

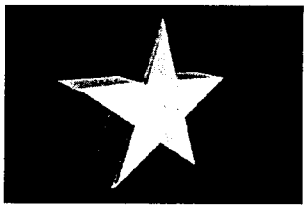
This chapter explains how to use bevels and surfaces in LogoMotion.

What Are Bevels?

Bevels are curves or angles added to the edges of objects. These edges help the object catch and reflect light. When creating logos, bevels can give objects (especially text objects) a feeling of elegance or distinction.



A shape without a bevel.



A shape with a bevel.

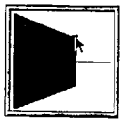
In LogoMotion, you can apply a bevel to any text or extruded object. Beveled objects can also be metamorphosed or "morphed" over time.

LogoMotion offers five predefined bevel types. These bevels can be added to objects and then customized.

Specifying Bevels with the Bevels Control Panel

By using the Bevels Control Panel, you can add a bevel to any text object by simply dragging the name of a bevel type from the bin and dropping it onto the object in your scene.

Once an object has a bevel, you can customize it to make as dramatic or subtle as you like. You have the option of either numerically entering in the value of the bevel or manually positioning the bevel using the Shape Control pop-up.



You can manually shape a bevel in the Shape Control pop-up.

The Shape Control Pop-up

Clicking the Shape button in the Bevels Control Panel automatically pops up an interactive diagram where you can visually manipulate your bevel. Moving the pointer towards the left of the diagram increases the distance that the bevel extends from the object. The maximum setting results in a very exaggerated bevel.

Dragging the pointer towards the bottom of the diagram increases the depth of the cut. The maximum setting causes the bevel to stretch down, halfway along the side of the object.

The Back Bevel Button

Clicking the Back Bevel button creates bevels on both the front and back halves of the object, making it symmetrical. If this button is off, the bevel appears only on the front face, leaving the corners on the back face at 90 degrees. This can save rendering time if your scene doesn't require the back face of the object to be shown.

Applying Changes

After setting the bevel parameters, you must click the Apply button in the Control Panel or press the Return/Enter key for your changes to take effect.

The preview area, located beside the Back Bevel button, shows the bevel type for the currently selected item in the scene.

Other Ways to Add Bevels

There are two other ways you can add bevels to objects:

- You can bevel a text object when you create it in the Text dialog. The Text dialog contains options for specifying the type of bevel and its size.
- You can place bevels on objects in the Extrude Workshop.

Things to Keep in Mind About Bevels

Beveled objects need more RAM than non-beveled ones and can take significantly longer to render. Adding a bevel to an object physically changes the geometry of the object. Large bevels can intersect each other, or even other objects, which can often be undesirable. Since you have control over the size of the bevel, you can determine how much larger an object will be when the bevel is added.

What Are Surfaces?

Creating an object and then applying a surface to it is similar to the way a potter sculpts a bowl and then applies a glaze. The surface, like the glaze, determines what the finished object will look like. An object's surface is what gives the object its character. LogoMotion provides flexibility and control in creating and editing surfaces.

Surfaces in LogoMotion are selected from a library of predefined surface types. As you create new surfaces, they are added to the surface list.

Surfaces are created and edited independently of objects. LogoMotion treats surfaces and objects as separate entities. Applying a new surface to an object

will not affect that object's shape or size. When you edit a surface, the edited surface replaces the previous surface globally, that is, on every object to which you have applied that surface.

You can access the surface list in three ways:

- From the Surfaces Control Panel
- By choosing Options> Apply Surface
- From the Object Info Control Panel

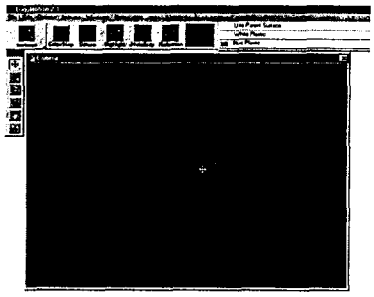
Most often you'll use the Surfaces Control Panel to perform surface editing tasks.

Applying a Surface with the Surfaces Control Panel

The Surface Panel provides a convenient way to apply surfaces to an object.

To apply surfaces to an object:

1. Select a surface in the bin on the far right of the Control Panel.
2. Drag that surface onto an object in your scene.



Another easy way to apply a surface to a selected object is to choose Options> Apply Surface, then choose a surface from the list.

The solid surface of an object is not visible when the object is rendered in Wireframe or Bounding Box mode, only in Fast, Better or Best mode. However, you save rendering time by working in Wireframe mode when manipulating objects. LogoMotion remembers an object's surface, no matter which shading mode you're using.

Most likely you'll find that working in Wireframe mode is best for setting up your scene. You can switch to Fast, Better or Best mode to check how a particular surface looks, then switch back to Wireframe mode. If QuickDraw 3D is active, your objects will draw quickly, but the shading isn't suitable for a final render. For that, you should switch to Best mode.

Editing a Surface with the Surfaces Control Panel

The Surfaces Control Panel is central to the process of creating and editing surfaces. With the Surface Info dialog, you can rename surfaces, edit surface properties, and preview the surface you're creating.

Color/Map

The Color/Map button lets you create new surfaces. When creating a surface, you have the option of giving the surface either a color attribute or a texture map.

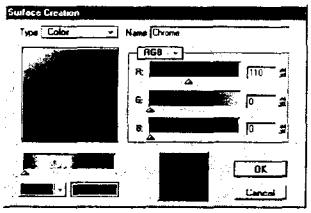
Color

All the surfaces in the default surface library (metals, plastics, and neon surfaces), have a color attribute.

To assign a color to a surface:

1. Click the Color/Map button on the Surfaces Control Panel.

The Surface Creation dialog appears, containing a color picker.



2. Select a new color and adjust the brightness in the color picker.
3. Click OK.

This sets the surface parameter and saves it in the Surface bin on the right of the Control Panel. All objects in your scene that use this surface update to show this new change.

Map

Use a texture map if you have a 2D image that you want to wrap onto a 3D object. This is a perfect way to create surfaces other than metal, plastic, or neon surfaces. Surfaces such as woods, marbles, and fabrics can easily be created by using a 2D image or QuickTime movie of that type of surface.

Images and movies saved in many different file formats can be used as textures. PICT and QuickTime files can be used as textures on Macintosh computers, while PCs support TIF, BMP, JPG and other image file formats.

On a Macintosh, if a QuickTime movie is used as a texture, the movie automatically plays on your animated objects.

There are a few drawbacks associated with texture mapping. Textures can only be seen in the highest shading mode (Best). On top of that, rendering times are significantly affected by adding textures. Often, however, the effects that texture mapping produces are so stunning that it is worth the wait.

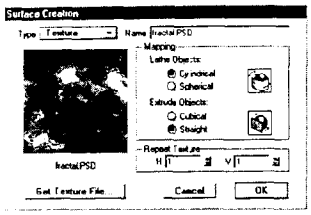
To texture map a 2D image:

1. Click the Color/Map button on the Surface Control Panel.

The Surface Creation dialog appears, containing a color picker.

2. Switch the surface type from Color Map to Texture Map.

The color picker disappears and is replaced with texture mapping options.



3. Click Get Texture File and choose the image from the standard Open file dialog.

4. Press the OK button.

A new surface is added to the Surface bin with the same name as the image file.

5. Change the shading mode in the Rendering Control Panel to Best, otherwise you won't be able to see the image mapped onto the object.

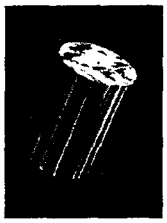
Mapping Methods

There are four different mapping methods: two that are used for lathed objects and two that are used for extruded objects. For each texture, you can specify a mapping method for all lathed objects and all extruded objects.

The mapping methods for lathed objects are cylindrical and spherical.

Cylindrical

Use a cylindrical map to map a layer onto a cylindrical object, such as a bottle, jar, or baseball bat. This map type tells LogoMotion to wrap the 2D surface layer around the 3D object.



A cylindrically mapped object.

Spherical

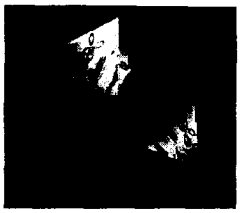
This map type wraps the surface layer around an object, and "crimps" the top edges of the layer together at the top of the object, and the bottom of the layer together at the bottom of the object. This is particularly useful for mapping images onto spheres.

A spherically mapped object.

The mapping methods for extruded objects are cubical and straight.

Cubical

A cubical map is intended specifically for use with cubes. Use a cubical map to apply a copy of a surface layer to each of the six sides of a cube.



A cubically mapped object.

Straight

Use a straight map to apply a flat image to a flat surface. This is useful for most extrusion objects. Note that a straight map goes completely through an object in one direction. This can cause the side to appear streaked; the image will also appear backwards on the reverse side of the object.

A straight mapped object.

Surface Properties

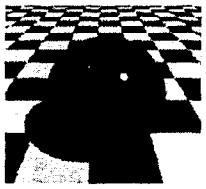
Beside the surface name is a list of surface properties, each of which can be adjusted with a slider. Surface properties determine how a surface responds to light. The surface properties you can set are diffuse shading, specular highlight, metallicity, and reflectiveness.

Diffuse Shading

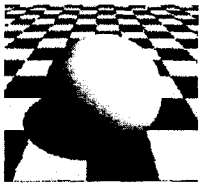
Diffuse shading is the phenomenon by which light hits an object and is uniformly scattered so that the whole object is illuminated equally.

The result of 100% diffuse shading is that the object appears smoothly shaded when a light shines upon it. It's brightest in the direction of the light source, completely in shadow opposite the light source.

The lower you set the percentage for diffuse shading, the less illuminated the object will be. An object rendered with a diffuse shading level of zero would appear mostly black when rendered, although it could still have reflective-like properties.



Low Diffuse Shading.



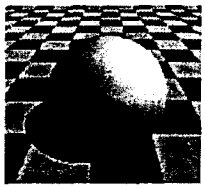
High Diffuse Shading

Specular Highlight

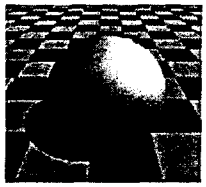
This control affects the brightness of the object's specular highlight. A specular highlight is what you often see as a small, round, white spot reflected from a shiny object at the point on the object that is closest to the light.

A specular highlight is essentially a distorted reflection of the light source itself, so it generally has the color of the light source. In reality, specular highlights usually appear white, simply because lighting in the real world is most often white. Metallic surfaces such as copper, gold, and silver, however, will have specular highlights that are the same color as the object's surface.

If you see an object with a very bright specular highlight, you will immediately recognize that the object must be smooth rather than rough.



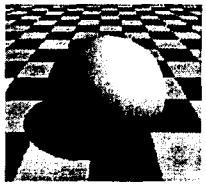
Low Specular Highlight.



High Specular Highlight.

Metallicity

A surface appears metallic when you adjust the color of the specular highlight. The closer a surface's specular highlight is to the color of the surface, the more metallic the surface will appear. (Try adjusting the metallicity level yourself to fully understand its effects.)

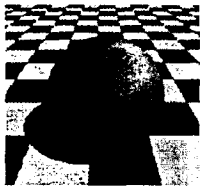


High Metallicity.

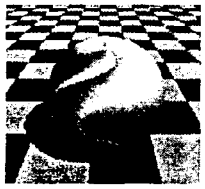
Reflectiveness

This control affects how well the object reflects the environment: as you increase the percentage of reflectiveness, the surface reflects more of the environment. Reflectiveness affects the entire surface, but it is not affected by the Specular Highlight controls.

The interplay of environment maps and the Reflectiveness setting can create dramatic effects.



Low Reflectiveness.



High Reflectiveness.

The Preview Box

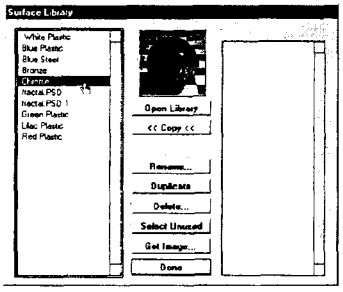
As you make changes to a surface in the Surface Creation dialog, the surface updates in the Preview Box. The sphere in the Preview Box always shows updates to the current surface settings.

Duplicating Surfaces

To duplicate a surface on the Surface Control Panel, go to the bin and select the surface you want to duplicate. Then choose Options> Duplicate Surface to produce a copy of the first surface with all the same surface parameters.

Surface Libraries

You can use the Surface Library to duplicate, delete, and preview surfaces. This dialog allows you to create a surface list that is customized to your specifications.

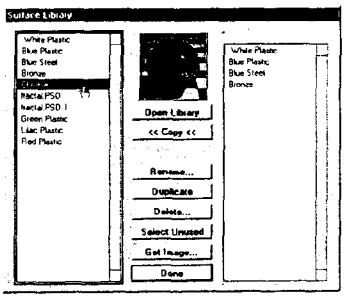


The Surface Library.

To open the Surface Library dialog box, choose Options> Surface Library or press Command/Ctrl-L. Note that the Surface Library dialog contains a scrollable, predefined surface list, a surface preview box, and several control buttons.

Opening a Surface Library File

You can organize all your surfaces into your own surface library files. As you create, edit, and add more surfaces, the surface list can become unwieldy. Creating a surface library can be a handy way to keep the surfaces organized.



The Surface Library with an opened Surface Library file.

Once you've created a surface library, open it by clicking the Open Library button. Select the library from the dialog that appears and click OK. When you open a surface library file, a second surface list appears opposite the existing list. This list represents the surface(s) present in the file just opened. Once a library is opened, you can duplicate, copy, rename, edit, and delete surfaces in it.

Making a New Surface Library
You might want to arrange surfaces into groups, especially if you have created lots of new surfaces. Click the Open button, then click the New button in the dialog box that opens. LogoMotion places an untitled surface library list opposite the list of surfaces in your current scene. Simply use the Copy button to copy surfaces back and forth. To save your new library, click the Close button and specify a name for the library when prompted.

Selecting a Surface
Click a surface in the surface list. The surface begins to render in the preview box.

Duplicating a Surface
Select any number of surfaces and click the Duplicate button. All the selected surfaces are duplicated in the surface list. Duplicating a surface is useful if you want to edit a surface without changing the original surface.

Renaming a Surface
Select a surface and click the Rename button. A dialog box appears where you can enter a new name for the surface. The surface White Plastic cannot be renamed.

Deleting a Surface
Select the surface(s) you want to delete from the surface list. When you click the Delete button, all selected surfaces are deleted. The surface White Plastic cannot be deleted.

If you delete a surface that is still applied to an object, that object's surface reverts to White Plastic.

Get Image
Click Get Image to load an image or movie file into the surface library. A dialog appears where you can specify the image or movie to load.

Copying Surfaces
Select the surface or surfaces you want to copy from one surface list to another. Then click the Copy button in the Surface Library dialog box. The selected surfaces are copied into the opposite surface list.

Closing Surface Libraries
Once you've finished working with a surface library file, click the Close button. If you copied new surfaces into the surface library file, LogoMotion asks if you want to save changes to that file.

Select Unused
Clicking Select Unused highlights all the surfaces on the left side of the dialog box (the surface list for the current scene) that are not currently in use. This can be useful if you want to clean up your surface list. After selecting the unused surfaces, peruse the list to ensure you don't want to keep any of the highlighted surfaces in that scene, then click Delete to remove the unused surfaces.

Chapter 8

LIGHTING AND ATMOSPHERE

Introduction

You can have a scene full of complex objects that you've spent a lot of time creating but they'll look a bit boring unless you create a mood by adding lights and atmospheric effects to your scene.

Lights

Lights in LogoMotion are moveable, editable objects that are actually visible in the scene. Lights are manipulated the same way that other objects are. They can be repositioned with the Move tools, scaled with the Scale tools, and rotated with the Rotate tools.

You can have as many light sources as you like and you can individually adjust the position, orientation, and color of each. Having the ability to manipulate light objects directly gives you a great deal of control and flexibility in setting up scenes and animations.

Types of Light Sources

There are three types of light sources in LogoMotion: point lights, spotlights, and ambient light. Point lights and spotlights are both represented by light objects. You place them into the scene and manipulate them just like other objects. Point lights cast light evenly in all directions; spotlights are directional. Both types of light objects can cast light of any color.

Ambient light exists evenly throughout the 3D world. Ambient light is sourceless; that is, it does not emanate from a light object. You can change the ambient light by changing settings in the Atmosphere Control Panel. Refer to "Ambient Light Color" on page 75 for details on changing ambient light.

Lighting effects aren't visible on objects in Wireframe or Bounding Box modes.

Default Lighting

When you create a new scene, by default two sources of light exist to illuminate objects: one point light, generically called "Light," and ambient light, which is set to a moderate level.

Adding New Lights

You can add as many lights to your scene, in any combination you like. You're only limited by the resources of your computer. You add lights using StageHands.

You can add either a point light (to cast light evenly all around) or a spotlight (to cast light in a specific direction).

Be aware that increasing the number of lights in the scene is also likely to increase rendering time.

To add a light to the scene:

1. Switch to the StageHands Control Panel and click the Lights button.
2. Scroll the list of lights in the Light bin until you find one you like.
3. Drag a light from the bin and drop it into your scene.

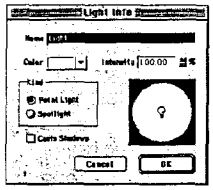
Tip: You can also add lights by copying and pasting existing lights, or by selecting a light and choosing Edit> Duplicate.

Naming Lights

As you add more and more lights to a scene, you might find it helpful to name them. This helps avoid confusion when moving lights, particularly in animation sequences. StageHands lights already have names, but you can change them.

To name a light object:

1. Select the light by choosing Options> Select Object> Light.
2. Choose Options> Edit Object.
3. The Light Info dialog appears.



The Light info dialog.

4. Enter a new name for the light in the Name field, then click OK.

You can also change a light's name in the Object Info Control Panel.

Positioning and Orienting Lights

Lights, like other objects, are positioned and oriented with any of the Move or Rotate tools, or by entering numerical coordinates in the Object Info Control Panel. Refer to "Arranging Objects in Your Scene" on page 53 for information on how to use the tools.

Here are some pointers about working with lights in your scene:

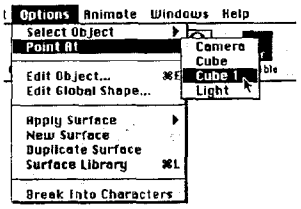
- Lights are often set far back from the objects in the scene. For this reason, it's easiest to change their position and orientation in the standard view windows.
- When trying to move or rotate a light, be sure your pointer is directly over the light object. Otherwise, it might seem that the tools aren't working properly.
- It's often useful to zoom in close to a light object so that you can more accurately rotate or move it. You'll probably need to switch between the Magnifying Glass tool and the Hand tool a few times to get in close enough to the light object.
- Changing the size of light objects has no effect on the light that they cast.
- Double-clicking a light causes the Light Info dialog to appear, where you can set intensity and color options. Double-clicking can be difficult, however, if the light object appears very small in t the view. If this is the case, choose Options> Select Object> Light, then choose Options> Edit Object.

Aiming Spotlights Automatically

LogoMotion can point a spotlight at any object in the scene. The Point At command points the spotlight at the visual position of the object in the scene. If you move an object away from its centerpoint, the Point At command takes this into account and points at the object itself, not its centerpoint.

To point a spotlight:

- With a spotlight selected, choose Options> Point At, then choose the object you want the light to point at from the list of objects.



Changing Lighting Effects

Once you add lights to your scene, there are several ways you can control their effects.

Changing the Type of Light

You can switch a point light to a spotlight and vice versa.

To change the type of light:

1. Select the light by choosing Options> Select Object> Light.
2. Choose Options> Edit Object.

The Light Info dialog appears.

3. Click the appropriate button to select either a point light or a spotlight, then click OK.

Making Lights Invisible

As you set up your scene, there will be times when you want a light object to cast light, but you won't want to see the light object itself in the scene. You can make light objects invisible but still see the light they cast.

To make a light invisible:

1. Select the light by choosing Options> Select Object> Light.
2. Switch to the Object Info Control Panel.
3. Click the Visible button in the panel.
4. The button label changes to Off.

You can see the effect of the light on the objects in the scene, but you won't see the light itself.

Some StageHands lights are already invisible.

Changing Light Color and Brightness

Another way you can affect the illumination of a scene is to change the color and brightness of light sources.

The color value lets you choose almost any possible color for the light. The intensity value determines the brightness of a given light relative to other lights in the scene. Values can be less than or greater than 100%. For example, to make a light extremely bright, try using a value of 300%.

To change the color and brightness of a light:

1. Select the light by choosing Options> Select Object> Light.
2. Choose Options> Edit Object.

The Light Info dialog appears.

3. Click the Color pop-up and choose a color from the color picker.

The preview changes to show you the color of the light.

4. Set a brightness for the light by changing the value in the Intensity field.
5. Click OK.

Lights in a LogoMotion scene have a cumulative illumination effect. Too many bright lights can cause objects in the scene to appear washed out. When adding a new light source, consider if you need to decrease the intensity of the other lights in your scene.

Casting Shadows

In the real world, an object in the path of any real light casts shadows. In LogoMotion, however, you have the option of preventing this behavior.

Turning shadows off can be useful, for example, if you want to illuminate an object from a particular direction but don't want the object to cast shadows from that light source upon adjacent objects. In theater design, this would be similar to the effect of a "fill" light, a light used to brighten dark areas without causing more dark areas.

You can turn shadows off or on for individuals objects:

- An object with shadows turned off (in the Object Info Control Panel) won't cast shadows on other objects.
- A light with shadows turned off (in the Light Info dialog) prevents objects from casting shadows from that particular light. However, other lights might cause those objects to cast shadows.

To turn off shadows for a light object:

1. Select the light by choosing Options> Select Object> Light.
2. Choose Options> Edit Object.

The Light Info dialog appears.

3. Clear the Cast Shadows checkbox, then click OK.

You can only see shadows in Best shading mode.

Deleting Lights

Too many lights in your scene can make the scene look flat, as well as increase your rendering time, so you should remove any lights you're not using in your scene.

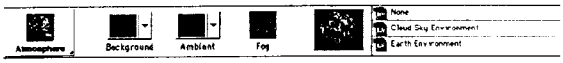
To remove a light from the scene:

1. Select the light by choosing Options> Select Object> Light.
2. Press the Delete key.

LogoMotion removes the light from the scene.

Atmospheric Effects

You can create artistic effects in your scene by manipulating LogoMotion's atmospheric settings. You control a scene's background color, ambient light, fog settings, and environments from the Atmosphere Control Panel.



The Atmosphere Control Panel.

Background Color

When you launch LogoMotion, the background color is black. This black background color can be changed at any time to any color you like.

To change the background color:

1. Switch to the Atmosphere Control Panel.
2. Click the Background Color swatch and choose a color from the color picker that appears.

The background changes to the color you chose.

If you add a backdrop to a scene, it overrides any background color you specify. If you remove the backdrop, the background color reappears.

Ambient Light Color

Ambient light is light that exists everywhere without a particular source. This light does not cast shadows but fills in the shadowed areas of a scene.

To change the color of ambient light:

1. Switch to the Atmosphere Control Panel.
2. Click the Ambient Light swatch and choose a color from the color picker that appears.

The ambient light changes to the color you selected.

The effects of changing the ambient light color can be quite subtle. Don't be afraid to experiment with this setting until you achieve the look you want for your scene.

Fog

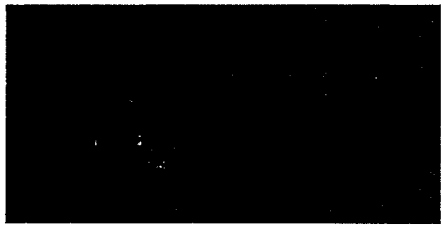
Adding fog to your scene can add a realistic atmosphere, giving the objects in your scene a sense of depth. Setting the fog's visibility level determines how far you can see into the fog. Beyond the visibility point, objects are lost in the fog.

To add fog to a scene:

1. Switch to the Atmosphere Control Panel.
2. Move the Fog Depth slider to the level of visibility you want.

The higher the value in the slider, the more fog you add to the scene; the lower the value, the less fog.

The lower the setting in the Fog slider, the higher the *visibility.*



The higher the setting in the Fog slider, the lower the visibility.

You can view the effect of fog in your scenes when shading mode is set to Fast, Better, or Best. However, you can't view fog when QuickDraw 3D is active.

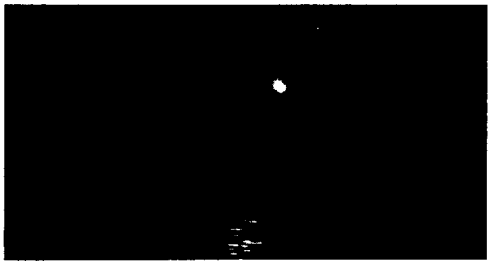
The fog color is determined by the background color. In reality, you can only see a certain distance into a foggy atmosphere, beyond which all you see is the color of the fog. In the case of rendering a 3D scene, this would be equivalent to the background color.

Environment Mapping

When you look at a shiny sphere, it reflects its surroundings. No matter how you rotate the sphere, the position of the reflections stays constant, but if you move the sphere through space, the reflections on its surface change as it moves through the environment.

Environment mapping simulates reflections by taking a picture (also called an "environment map") and mapping it onto reflective objects so that it appears that the object is reflecting an environment. This picture is not associated with a particular object, but with the entire scene. Any object in the scene with a reflective surface will automatically reflect the environment map.

A scene without an environment map.



A scene with a water environment map.

To add an environment to your scene:

- Select an environment from the bin in the Atmosphere Control Panel and drag it to the scene.

To remove an environment:

- Drag the None environment from the bin in the Atmosphere Control Panel and drop it into the scene.

Creating Your Own Environments

You can use any valid image or movie file as an environment for your scenes. Just place the file in the LogoMotion: StageHands: Environments folder on your hard drive. Then all you have to do is drag it to your scene to use it.

Valid file types for environments are:

- On Macintosh: PICT, PICS, and QuickTime movies
- On PCs: AVI, BMP, JPG, PSD, and other common formats

Tip: You can use animated environments for dynamic animated effects in your scenes.For example, if you want moving clouds to reflect on objects as an environment, you could use a QuickTime movie of clouds. You can use PICS files, QuickTime movies or AVI files as environments. Be aware, however, that using large movies will significantly slow down LogoMotion's performance.

Backdrops

Backdrops are another way to add atmosphere to your scenes. You can stage the objects in your scene against of background of cloudy sky for example.

A backdrop appears behind the objects in your scene.

Backdrops differ from environments in that you actually see the image of a backdrop as the background for your scene. The backdrop appears behind the objects in the scene, but does not reflect on the objects. With an environment, you never see the image, only its reflection on reflective objects.

LogoMotion provides a variety of ready-to-use backdrops in the StageHands Control Panel.

To add a backdrop:

1. Switch to the StageHands Control Panel.
2. Click the Backdrops button.
3. Choose a backdrop that you like, then drag it from the bin to your scene.

The backdrop appears behind the objects in your scene.

You can use your own images and movies as backdrops. Just place them in the LogoMotion: StageHands: Backdrops folder on your hard drive. Then, the next time you launch LogoMotion, the images will appear in the Backdrop bin in the StageHands Control Panel.

Or, for Macintosh users, drag your image file from the desktop or Scrapbook into the Camera View to have it appear as a backdrop for your scene.

Valid file types for backgrounds are:

- On Macintosh: PICT, PICS, and QuickTime movies
- On PCs: BMP, JPG, PSD, and other common formats.

Chapter 9

ANIMATION

Animation Overview

One way to add animation to your scenes is to use LogoMotion's StageHands, but you can also create and control your own animations.

LogoMotion's animation approach is time-based, or "event-driven." In LogoMotion terms, an event occurs each time you change the position, orientation, scale, shape, or surface characteristics of an object.

LogoMotion individually tracks every event that happens to every object in your animation. These events are plotted in time along object timelines. Every object in a scene has its own timeline; each timeline shows a complete history of every event that happens to that object.

Whenever an event occurs to an object, LogoMotion places an "eventmark" on that object's timeline at the precise moment that the event happens. These eventmarks and timelines appear in LogoMotion's special Sequencer window. Using the Sequencer, you can add, delete, copy, and rearrange eventmarks.

Refer to "The Animation Sequencer" on page 15 for general information about the Sequencer.

The Sequencer

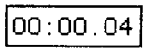
The Sequencer is the heart of animating your scenes in LogoMotion. It's where you change your scene from a static collection of objects to a dynamic, changing movie.

The Sequencer lets you track time and preview your animation sequences. It's where you add or delete events, and helps you keep track of the components of complex models.

To open the Sequencer:

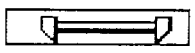
- Choose Windows> Sequencer.

Time Tracker



The Time Tracker displays the time of an animation in minutes, seconds, and frames (from left to right). You can change how the Time Tracker shows time by clicking the pop-up menu beside the Time Tracker and choosing a new display setting. (When you change the setting, the Timebar changes as well to reflect the new setting.)

Punch In/Punch Out Markers

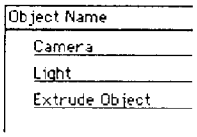


Punch In/Punch Out markers appear above the Timebar and can be used to minimize your rendering time by letting you select only a specific portion of an animation to render. If, for instance, you don't have time to render a lengthy animation, you can use the Punch In/Punch Out markers to render portions of it as time allows.

You can slide the markers to any point in time. Once set, LogoMotion animates only the frames that lie between the two.

If you manipulate objects in time past the Punch Out marker, the Punch Out marker automatically moves to the time when the new eventmark is created. When making a movie, LogoMotion defaults to animating between the Punch In/Punch Out markers.

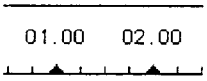
The Object Name List



On the left side of the Sequencer is the Object Name list where the names of all objects in the scene appear. Clicking an object's name in the list selects that object in the list, as well as in the scene itself. In fact, selecting an object in the Object Name list is often the easiest way to select an object in a complex scene where it's hard to pick out individual objects.

You can see hierarchical relationships between objects in the Sequencer. Child objects are indented and listed beneath their parent objects.

The Timebar



The Timebar across the top of the Sequencer window shows world time. World time begins at Time 0 and reads from left to right across the Sequencer. World time can be shown in minutes, seconds, or frames of animation; you change the type of display with the Time Tracker.

You can change the increments that appear in the Timebar to show a finer or grosser level of detail.

To change time increments in the Timebar:

- Click the + (plus) or – (minus) to the right of the Timebar to increase or decrease the level of detail in time increments.

The World Time Marker

The World Time Marker is a pointer you can drag through time. It extends down through all the objects in the Object Name list.

The position of the World Time Marker determines the "current" time in the world. All objects in the scene are shown in relation to the World Time Marker. That is, objects might be in one position at one point in time and at another position at another point in time. The World Time Marker shows you how objects appear in a scene at a specific point in time. Keep in mind that you are always editing the moment in time to which the World Time Marker currently points.

To move the World Time Marker:

- Click the World Time Marker and drag it to a different moment in time.

LogoMotion redraws the scene to show any changes that happen at the new moment in time.

The World Time Marker moves through the Timebar when you preview or animate a sequence. You can specify that the marker stay where it is or return to its original position after a preview or animation.

To specify World Time Marker preferences:

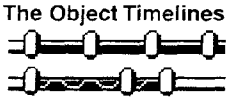
1. Choose Edit> Preferences.

The Preferences dialog appears.

2. Click Return to Original Time if you want the World Time Marker to return to its original position. (By default, LogoMotion leaves the marker where it is after a preview, unless you specify otherwise.)

3. Click OK.

The Object Timelines



Every object in the scene has an object timeline in the Sequencer. The timeline for each object begins at Time 0, which you can see just to the right of the object name, and runs from left to right beneath the Timebar. Here is where all the changes (events) you make to an object are plotted along world time.

Whenever you alter an object, an eventmark is placed on that object's timeline at the exact point in time where the World Time Marker is pointing.

Each timeline shows a complete history of all events that have occurred to that object throughout world time.

Eventmarks

An eventmark is a graphic representation of an object at a particular moment in time. Whenever you move, scale, add a surface to, or otherwise change an object in the scene, LogoMotion places an eventmark on that object's timeline at the current position of the World Time Marker.

The Basics of Animation

Animations are created by adding and manipulating eventmarks along the timelines. Eventmarks can be added, deleted, edited, duplicated, and moved along the object timelines.

Selecting Eventmarks

You can select an eventmark just by clicking it on an object timeline. When selected, an eventmark is a dark gray. (Unselected eventmarks are a light gray.)

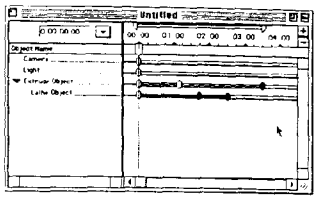
You can select multiple eventmarks and manipulate them simultaneously.

To select multiple eventmarks:

- Hold down the Shift key while clicking the eventmarks you want to manipulate.

Or

- Drag a marquee around the eventmarks. This lets you drag across object timelines.



Selected eventmarks are dark gray.

Adding Eventmarks

Whenever a change of any kind occurs in the scene, LogoMotion places an eventmark at the current position of the World Time Marker. Adding an eventmark is a matter of moving the World Time Marker and making a change within your scene. LogoMotion does the rest and adds an eventmark to the timelines.

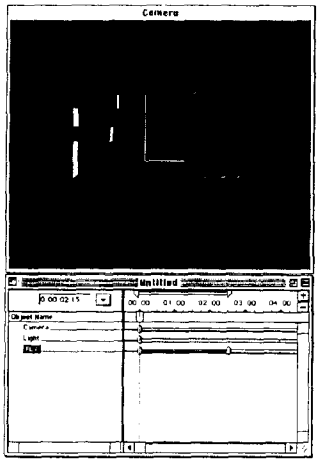
To add an event:

1. Drag the World Time Marker to the moment where you want to change an object. (This is where you want the event to be added.)

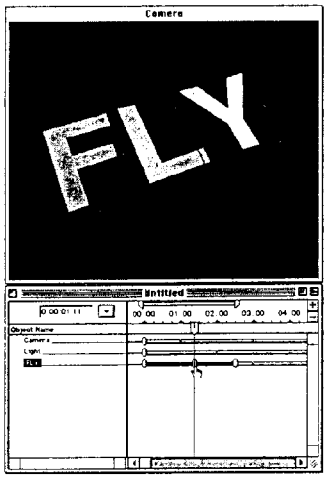
2. Move, rotate, or scale the object the way you want.

LogoMotion adds a new eventmark on the object's timeline at the point where the World Time Marker is.

LogoMotion also automatically adds an eventmark if you change an object's surface, size, or shape. Eventmarks are also automatically added if you change the focal length of the camera's lens (using the Magnifying Glass tool), or if you change the color of a light.



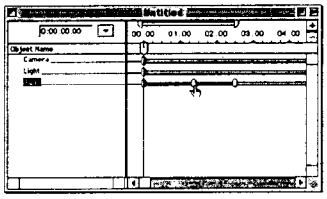
A text object in a scene and the Sequencer



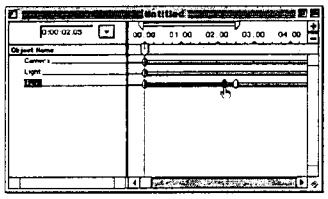
Rotating the text object causes LogoMotion to add an eventmark at the location of the World Time Marker.

Moving Eventmarks

Eventmarks can be moved to any point on a timeline. Move an eventmark by dragging it.



The eventmark's original position.



Here, the eventmark is dragged to a new position in time.

When you move an eventmark, you change the moment in time at which that specific event occurs. Moving an eventmark also changes the length of time between two events. If you want events to occur later in time, all you need do is select the eventmarks that you want to move and drag them forward in time along the object timeline. The events will then take place later in the sequence.

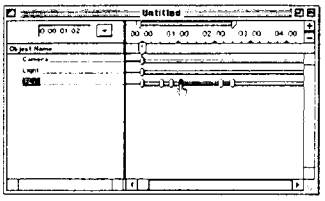
Duplicating Eventmarks

It can be handy to duplicate eventmarks or groups of eventmarks. For example, duplicating eventmarks is a good way to create looping motions (like wheels turning or balls bouncing) throughout your animation.

Any eventmark can be duplicated.

To duplicate an eventmark

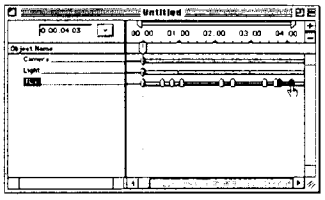
1. Select the eventmark(s) you want to duplicate.



Before the eventmarks are duplicated.

2. Hold down the Option/Alt key and drag the eventmark(s).

3. Move the duplicated eventmark(s) to the new position



After the eventmarks are duplicated.

Deleting Eventmarks

There will probably be times you want to delete an eventmark. In fact, deleting an eventmark is a convenient way to eliminate any change in the scene you're not happy with.

To delete an eventmark:

1. Select the eventmark(s) you want to remove.
2. Hit the Delete key or choose Edit> Clear.

The eventmark, and all animation information associated with it, is deleted.

If you're not sure which eventmark represents which event, move the World Time Marker to that eventmark, then look at the object in the Camera View to see what the event is.

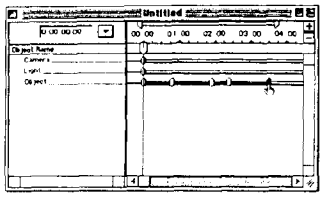
You cannot delete all of an object's eventmarks. If you delete the last eventmark, LogoMotion adds an eventmark at the current position of the World Time Marker.

Squashing and Stretching Animations

When creating an animation, you might want to change the overall time it takes for multiple events to happen. With LogoMotion, you can "squash" or "stretch" an animation over time. Squashing or stretching an animation is proportional; the events themselves don't change, they just take place in a shorter or longer period of time.

To squash or stretch an animation:

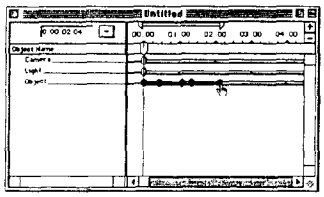
1. Select the eventmarks for the animation you want to change.



The original animation sequence.

2. Hold down the Command/Ctrl key while dragging the last selected eventmark.

Dragging left squashes the animation; dragging right stretches it.



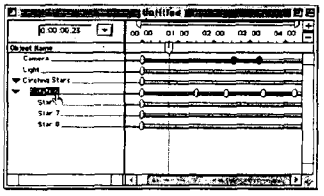
After squashing the animation sequence.

You can also squash or stretch the animation of a hierarchical object—a parent object that has children linked to it. (Refer to "Using Hierarchical Models" on page 57 for more information on hierarchical relationships.)

To squash or stretch a hierarchical object's animation:

1. Click the triangle icon to the left of the object's name in the Object Name list.

Make sure that the list of child objects is completely expanded.

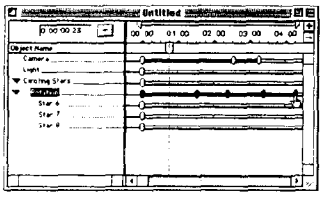


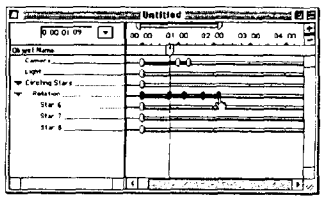
Click the triangle icon to expand the list of linked objects.

2. Select the eventmarks of the parent and child objects by dragging a marquee around all the eventmarks.

3. Hold down the Command/Ctrl key and drag any object's last selected eventmark to the left or right.

The eventmarks you selected evenly squash or stretch in time to match the last eventmark.





Before and after squashing the timeline.

Previewing an Animation

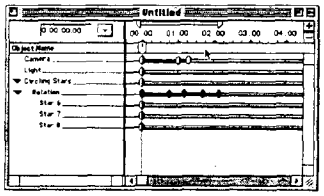
As you work on animating your scene, periodically you'll want to preview it to get an idea of how it will look when it's rendered.

To preview an animation:

- Choose Animate> Preview.

Or

- Drag, or "scrub," the World Time Marker back and forth.



Dragging the World Time Marker back and forth is one way to preview an animation.

Tip: If you hold down the Option/Alt key while scrubbing the World Time Marker, the Camera View previews the animation in the current shading mode. This works particularly well when Quick Draw 3D is enabled.

More on Animation

There are many ways you can fine-tune your animations in LogoMotion. You can manipulate individual eventmarks to create sophisticated animations, and you can metamorphose—"morph"—surfaces and objects. When you morph an object, LogoMotion makes a smooth, seamless transformation between the object's two states.

Controlling Eventmark Properties

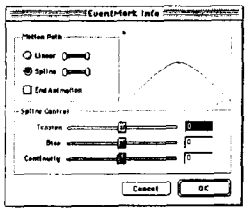
For each eventmark in an animation, you can adjust the type of motion path it uses. You adjust these settings in the Eventmark Info dialog.

To access the Eventmark Info dialog:

- Double-click any eventmark.

Or

- Choose Animate> Eventmark Parameter.



The Eventmark Info dialog.

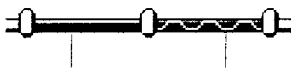
Spline-Based vs. Linear Motion Paths

As an object moves in the 3D world, it can either move linearly (in straight lines) or smoothly (using spline-based motion).

A linear motion path is sharp and has angular corners. When the object on a linear motion path changes direction, it does so abruptly, like a robot. Use a linear motion path if you want sharp, robotic movements.

A spline-based motion path is very smooth, even, and rounded. For smoother, more natural movement, use spline-based motion.

If an object changes during the time between two eventmarks, the two eventmarks are connected by a motion path indicator. This indicator shows the type of motion path the object uses between the two eventmarks. If the indicator shows a solid bar between events, the motion path is linear. If the indicator shows a wavy line, the motion path is spline-based.



Linear motion path Spline-based motion path

To choose the type of motion path:

1. Double-click the eventmark that starts the motion you want to control.

The Eventmark Info dialog appears.

2. Click either the Linear button or the Spline-based button, then click OK.

The type of path you chose is reflected in the object timeline.

Ending Animation

You can make an object appear and disappear instantly over the course of an animation. The technique of making an object disappear is known as "ending animation." If you check this option in the Eventmark Info dialog, an object disappears from the scene between the selected eventmark and the next regular eventmark. End animation events appear in the Sequencer as rectangular marks instead of oval. Also, the motion path following an end animation event appears as a black line in the timeline.

End animation events doesn't affect the camera. Even though an object may have disappeared, the camera still performs its functions.

To make an object disappear during an animation:

1. Select an object's eventmark in the timeline where you want the object to disappear.

2. Double-click the eventmark.

The Eventmark Info dialog appears.

3. Check End Animation.

You can toggle this setting on and off for different eventmarks to make objects disappear and reappear.

Controlling the Splines in a Motion Path

You can control how a motion path passes through an event by manipulating the Spline Control sliders in the Eventmark Info dialog.

- The Tension setting determines how tight or loose the motion path is. A value of -100 causes an exaggerated curve, while a setting of 100 makes it appear almost linear.
- The Bias setting determines at what point, relative to the corresponding event, the curve reaches its maximum peak. A value of -100 causes the curve to peak far ahead of the event, while a setting of 100 makes it peak after the event.
- The Continuity setting controls how evenly the object passes through the event. A value of -100 results in sharp and constant motion, while a setting of 100 results in an almost unnatural break or discontinuity.

To control how a motion path passes through an event:

1. Select the eventmark where you want to control the motion path.

2. Double-click the eventmark.

The Eventmark Info dialog appears.

3. Adjust the Spline Control sliders to achieve the effect you want.

4. Click OK.

Lining up Eventmarks

Holding down the Shift key while dragging either the World Time Marker, the Punch In/Punch Out markers, or the eventmarks causes them to exactly align, or "snap," to other eventmarks. This makes it easy to look at the precise point at which an event occurs in the scene.

When dragging the World Time Marker, it can be difficult to land precisely where an eventmark exists. This means that if you're editing an event, you might inadvertently place the World Time Marker just slightly ahead of or behind the event. This creates another eventmark next to the first (which will appear to overlap it) and your animation will not behave the way you intended.

You can avoid this situation by holding down the Shift key when you drag the World Time Marker. This causes the World Time Marker to precisely snap to surrounding eventmarks. This ensures that the edits you make will happen at exactly the time you want them to happen.

Animating Lights

You can create animated lighting effects such as changing a light source from one color to another. When you create this type of animation, LogoMotion fills in, or interpolates, the gradiations between the two colors. This creates a smooth transition of color during the animation rather than an abrupt change.

To interpolate a light's color:

1. Set your light source to any color.

2. In the Sequencer, move the World Time Marker to a point later in time.

3. Change the light source to a new color.

LogoMotion creates an eventmark for the light, showing that the light is changing.

These same guidelines apply to other lighting effects you want to animate.

Surface Morphing

With LogoMotion, you can morph between any two surfaces, creating animated sequences showing one surface changing into another surface. Surface morphs are created in the same manner as all other animation sequences.

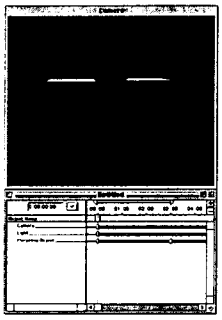
To morph between surface types:

1. Apply a surface to an object.
2. Move the World Time Marker later in time.
3. Apply a new surface to the object.

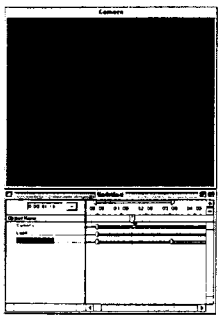
Object Morphing

You can have two objects morph from one into the other. You can morph between any two lathed objects or any two extruded objects. A point-to-point correspondence between the two objects is not necessary. You cannot, however, morph from a lathed object to an extruded object.

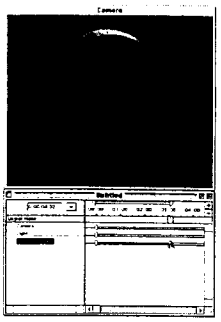
You can use the Extrude or Lathe Workshop while creating animations to make complicated objects morph from one shape to another.



The original shape before morphing.



The shape during a morph.



The final shape after morphing.

To morph between two objects:

1. Create a lathed or extruded object.
2. Modify the object with the Workshop and return to the scene.
3. Move the World Time Marker later in time in the Sequencer.
4. Reshape your object in the Workshop, then return to the scene.
5. Select Detailed Preview from the Animate menu to view the sequence.

Freezing an Object's Shape Using Edit Global Shape

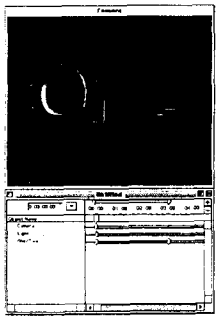
The previous section described how to edit an object in order to morph it from one shape to another. Sometimes you might want to edit an object and have the changes take effect at all eventmarks for that object.

Double-clicking on an object allows you to change its shape at only the current time in the Sequencer, which results in a metamorphosis if the object has other events. However, choosing Options> Edit Global Shape lets you enter the Workshop and edit the object's shape for every event on the object's timeline, in effect, freezing the object's shape throughout the animation. This action cannot be undone, but you can reshape the object for the entire animation by choosing the command again.

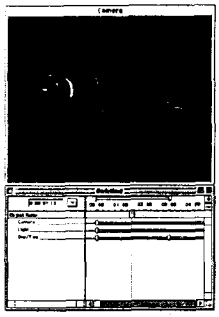
3D Text Morphing

Text morphing is an exciting way to animate between text shapes. You can set up the animation to morph one word into another.

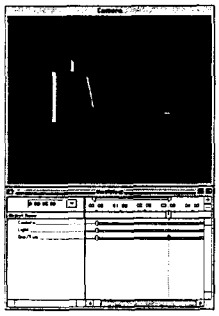
Text objects can be morphed without regard to the number of letters in the starting and ending words. For instance, you could go from the word "egg" to the word "baseball" without having to worry about constructing the five extra letters—LogoMotion automatically adds them. Morphing looks best when interpolating between words of equal length, however.



The original text shape before morphing.



The shape during a morph.



The final text shape after morphing.

To morph text objects:

1. Create a text object in the scene using the Text tool in the Toolbox.

2. Move the World Time Marker forward in time in the Sequencer.

3. Using a manipulation tool, double-click the text object in the scene.

4. Type in a new set of letters or words (you can also select a new font and extrusion depth), then click OK.

You cannot morph bevels over time. The last bevel in effect in world time is used during the morph.

5. An eventmark appears in the text object's timeline.

6. Click in the Camera View and choose Animate> Detailed Preview to preview the morph.

Tip: Make sure the QuickDraw 3D is turned on to speed up detailed previews

Chapter 10

RENDERING

Introduction

Rendering is the process of combining all the parameters you set for your 3D scene and producing 2D images based on those parameters.

You can capture a moment in your animation, render it individually, and save it as an image file. Or you can render all the moments in your animation and have them render as a movie.

You set rendering options in the Rendering Control Panel.

The Rendering Control Panel.

Shading Methods

Shading is a technique that allows you to quickly visualize solid models. Shading is what gives your scene substance when you render it.

LogoMotion gives you five types of shading that offer differing degrees of quality. The higher the quality of shading you select, the longer it takes LogoMotion to draw the image. You choose the shading method you want from the Rendering Control Panel.You can save time by using the lower quality (yet faster) shading methods while building your models, and only using higher quality (slower) shading methods when you want to test texture maps, atmosphere or environment effects, or to generate a final image or animation.

Choosing a Shading Mode

When you choose a shading mode, objects are shaded in the Camera View only. The standard views show you objects in Wireframe mode.

To select a shading mode:

1. Switch to the Rendering Control Panel.

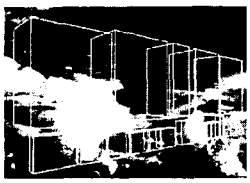
2. Click the Quality button and choose a shading mode from the pop-up.

LogoMotion redraws the objects in the scene in the mode you specified.

The following sections describe the different types of shading modes.

Bounding Box

Bounding Box mode is the simplest and fastest of LogoMotions shading modes. Each object is represented by a six-sided box. Bounding box mode is most useful for rough placement and animation previews.



Objects in a scene shown in Bounding Box mode.

Wireframe
When you view a scene in Wireframe mode, you only see the polygons that make up the object. Wireframe provides a good compromise between detail and speed while you are creating your scene. This is the default shading mode.

Objects in a scene shown in Wireframe mode.

Fast (Flat Shading)
Fast mode shows one color per polygon, or face. It does a good job of quickly showing the effects of lighting and basic color information. Depending on the type of machine you're using, this may also be a good mode in which to do most of your work.

Objects in a scene shown in Fast mode.

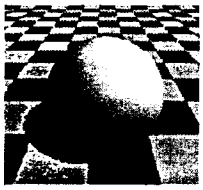
Better (Gouraud Shading)
Better mode takes a little longer to draw than flat shading, but creates more realistic surfaces with smooth edges (where appropriate) and more realistic lighting and atmosphere effects. This mode is perfect for when you need a high quality image, but don't have the time to render it in Shade Best.

Objects in a scene shown in Better mode.

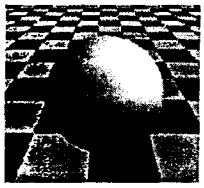
Best (Phong Shading)
Best mode is the highest quality rendering mode. It takes the most amount of time to produce an image, but it's worth the wait when you're producing your final image.This mode creates very realistic surfaces including texture-mapping, realistic lighting complete with shadows, and range of atmospheric effects. Because of the time it takes to draw onscreen, you probably won't work in this mode very much. Instead, wait and use it for producing the highest-quality work.

Objects in a scene shown in Best mode.

Shadows
If the Shadows option in the Rendering Control Panel is turned on, objects will cast shadows when rendered in Best mode. If this option is turned off, no shadows will be cast for any objects, even if those objects are checked to cast shadows. Turning on shadows greatly increases the length of rendering time.



Shadows turned on.



Shadows turned off.

In order for shadows to be cast, each object in the scene must be individually set to cast shadows (in the Object Info Control Panel) and each light source must be set to cast shadows (in the Light Info dialog) as well.

To turn shadows on or off for rendering:

- In the Rendering Control Panel, click the Shadows button to toggle the setting on or off.

QuickDraw 3D
Clicking the QuickDraw 3D icon in the Rendering Control Panel causes LogoMotion to use QuickDraw to shade the objects in the world.

Quick Draw 3D is a 3D renderer that is usually already present on most Macintosh computers. QuickDraw 3D is also available for Windows users and is automatically installed when Windows users install LogoMotion.

With QuickDraw 3D enabled, shaded, texture-mapped objects can be manipulated in real time. This eliminates waiting for the Camera View to update after manipulating an object. QuickDraw 3D does not support anti-aliasing. However, QuickDraw 3D provides fast rendering when you're working in the scene, but the quality isn't good enough for final rendering.

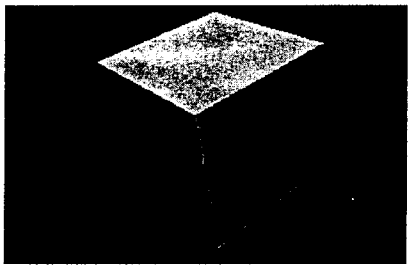
To use QuickDraw 3D:

- In the Rendering Control Panel, click the QD3D button to toggle the setting on or off.

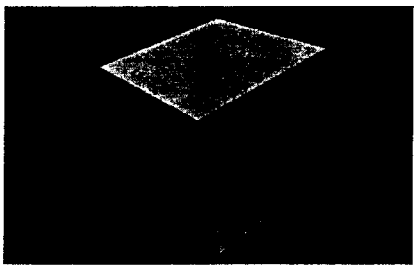
If the QuickDraw 3D button is dimmed, it is not active on your computer. If you're using a Macintosh, be sure the Quick Draw 3D extensions are in the Extensions folder. If you are using a PC, be sure the Quick Draw 3D DLL files are in the LogoMotion folder.

Anti-aliasing

Anti-aliasing smoothes the edges of images, removing the jagged appearance of diagonal lines. Although anti-aliasing can be a time-consuming process, it can produce an image of superior quality.



An object without anti-aliasing. Notice the stair-step effect along the edges of the cube.



An object with anti-aliasing. Notice the smoother edges of the cube.

To use anti-aliasing:

- In the Rendering Control Panel, click the Anti-Alias button to toggle the setting on or off.

Anti-aliasing only takes effect when your scene is shaded in Fast, Better, or Best mode. You can choose to turn it off for faster rendering.

Invisible Objects

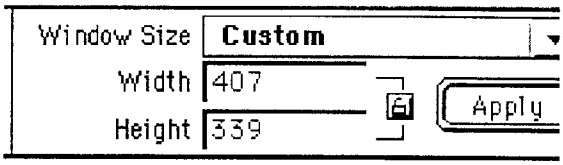
This option, when on, allows you to quickly see all invisible object that are currently in your scene. This is particularly useful when you're working with complex models that contain a large number of invisible parent objects.

To see invisible objects:

- In the Rendering Control Panel, click the Invisible button to toggle the setting on or off.

Window Size

The Window Size area of the Rendering Control Panel allows you to choose from a list of pre-defined window size settings. You can also enter an exact width and height (in pixels) in the boxes provided. The lock, when checked, constrains the two dimensions.



To set a new window size:

1. Choose a pre-defined window size from the pop-up or type in the exact height and width dimensions you want.
2. Click Apply.

Outputting Your Scene

Once you have finished setting up your scene, you are ready to either render a single image or make a movie. LogoMotion allows you to save images using the Save Image As command. You can also render animations using the Make Movie command.

The following sections describe the details of saving single images and making movies.

Saving a Single Image

You can save a moment in your animation as a single image file. The image file formats available are:

- On Macintosh: PICT, Compressed PICT, PICS, TIFF, and QuickTime
- On PCs: PSD, JPG, TIF, AVI, BMP, and various other formats

To save a single image:

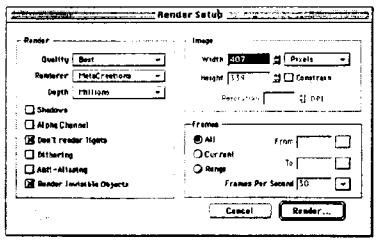
1. Choose File> Save Image As.
2. A standard Save dialog appears.
3. Type a name for your image, choose a location, and pick the image file type you want.
4. Click OK.

Making a Movie

When you ready to render your entire animation, you're ready to make a movie. Making a movie is quite simple; you control the options for making the movie in the Render Setup dialog. Waiting for the movie to render takes time. How you set the various options has an effect on the rendering time.

To make a movie:

1. Choose File> Make Movie.



The Render Setup dialog appears.

2. Set the options you want, then click Render.

A standard Save dialog appears.

3. Specify a name, location, and file type for the movie, then click OK.

Refer to "File Formats for Images and Animations" on page 100 for more information on file types.

Rendering Options

The following sections describe the rendering options you can set in the Render Setup dialog.

Quality

You can specify the type of rendering you want in the Quality pop-up. You can choose from all of LogoMotion's shading modes: Bounding Box, Wireframe, Fast (Flat), Better (Gouraud), or Best (Phong).

Renderer

You can choose the renderer you want LogoMotion to use to render the animation. The MetaCreations renderer produces the highest quality images, but takes time to render. The QuickDraw 3D renderers (called Best, SW and HW Interactive) take much less time to render, but image quality may be poorer.

If you want to render using QuickDraw 3D and have a QD3D accelerator card, choose HW Interactive. If not, choose SW or Best Interactive.

Depth

The Depth pop-up allows you to specify the color depth of the final rendering. You can choose from black and white, 4, 16, 256, thousands or millions of colors. As with all graphics programs, you should consider how much RAM you have available when determining the color depth.

Shadows

Click the Shadows checkbox if you want the animation to be rendered with shadows. Rendering shadows increases the overall rendering time. If you're making a movie just to check object motion and transformations, try rendering without shadows to decrease your rendering time.

Alpha Channel

Click the Alpha Channel checkbox to have LogoMotion render an alpha channel with your image. This item is only available when you are rendering in millions of colors. Alpha channels are extremely useful for compositing multiple images together or compositing computer graphics onto video. When this option is checked, LogoMotion creates a "straight" alpha channel.

When you use an alpha channel, images tend to look jagged when viewed in programs that don't support alpha channels.

Don't Render Lights

Checking this option causes light objects in the scene to become invisible. They still cast light, however, so their effects on objects appear in the final render.

Dithering

Checking this option dithers the images. Dithering is a method used to trick the eye into seeing a greater range of colors than are actually present in an image. For images represented by fewer than 24 bits of color per pixel, dithering can improve the image quality dramatically.

Anti-aliasing

Anti-aliasing smoothes the edges of images, removing the jagged appearance of diagonal lines. Although anti-aliasing can be a time-consuming process, it can produce an image of superior quality. Check this option to have LogoMotion render images with smoother edges.

Render Invisible Objects

The Render Invisible Objects option allows you to render a scene that shows all the invisible objects.

Width and Height

The Width and Height settings allow you to enter the precise width and height for your animation. This can be set for either pixels, inches or centimeters. When you choose inches, you can also type in your desired dpi (dots per inch).

Constrain Proportions

When the Constrain box is checked, LogoMotion keeps the aspect ratio of the width and height of the rendered image. This is useful when you're creating a large movie and don't want to shift the viewplane. When LogoMotion resizes a window, it sometimes shifts the viewplane as the aspect ratio changes. This can cause your scene to shift within the window slightly, something you may not want. To avoid this, keep this box checked and let LogoMotion calculate the second value to maintain the current aspect ratio.

Frames

You can choose to render all the frames in an animation, just the current frame, or you can choose a starting point and an ending point.

Clicking the Current button selects only the frame on which the World Time Marker is resting.

Rendering a range of frames lets you specify the starting and ending point by typing the frame numbers in the From and To fields. Or, you can use the pop-ups next to the From and To fields to determine the starting and ending points.

Frames Per Second (FPS)

This option allows you to specify the number of frames per second at which the animation will be rendered. For instance, if you are rendering a 3-second animation at 30 frames per second, 90 frames of animation are generated for the animation. If you rendered the same animation at 20 frames per second, the resulting number of frames rendered would be 60. This option corresponds to the Frames Per Second command in the Animate menu.

The Rendering Window

When you make a movie, LogoMotion displays a Rendering window. The Rendering window displays the scene, bit by bit, as it renders. When rendering is complete, you can return to the Camera View by choosing File> Exit. This is also a good way to stop a rendering in progress.

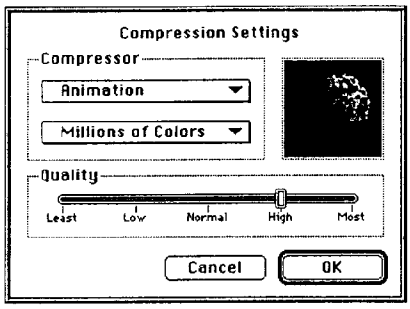
File Formats for Images and Animations

You have a variety of formats for saving your rendered images and animations. The various formats can be used in other desktop publishing or multimedia programs.

QuickTime™ Movie (Macintosh)

The default format for animations is a QuickTime Movie file. QuickTime is a system extension developed by Apple Computer that allows you to compress animations to save disk space with varying degrees of image quality.

Due to the nature of QuickTime and depending on the type of machine and additional hardware you have, the smoothness of the playback of your QuickTime movies can vary considerably. Movies that are smaller in image size and that contain less motion will be less likely to be jumpy when played back.



With QuickTime, you can choose various options for compressing the movie file.

PICT (Macintosh)

PICT is one of the most widely recognized image file formats on Macintosh computers. You can save animations and single images in PICT format.

If you choose PICT as the file format when rendering an animation, LogoMotion creates a series of numbered PICT files as the output—one for each frame of the animation.

Compressed PICT (Macintosh)

You can also choose to save rendered images as Compressed PICT files, using QuickTime to achieve the compression. QuickTime is a system extension that allows you to compress PICT files to save disk space with varying degrees of image quality.

If you choose this file format, you'll be able to take advantage of various options for compressing the PICT file.

PICS (Macintosh)

A PICS file is simply multiple PICT files stored into a single document. You can set various options when you choose this file format.

PICS files have a maximum size of 16 MB. You can have LogoMotion set a maximum file size when rendering to PICS so that the file doesn't exceed that size. If LogoMotion reaches the maximum size while rendering, it saves that PICS and creates a new PICS numbered by frames.

TIFF (Macintosh and Windows)

You can save rendered images as TIFF files. This format is popular with graphic artists, and is widely used with page-layout and graphics software.

AVI (Windows)

AVI is a popular movie format for Windows. With AVI, many forms of compression are available to reduce image sizes, though there may be trade-offs on image quality versus file size. As not all compression "codecs" are present on all computers, it's a good idea to use Microsoft Video 1 compression if you are unsure of the codecs installed on other machines. Microsoft Video 1 compression is present on almost all Windows 95 and Windows NT 4.0 computers.

PSD (Windows)

You can save images as PhotoShop documents from within LogoMotion. You can then easily incorporate the image into any of your PhotoShop projects.

BMP, JPG (Windows)

LogoMotion supports BMP, JPG, and many other common Windows image file formats. Most of the formats support various forms of compression that save disk space by reducing file size. It is likely that LogoMotion supports the image format you're interested in using.

FREQUENTLY ASKED QUESTIONS

Question: Where are the hundreds of StageHands that come with LogoMotion?
Answer: A few 'Starter' StageHands are installed on your hard drive when LogoMotion is installed. The rest of the StageHands are found on the LogoMotion CD-ROM. To gain access to the hundreds of Cameras, Lights, Props, and Backdrops on the LogoMotion CD, replace the StageHands folder found in the LogoMotion folder of the hard drive with the StageHands folder found on the LogoMotion CD. This will require about 100 MB of hard disk space. If there is little free hard disk space, here's what you can do:

The StageHands folder on the CD contains folders of Cameras, Lights, Props, and Backdrops. Within those folders are more folders containing different categories of StageHands. Simply copy the desired category folders into the corresponding folder on the hard disk and the new StageHands will appear in the StageHands panel within LogoMotion.

Question: How can I use my own images as background images?
Answer: Place them in the "Put Your Own Backdrops Here" folder, which is located in the StageHands folder. The next time LogoMotion is run, your image or animation will appear in the StageHands panel and can be dragged into your scene. On the Mac, PICT and QuickTime files can be used as backdrops. On Windows, BMP, JPG and other image files can be used.

Question: How do I import an EPS file from PhotoShop and Illustrator?
Answer: If you get a message in LogoMotion saying that there are "no recognizable EPS operators" then this question is for you. If you are attempting to save a picture as an EPS file and bring it into LogoMotion, it needs to be done a special way. Here's why: saving a picture as an EPS file is the equivalent of putting a picture into an EPS "envelope", then giving this envelope to LogoMotion and expecting the program to pull the picture out of the envelope to make a 3D object out of it. What you need to do instead is to use your picture as a template and create outlines around the edges of your picture. In PhotoShop, you would use the selection tools and path tools to come up with your outline. After you've done that, you would do a "File->Export->Paths to Illustrator" (you are not going to Illustrator, but that's the kind of file LogoMotion wants to see). In Illustrator, you would use the path tools or "create outlines" command for text to create the paths that LogoMotion wants.

Question: Why don't the texture maps on the objects show up in my scene?
Answer: To see objects that have PICT images and QuickTime movies texture mapped on to them, you must be in Shade Best mode. Go to the Rendering Control Panel Mode (command-6 on Mac, control-6 on Windows) and set the Quality to "Best." Texture Maps will not be rendered in any of the other rendering modes.

Question: Why don't my objects cast shadows?
Answer: To have a scene with shadows, you should make sure of five items.

1) Your scene must be set to render in Shade Best in the Rendering Control Panel mode (command-6 on Mac, control-6 on Windows).

2) The Shadows button in the Rendering Panel must be turned on.

3) Every object that you want to cast a shadow should have its own Cast Shadows button turned to "On" in the Object Information Control Panel (command-1 on Mac, control-1 on Windows).

4) The QuickDraw 3D button in the Rendering Control Panel is set to "Off". A light in your scene must also be made to cast shadows. With the light selected choose Edit Light under the Options menu and check the Cast Shadows box. After all this, you should see shadows in your scene. When rendering the final movie of your animation, make sure the Shadows box is checked in the Options menu of the Make Movie dialog.

Question: How can I create an animation that can be pasted onto a background in another application?
Answer: You will mostly likely want to use an alpha channel (see next question) to mask out the background (Note: your background color must be set to black to work properly). To create an alpha channel for an existing scene, go to the File menu and choose "Render Movie." In the Make Movie dialog box, select Millions of Colors and check the Create Alpha Channel box. Once you've done this, click on the Render button. If you are going to render to a QuickTime movie, click the Options button in the save animation dialog, choose the animation compressor with Millions of Colors+, and set the quality to High or Most.

Question: What exactly is an alpha channel?
Answer: In a 32-bit image (millions of colors), 8 bits are used for storing the red color information, 8 for the green information, and 8 for the blue color information. The remaining 8 bits can be used by some applications (such as Adobe Premiere and Avid Videoshop) to store masking information for compositing images together. A common use is to layer graphics over a background or an animation over live video. The alpha channel is used to store the anti-aliasing information so that the composite is seamless.

Question: Why is my extrude object hollow when I expect it to be solid?
Answer: The outline for this object may not be closed. In the extrude workshop, you can connect the points using by first choosing Snap To Grid from the Points menu. Now drag one of the points to any location on the grid, and then drag the second point to this same location. Your points are effectively joined, but to turn the two overlapping points in to one point, choose "Join Points" from the Object menu. Once the object no longer appears hollow in the Object window, leave the workshop and your object should be solid.

Question: How can I make an object appear or disappear during an animation?
Answer: Since objects exist throughout the entire animation, making an object suddenly appear can be done in one of three ways. The first way is to position the object outside the camera view at the beginning of your animation and then later moving the object into the camera view. The second way is to shrink the object down to a Uniform Scale of 0.001 in the Object Information Panel Mode at the beginning of the animation and then later enlarging the object to a visible size. Since the object's position/size will change over time from one eventmark to the next, the time for this change to occur depends on the time between eventmarks. For example, if there are two seconds between eventmarks, then the object will take two seconds to move into view or to grow from nothing to full size. If the eventmarks are only one frame apart, this transition will be instantaneous. To make an object disappear, simply make the object visible at the beginning of the animation and later move the object out

Question: Why do the QuickTime movies I produce with LogoMotion have choppy playback?
Answer: How smoothly your movies play will depend on such factors as the type of machine you are running on, if you have any additional hardware support, the screen size and file size of your movie, the frame rate, the movie compression type, and the amount of RAM allocated to the movie-playing application. QuickTime, by nature, will have jerky playback on most machines without some sort of hardware support to help it. In the absence of extra hardware, your best bet is to keep your movies to 320x240 or smaller in size (keeping the image size to a division of four will help too), playing at 20 to 15 frames per second with medium animation compression.

Question: I am using a Power3D accelerator card and objects look and move strangely. Why?
Answer: There are conflicts with LogoMotion and Power3D accelerator cards. While the two products may work more nicely together in the future, currently we recommend disabling or removing the Power3D drivers (3dfx RAVE and 3dfxGlideLib2.x) when using LogoMotion.

Question: Text is missing in LogoMotion's panels, and the text that is visible is very large. What causes this?
Answer: You are most likely have the "Large Fonts" setting enabled on your Windows 95 or NT machine. We recommend choosing the "Small Fonts" option found in the Settings panel of the Display Control panel.

Question: How can I make my own StageHands show animated previews on another computer?
Answer: On a Macintosh, StageHand previews should always play. On windows, we recommend using "Microsoft Video 1" compression when saving custom StageHand files. This is a movie compressor that is included with every Windows 95 and NT 4 operating system. If you use other compressors, other computers must have the compressor you used in order to show the StageHand preview. Don't worry if a StageHand's preview doesn't animate—it will still work fine.