CHAPTER 1

Introducing Director

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If you're a multimedia developer, you've probably been involved in a discussion much like the following:

"We're announcing our new product at a major trade show in six weeks and we want to have an interactive kiosk for the booth. We also want to hand out CD-ROMs that highlight the product's cool new features. Oh yeah, we also need to have a Web site that goes along with it, and a version with pricing information to put on our sales reps' laptops. Can you get this done for us?"

Welcome to the fast-paced world of multimedia authoring. The preceding example may be a little extreme, but if you've been in this industry for any length of time, you've probably had a client ask you to do something similar. If you're new to multimedia development, don't be surprised if a client or your employer asks you to pull off something along these same lines.

In today's world, multimedia applications have to work on multiple computer platforms, and they have to run on different media, such as on CD-ROM or on the Web. To be successful, you have to create several versions of your multimedia applications to leverage the features and to adapt to the drawbacks of each particular playback medium.

Director makes this process easier (and maybe helps you get at least a couple of hours of sleep each night) by enabling you to create sophisticated multimedia applications in a single authoring environment and to output separate versions of your application that are optimized for different computer platforms and playback media.

How Director Works

For many years now, Macromedia Director has served as a catalyst for many people to learn the art of programming. It's a unique product — easy and intuitive enough for many people to create a reasonably impressive application the first time they sit down at the computer and use the program, yet it's powerful enough to let developers put together sophisticated multimedia applications with 3D interfaces, database access, and Internet connectivity. Director is heavily graphics oriented, making it an ideal tool for graphic designers, animators, and illustrators. But it also contains a scripting language called Lingo that gives you precise control over every aspect of the program. Director is the ultimate left-brain/right-brain tool.

Director accomplishes all this by borrowing from a metaphor that's remarkably well suited to the creation of multimedia content: the world of film and animation. When you author multimedia — just as when you direct a film — you integrate sound and images, movements across the stage, transitions, pacing, and special effects. In Director (what else would you call a program with such obvious cinematic ties?), even the terminology resembles the theatrical world. A Director file is called a movie. The window where the final animation or interactive application is displayed is called the Stage. Sprites (see Figure 1-1), the actors in a movie, have distinct behaviors generated by scripts. The various resources used in the program are collectively known as the cast members. The overall positions and choreography of the sprites can be viewed and controlled with the Score, which is analogous to an animator's score. Just like traditional cel animation, the sprites are drawn on the Stage by using various inks.

Figure 1-1: Director sprites (the rocket ship in this example) are the actors that perform on the Stage and take their cues from the Score and Lingo scripts.

Fortunately for those developers who've worked with the product over the years, this theatrical metaphor is slowly disappearing from Director — especially in version 8, which now uses the new list views for the Cast and Property Inspector. Like most metaphors, it works best for people new to the product, but it can become

cumbersome for advanced users. Still, enough of Director's resemblance to film-making and animation remains so that even people who have never worked with the software can quickly grasp most of the basic features based on the strength of its terminology.

What's New in Director 8

Most of the changes in Director 8 are to the authoring interface. Macromedia has made several changes to Director's menus, giving Director a look and feel similar to Macromedia's other products: Fireworks, Dreamweaver, and Flash. One problem with the theatrical metaphor was the lack of available information about the elements and their status in your movie. Director finally has a very good solution to this dilemma: replacing the old Sprite Inspector with the new Property Inspector, which gives you very detailed control of all the various aspects of each element in your movie. For example, you can now numerically adjust the registration point of a sprite by typing in new coordinates in the Property Inspector. Another new feature has to do with the Cast window. Director's Cast window now has a List View option that contains Asset Management Fields. These user-customizable fields enable you to see all the properties of a cast member at a glance.

Director now has the capability to zoom the Stage in and out. If you have ever tried to find a sprite that is sitting off of the Stage, you'll really appreciate this new feature. Finally, after all these years, Director now has guides for positioning elements on the Stage that work the same as most other graphics programs, such as Fireworks and Photoshop. Another long-awaited feature (especially by us) is the ability to lock Sprites on the Stage.

On the Lingo side, Macromedia has included several new features that enable better playback control of audio, and some exciting new image-handling capabilities through Lingo's new Imaging commands. This book includes a new chapter (Chapter 26) that is devoted to this feature. You can also use linked scripts that need not be contained in the movie but that can reside in a separate directory, or even on a Web server! Macromedia has also increased Lingo's overall performance in order to speed up Shockwave applications that run over the Web. Speaking of Shockwave, you can now control the way your Shockwave movies scale to fit the browser window. Director no longer includes Aftershock — a utility to create sophisticated Hypertext Markup Language (HTML) code to embed Shockwave movies in a Web page — but now has a built-in Publish command that offers the same functionality.

Table 1-1 outlines the new features in Director 8.

Table 1-1
Director 8's New Features and Improvements

Feature	*What's New or Improved*
Property Inspector	This new Inspector replaces the Sprite Inspector. The Property Inspector is a universal tool that automatically switches context to view the properties of the current selection. You can also adjust the properties of any selected element.
Cast Window List View	Director's Cast window has a new user-customizable List View option that displays the cast members and all of their properties as a list.
Asset Management Fields	These are the fields in the Cast window List View that enable you to view and modify the cast member properties.
Zooming the Stage	Now you can zoom the Stage in and out while in authoring mode.
Sprite locking	Now you can lock Sprites on the Stage to prevent accidentally moving them.
Multiple Curve Vectors	Director's Shape window now supports multiple paths, enabling you to create more than one vector path in a Cast member.
Guides	In addition to a grid, Director now has guides, similar to those found in other graphics programs, such as Freehand and Fireworks, that enable exact placement of Sprites on the Stage.
Lingo performance	Director 8 has improved Lingo performance, primarily to improve the speed of Shockwave applications designed to play in a Web browser.
Linked scripts	Lingo scripts can now be linked objects, just like any other Cast member.
Imaging Lingo	These new Lingo commands enable you to control many aspects of images in your movies, such as composite images and to get and use the alpha channel.
New sound playback controls	New Lingo commands that expand Director's audio playback capabilities, these commands give you greater control over aspects such as looping, transport, cue points, panning, and cross fading.

Feature	*What's New or Improved*
Dot syntax improvements	Director has fixed several dot syntax problems that were in version 7 of the program.
Bitmap Compression Control	A new window enables you to control the image compression setting for individual Cast members. Director also has default settings that reduce file size.
Publish command	This new feature integrates the publishing features previously found in Aftershock, to create sophisticated HTML code for embedding Shockwave movies into Web pages. This feature is almost identical to the same command found in Flash 4.
Scalable Shockwave	Shockwave movies can be scaled to fill the browser window. There is also an optional maintain aspect ratio feature.
QuickTime 4 Xtra	A new QuickTime 4 Xtra enables you to take advantage of QuickTime 4 news features, such as alpha channels, quading, and other extended QT4 features.
Inline Double-Byte Text support	This feature allows text input of languages, such as Japanese Kanji characters, that contain characters that require double-byte text.

All Director 6 and 7 movies work in Director 8, although they must first be opened and then saved in Director 8 format. In this latest version of Director, enough is different that it might be worth rewriting some of your old Director code rather than relying on the automatic conversion.

The menu structure has not changed dramatically (and, fortunately, neither have the keyboard shortcuts, although a host of new ones have been added).

Lingo written in Director 4 through 7 will, in all likelihood, work in version 8. Director 8 can't open version 4 movies directly, however, so you need to open them in an intermediate version (5 or 6) of Director, and then resave them. Finally, if you open a Director 5 through 7 movie and save it, it is saved in Director 8 format and will no longer work under the earlier versions of Director. It's a wise move, before you begin, to archive any older versions of your Director movies, just in case you discover that a movie runs fine under earlier versions but not under version 8. You can also save a renamed version of an older Director file with the Director 8 changes, using the File➪Save As command. This technique enables you to keep the earlier version of the movie intact.

The Interface

Doing a production, whether theatrical or multimedia, demands that you become familiar with its framework. A traditional theater is more than just a stage. A good director needs to understand the theater's acoustics and lighting, what kind of backstage facilities are available, how many people can be seated, what the view looks like from every seat, and even details such as how the curtains will open and close.

Multimedia is much the same: Your theater, in this case, is Director, and its supporting structures are the dialog boxes, windows, menu items, and other elements that make up the program itself. You need to get to know Director before you start building your own world with it.

Director is a complex program. Although using any of its features is not difficult, there are plenty of features to use. Indeed, most of the first part of this book discusses nothing but the various dialog boxes and windows that Director uses. This complexity is the result of Director's role as an *integrating* program. Its primary purpose is to bring a number of different kinds of elements together into one package. Each element has its own particular characteristics that require special handling.

Most of the windows in Director fall into two categories:

- *Modal* dialog boxes demand immediate attention and won't let you do anything else until you dismiss them. These dialog boxes answer the question "how"? How fast does the movie play? How do images get imported? How much should the graphic be resized?
- *Modeless* editors generally control the action of the movie or enable you to edit resources. The editors deal with "what" issues: What elements are being used? What do they look like? What frame or point in the movie is being displayed?

When Director is first launched, it remembers the last editor windows that were open in the preceding session. In the very first session, Director displays four windows, two of which are critical editors: the *Score* and the *Cast* windows.

The Score editor

The Score, shown in Figure 1-2, is analogous to an animator's score sheet — it displays, from left to right, the time in the movie as measured in frames. Frames can best be described as the individual views of the movie as it changes over time. They are roughly similar to the frames of a filmstrip, where one frame may vary by just a small amount from the preceding frame (this can be somewhat deceptive due to the introduction of interactivity into the movie). Typically, a movie has 15 to 30 frames per second, although this rate — known as the *tempo* — can vary dramatically, from 1 frame per second to 999 frames per second.

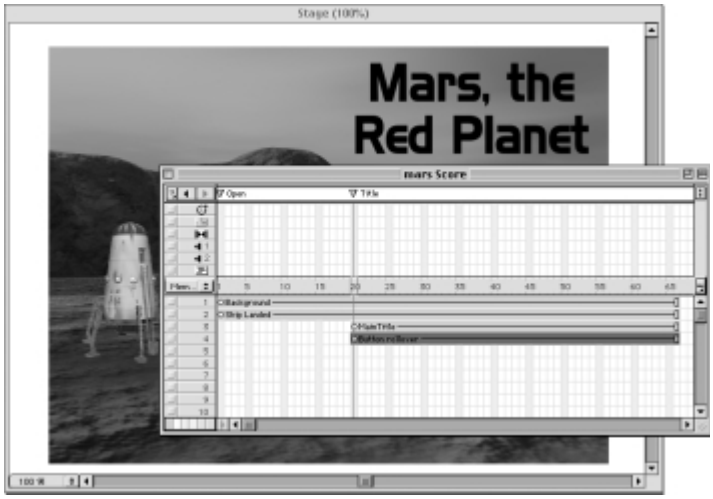

Figure 1-2: The Score is Director's cockpit, showing where all the sprites are at a given time and providing detailed information about their current state.

The Score is divided into 1000 *sprite channels*. The 1000 numbered channels are for graphic and text *sprites*, and show the position of each element and their relationships to one another on the Stage at each frame of the movie. Five other channels control the tempo, palette, sound, and transition, and instructions that control the sprites (called a script) that are applied to that particular frame of the movie. A sprite (think of it as a cast member that has been brought on the Stage to perform a specific task) occupies a sprite channel. A sprite channel is very similar to the cels used in traditional animation. You can stack up many layers of cels on the Stage to create a multilayered animation: the sky, distant mountains, a house, a character in front the house, and so on. Each of these elements could be moved or switched to a different graphic, but they roughly correspond to discrete sets of objects.

Sprites are drawn in the order that they appear in the Score. A sprite in sprite channel 1 (let's call it the sky sprite) will appear behind the far mountains in sprite channel 2, which will appear behind the near mountains in sprite channel 3, and so forth. It's possible, however, to change the order in which the sprites are drawn on the Stage by using Director's scripting language (called Lingo). This technique is covered in Chapter 15.

Sprites make up a significant part of Director's mechanics and are discussed in detail in Chapter 3.

The Cast editor

The *Cast* window, shown in Figure 1-3, contains the actual graphics and text that are used by each of the sprites, as well as sounds, digital video, transitions, scripts, and any other resources that are used by Director. Each resource is known as a *cast member*.

New Feature

The Cast window now has the optional List View, which enables you to view the properties of each cast member in a user-customizable list view.

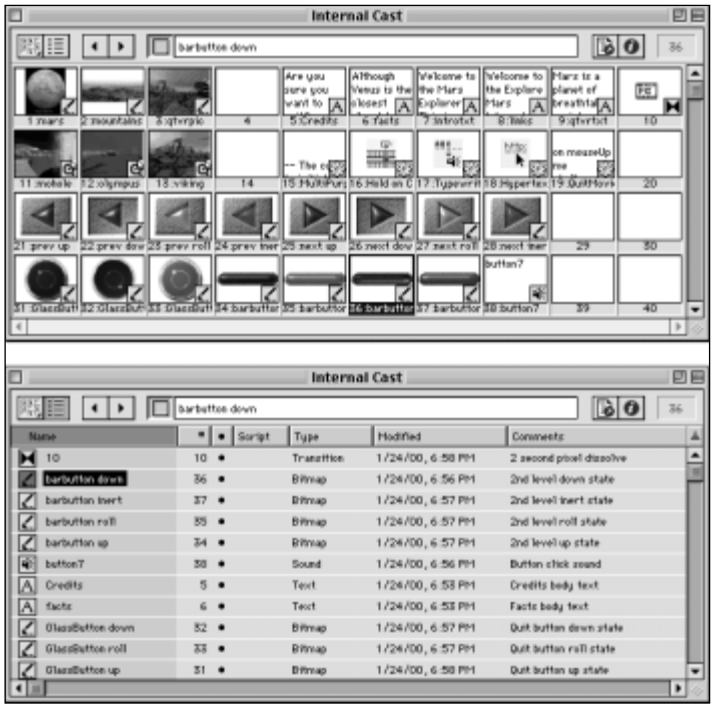

Figure 1-3: The first image shows the Cast window using the thumbnail view, while the second screen shows the same Cast window using the new List View mode.

One way to think of the distinction between the cast members and sprites is to return to the theatrical metaphor. To put on a theatrical presentation, you need to have actors to play the roles of the characters, and technicians to control the lighting, sound, and special effects that are needed for the production. The sprite is the role or function that the actor or backstage technician will perform. The cast members are the actors and technicians that will perform the tasks needed to put on the production.

The Cast and cast members are discussed in greater detail in Chapter 2.

The other editors

Director also includes a bitmap graphics editor. It has been optimized for creating animation, but it's not as powerful for creating realistic graphics as other image-editing programs. Another editor enables you to create Bézier-based vector graphics, but, like the bitmap graphics editor, it's not as powerful as other, external vector-graphic editors. These graphic editors get a thorough examination in Chapter 2.

Because text is so important in multimedia, Director can actually edit text in two different ways, as well as use externally generated text. The two text editors are considered in Chapter 4.

Finally, Director supports external editors for most types of media — graphics (Chapter 2), sound (Chapter 5), and video (Chapter 6).

The toolbar and ToolTips

Starting with Director 5, Macromedia began developing a certain look and feel for the program's user interface, building on what was already working for the Macintosh and Windows platforms. One of the more useful Windows interface tools is the toolbar, shown in Figure 1-4, which presents icon shortcuts to common functions and operations. Table 1-2 gives a quick summary of the icon shortcuts in Director.

Figure 1-4: To better understand what task the buttons on the toolbar perform, hold the pointer over a button; its name and function will pop up.

Table 1-2
Director 8 Toolbar

Icon	*Tool*	*Function*
	New Movie	Opens a new movie
	New Cast	Opens a new cast library
	Open	Opens an existing movie or cast library
	Import	Imports media
	Save	Saves the movie or cast library

Continued

Table 1-2 *(continued)*

Icon	*Tool*	*Function*
	Save All	Saves the movie and all of the Cast windows
	Publish	Saves the current movie as a Shockwave Movie and creates the HTML page
	Undo	Undoes the last action
	Cut	Cuts the selected object and places it on the Clipboard
	Copy	Copies the selected object and places it on the Clipboard
	Paste	Pastes the object on the Clipboard into the selected space
	Find Cast Member	Lets you locate a specific cast member quickly
	Exchange Cast Members	Swaps the cast member on the Stage for the selected one
	Rewind	Moves to the first frame of the movie
	Stop	Stops the movie if it is currently playing
	Play	Plays the movie if it is currently stopped
	Stage	Opens the Stage
	Cast Window	Opens the Cast window
	Score Window	Opens the Score window
	Sprite Inspector	Opens the Property Inspector window
	Library Palette	Opens the Library Palette
	Paint Window	Opens the Paint window
	Vector Shape Window	Opens the Vector Shape window

Icon	*Tool*	*Function*
	Text Window	Opens the Text window
	Behavior Inspector	Opens the Behavior Inspector
	Script Window	Opens the currently selected script, or opens a new script if one isn't selected
	Message Window	Opens the Message window

Don't worry, you don't have to memorize all these toolbar icons right away. Director makes use of another Windows convention: *ToolTips.* When you place your mouse pointer over an icon, button, or similar interface element for more than half a second, Director displays a small text box that contains a one- or two-word description of the item.

The floating Tool Palette

Many of the tools you are likely to need most frequently are assembled in a conveniently arranged package known as the Tool Palette (see Figure 1-5). The Tool Palette, when turned on, "floats" above the Stage so that you can move it around the workspace as needed to aid you in working with objects in Director. Use these tools to quickly add text, buttons, fields, lines, basic (vector) shapes, and pattern fills, and to change the foreground and background colors. You can also rotate and skew text, as well as rotate and skew vector shapes. Turn the Tool Palette on and off by choosing Window ➪ Tool Palette from the Director menu system, or by pressing Command+7 (Ctrl+7).

Figure 1-5: The floating Tool palette gives quick access to a handy collection of often-used tools.

See Table 1-3 for a summary of functions available in the Tool palette.

Table 1-3
Floating Tool Palette Functions

Icon	*Tool*	*Function*
	Arrow	Enables the selection of objects (active by default when the Tool Palette is opened).
	Rotate	Rotates and skews text and vector graphics.
	Hand	Moves the Canvas left, right, up, and down.
	Magnifying Glass	Zooms the Stage in and out.
	Text	Inserts text directly on the Stage.
	Line	Draws straight lines directly on the Stage.
	Filled Rectangle	Draws a rectangle filled with the selected foreground color.
	Rectangle	Draws an empty (unfilled) rectangle on the Stage. The border color is the foreground color selected in the Tool Palette.
	Filled Round Rectangle	Draws a rectangle with rounded corners, filled with the selected foreground color.
	Round Rectangle	Draws an empty (unfilled) rectangle with rounded corners. The border of the rounded rectangle is the selected foreground color.
	Filled Ellipse	Draws circles and elliptical shapes, filled with the selected foreground color, on the Stage.
	Ellipse	Draws empty circles and elliptical shapes. The border of the ellipse is the selected foreground color.
	Check Box	Adds a check-box-style button.
	Radio Button	Creates a radio button.
	Field	Creates editable text fields on the Stage.

Icon	*Tool*	*Function*
	Push Button	Creates a customizable push-style button on the Stage. The size of the button is dependent on the amount and size of the text entered in the button.
	Foreground/Background Color Selector	Allows selection of the foreground and back ground colors. Foreground = top-left color chip. Background = bottom-right color chip. Clicking either color chip opens the Color Palette of color choices.
	Pattern	Selects the pattern fill to be used with the Tool Palette's filled shapes. Foreground and background colors of the pattern are selected in the Foreground/Background Color Selector.
	Line Weight Selector	Selects the line weight to be used by the Tool Palette's various drawing tools. Choose from No Line, One Pixel Line, Two Pixel Line, and Three Pixel Line.

The Library palette

The evolution of Director seems to have been driven by the expansion of a pretty fair animation engine into a full-blown application development tool. One standard component of many other such environments is the capability of using common resource and code files.

Especially given the size and complexity of some Director projects, it might seem odd that the principle of common resources only recently has been incorporated into the program. Why is this so? Because many movies share common elements — navigational bars, sound controls, and general code — it's useful to place these elements into a shared resource file. Director 5 moved a big step toward solving this problem by allowing the use of linked Cast windows. It's possible, however, to modify a common element, such as a logo or common script, and then accidentally overwrite the original one by resaving the Cast window.

The Library palette, shown in Figure 1-6, is a better solution to this problem. The Library palette contains behaviors and other useful objects that are stored independently of the movie. When an object or behavior from the Library palette is used in a Director movie, it becomes a new cast member in that movie, which then can be edited without affecting the original object contained in the Library palette.

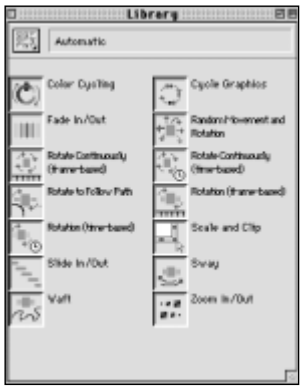

Figure 1-6: The Library palette contains Director's powerful built-in behaviors.

Director's powerful behaviors for controlling streaming, connecting to a Web server, adding interactivity, and creating animation effects are found on this palette.

Display the Library palette by choosing Window ➪ Library Palette.

The Library palette is basically just a collection of Cast windows, so it's possible to add anything to the Library palette that can be contained in a Cast window. This can be very useful for any commonly used artwork, as well as for behaviors that you don't want to be edited accidentally. To add your own elements to the Library palette, create a new, unlinked Cast window that contains behaviors and graphics, save it, and then drag the Cast file into the folder called LIBS, which is found in the Director application folder. Using unlinked Cast windows in the Library Palette is discussed in Chapter 7.

The Library palette is discussed in detail in Chapter 7.

Inspectors

You use inspectors to view and modify the attributes of text cast members, sprites, and behaviors (Lingo scripts). One inspector monitors the amount of memory that the movie is using. Display the Inspector windows by choosing Window ➪ Inspectors, and then select the one that you want to display.

A new feature in Director 8 is the Property Inspector. The Property Inspector, shown in Figure 1-7, replaces the Sprite Inspector found in previous versions of the program.

There are four types of Inspectors in Director; each performs a specific task:

- **Property Inspector:** Use the Property Inspector to display the current properties of any selected element, including the Stage, as well as the active movie. You can adjust any available properties of nearly every element in your movie by using this window.

Figure 1-7: Director 8's new Property Inspector gives you almost infinite control over the individual elements contained in your movies.

- ✦ **Behavior Inspector:** Use the Behavior Inspector to create new behaviors (Lingo scripts) and modify existing ones.
- ✦ **Text Inspector:** Use the Text Inspector to format text and add hypertext links.
- ✦ **Memory Inspector:** The Memory Inspector displays the amount of memory (RAM) that is being used by the Director application and the elements contained in the movie.

The various aspects of each Inspector are discussed in later chapters of the book that relate to their function.

Tip

The Behavior Inspector is an excellent way to begin learning Lingo (Director's built-in scripting language). Select any behavior and then click on the Script button to see how the how the script is assembled.

Pop-up menus

Another trick in the Director 8-interface arsenal is the deployment of those handy context-sensitive pop-up menus (see Figure 1-8). You can activate pop-up menus for most elements in Director, including cast members, sprites, behaviors, scripts — even the toolbar. A pop-up menu contains operations that are only appropriate for the selected item.

On the Macintosh, you bring pop-up contextual menus to life by holding down the Ctrl key and clicking the mouse button over an interface element or object. In Windows, you right-click the item in question. The contents of contextual menus vary from item to item. They are intended to provide a list of operations or commands that you can perform on that item, in the current context of the software.

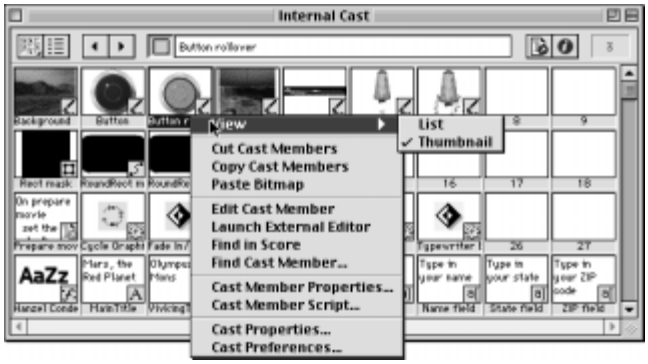

Figure 1-8: Ctrl+right-click the mouse button on an element to activate a pop-up menu that contains operations appropriate for the selected item.

The menu bar

Director uses a fairly complicated set of menus, submenus, and related dialog boxes, in an arrangement that is consistent with Macromedia's user interface guidelines across its product line. The idea is, of course, that someone familiar with other Macromedia products, such as FireWorks or Flash, can adapt to Director fairly quickly.

This book discusses menus and their content as they become relevant. Table 1-4 summarizes the content of each menu in the menu bar.

Table 1-4
The Director Menus

Menu Name	*Functions Handled*
File	Opening, saving, and printing of files. Creating projectors (run-time versions of your movies), Shockwave movies, and Java applets. Setting preferences, previewing in a browser, and terminating the program.
Edit	Clipboard operations (cut, copy, paste) and various kinds of selection. Searching and replacing text. Launching external resource editors.
View	Offers various ways of looking at the Score (the window that controls where animation sprites are placed). Also controls onion skinning in the Paint window.

Menu Name	*Functions Handled*
Insert	Insertion and deletion of keyframes and animation frames into the Score. Serves as an alternate way of inserting media cast members into the Cast window (the library of resources that Director uses).
Modify	Changing properties for the movie, individual cast members (resources), sprites, and the Score. Also provides a means of editing text in a text field, modifying scripts (interpreted code that is attached to sprites or other interface elements and that executes when designated events occur), rearranging the order of cast members on the Stage, and converting cast members to different bit depths.
Control	Playback of Director, moving from frame to frame, setting volume, handling sprite recording, debugging features, and recompiling scripts.
Xtras	Gives information and access to Xtras (Director plug-ins) and graphic filter Xtras. Protecting and updating older versions of Director movies, and importing PowerPoint files.
Window	Calls up any of the control windows used in Director, such as the Score, the Cast window, the Bitmap editor, the Library palette, Text Inspectors, and others.
Help	Accesses Director Help, which provides a detailed help and indexing system for all sorts of Director and Lingo problems. Also calls up Help tutorials. Accesses registration information and links to Macromedia's Web site.

Xternal Resources

No program is an island, although some try very hard to be. For a multimedia program to be useful, it has to have some way of adding functionality whenever new technology comes on the scene. With Director 5, Macromedia realized this necessity, abandoning the rather haphazard Xobjects — which relied principally upon a ten-year-old Macintosh programming specification that was almost universally ignored. Instead, some serious work was invested in developing an open architecture (see Chapter 26 for the gory details of what this really means). This architecture enabled developers to create new support programs called Xtras, which added significantly to Director's capabilities.

Xtras are analogous to plug-ins for browsers, and to plug-ins for programs such as Adobe PhotoShop and MetaCreations' Painter. Some Xtras — such as Cast member Xtras (that enable you to import Animated GIFs or JPEG images) and the fileIO Xtra (that adds file reading and writing capabilities) — are produced by Macromedia itself. Third-party software designers produce others. Some of these are for adding

functionality to Director (such as Component Software Industry's FileFlex, which is an integrated database specifically designed for Director, and ElectronicInk's PrintOMatic, which gives more sophisticated printing capability than Director's built-in capability). Others are designed to open up access to system capabilities (such as Apple's QuickDraw3D Xtra, which enables you to use the QuickDraw3D Extensions on the Macintosh to create real-time 3D graphics).

You access cast members that are created by Xtras, such as fonts and animated GIFs, by choosing Insert ➪ Media Element. These cast members are then imported into the Cast window and are nearly identical to other cast members. You can set their properties with standard dialog boxes, and open external media editors for editing.

Director 5 may have introduced the concept, but Director 8 is well and truly built on Xtras. A great deal of the new functionality inherent in version 8 has been introduced using Xtras rather than being built into the main program.

Adding Xtras to your system

The same folder that holds your Director program contains a folder, or directory, called Xtras. This folder is the repository for every Xtra in use by the program. If you want to add a new Xtra (or remove a troublesome one), then you simply need to add (or remove) the file that contains the Xtra. When Director starts up, it inventories every Xtra it finds in the Xtras folder or in subfolders of that folder; and if it can use it, Director registers the Xtra internally.

Director 8 includes an option that enables end users to download Xtras used in the movie that are not installed on their system via the Internet from a secure server. This capability enables movies to be smaller by allowing Xtras to be downloaded independently of the movie.

Using Xtras

When you create your own applications, you must distribute these Xtras as well. As long as the Xtras folder is in the same directory as the application, all of the Xtras contained within it will be added. There are five types of Xtras:

- **Cast Member Xtras:** These Xtras increase the assets and media available for use in a movie.
- **Transition Xtras:** Use these Xtras to control the appearance of transitions from one frame to the next.
- **Script Xtras:** Use Script Xtras to add commands to the Lingo language.

- **Tools Xtras:** These Xtras provide development resources for code creation and debugging.
- **Import Xtras:** This category of Xtras includes the code necessary to import a specific type of media.

How you invoke a Xtra depends on its type.

Cast Member Xtras are for adding new cast member types. For example, PhotoCaster, a Cast Member Xtra produced by Media Labs, enables you to import each layer of a PhotoShop document as a separate cast member. Choose Insert➪Media Lab Media➪PhotoCaster and choose a PhotoShop file that you want to import. On the other hand, you access a PhotoShop filter by choosing Xtras➪Filter Bitmap, which then lists all of the available filters currently in the Xtras folder. Many other Xtras also are resident in the Xtras menu, in addition to Tool Xtras that provide a service, such as setting up the Score in different configurations.

Transitions have their own dialog box (see Chapter 8 for details), and you can find any transition Xtra there. Often, these Xtras have options beyond what are provided by the native Director transitions, which are also available through the Transitions dialog box.

Cast Libraries

A Director movie can have, practically speaking, any number of cast libraries open at any given time, making it possible to have one library that exclusively contains common bitmaps (such as navigational elements); a second library that contains nothing but behaviors and utility code; a third library that has only sounds; and so on . . . although there's nothing to stop you from mixing these resources together, as well.

You can link cast libraries to a movie by choosing Modify➪Movie➪Casts. Having a linked file of any sort means that the information about that file is kept in a separate file rather than within the Director movie itself. For example, if you linked a bitmap image, every time Director started up it would load that image from the disk, rather than from its own internal resources. This approach has the advantage of making it easier to work with *dynamic* files, or pictures that change on a regular basis. The disadvantage comes from the location of the file; the picture (or other resource) isn't already in a contained in the movie, so it has to be processed into a Director cast member. Depending on the size and type of the image, this process can involve an appreciable wait.

For more details on bitmap images, cast libraries, and resource linking, see Chapters 2, 3, and 6, respectively.

Director's Help Engine

The operation of a program as complex and feature-rich as Director cannot be assimilated in one afternoon. There are several hundred commands, properties, keywords, and related terms used just by Lingo, not to mention the dozens of menu commands, dialog boxes, and other related bits of the Director interface. With its new behaviors and other improvements, Director is now easier to use than ever before — but that doesn't mean that it won't seem overwhelming to even seasoned users. And it especially doesn't mean that keeping track of obscure syntax or seldom-used functions is a piece of cake for higher-end programmers using Director.

Fortunately, the designers of Director have provided assistance with the program's complexity in the form of a remarkably comprehensive help system. This system can aid everyone from beginners to advanced professionals. In essence, much of what is available echoes the books that come with Director (*Using Director Shockwave Studio* and the *Lingo Dictionary*), although in all likelihood, the online Help is probably more current.

You access the help system by choosing Help ➪ Director Help from the menu bar or by pressing the F1 key. (Actually, almost every selection in the Help menu will bring up the Help dialog box, but the F1 or Help menu route is Director Help's front door.) From here, you can go get help on most basic concepts in Director, including Lingo scripting and incorporating Director movies into Web pages (see Figure 1-9).

Figure 1-9: The help system is quite comprehensive, providing useful information about most aspects of Director programming, including customized "Show Me" movies.

Using context-sensitive help

Director also offers context-sensitive help, which gives you detailed information about a specific item or keyword. To summon context-sensitive help, follow these simple steps:

1. Move the cursor over the button or interface element that you're curious about, or select the words in a script about which you need more information.
2. Press Shift+F1 to bring up the help information.

Especially with scripts, it is useful to select portions of the help screen text by clicking at the start of the text and dragging to the end, and then copying the selected text to the Clipboard. From there, you can paste the scripts into your own scripts or into a text box for reference.

Help on the Web

One of the truly useful aspects of Director 8 is that much of its core functionality is no longer provided by a single monolithic program, but rather by lots of Xtras. A benefit of this scheme is that it's now much easier to upgrade parts of Director without upgrading the entire thing. This convenience, however, comes at the price of making the help system obsolete.

Enter the Web. Macromedia posts updates to any part of the help system (or, for that matter, updates to Xtras themselves) to more closely reflect the current state of the program. Director has the capability to bring up a browser if one is installed on your system, and from there can launch to a specific Web page. If you choose Help ➪ Web Links, Director launches the Director Developers Center page at the Macromedia Web site (`www.macromedia.com/support/director/whatsnew`). Clicking the link launches the selected default browser, which can be set in Network preferences (File ➪ Preferences ➪ Network). Of course, you need a live Internet connection for this feature to work.

Getting a second opinion (or third or fourth)

Macromedia's Web site is fairly comprehensive, but it's only a small part of the total collection of Web sites, mailing lists, newsgroups, and newsletters available to the Director developer. Many of these sites include downloadable Xtras, tips and techniques, and working examples. Of equal importance, these Internet resources also facilitate your connections with other Director users, an especially welcome capability when you're in the middle of a project and discover that you don't know how to get past a thorny problem.

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The programming faculty at Maricopa Community College in Arizona maintains one of the most exhaustive sites devoted to Director and Authorware, at `www.mcli.dist.maricopa.edu/director/`. The college also maintains the Direct-L mailing list, which is an ongoing e-mail list where developers talk over problems and quirky happenings, and discuss getting together at conferences and conventions. Check the Web site itself for details if you want to subscribe. We recommend getting the Digest, but bear in mind that the list is very busy and can easily generate a thousand messages in a few days.

The Director Online Users Group (DOUG) at `www.director-online.com/`, produced by Patrick McClellen and Zac Beldo, is a very comprehensive Web site for all things Director. This site is full of tips and tricks, utilities, and shareware, as well as links to make searching other Director resources a lot easier. One of the better features of this site is a series of articles called "The Handyman," written by Zac Beldo, that covers a wide range of Lingo techniques.

Gary Rosenzweig, owner of CleverMedia and a Director force on his own, has a very good site for developers at `www.clevermedia.com/resources/` that is full of useful techniques for both the beginner and expert Lingo programmer. Another great feature of this site is that you are only a mouse click away from one of the most comprehensive Shockwave game sites on the Internet.

Behaviors.com, put together by Terry Schussler of Gray Matter fame, is a great source for Director behaviors as well as quite a few Xtras. Behaviors.com also provides a searchable database of behaviors, as well as some good development tools for creating your own behaviors. You can find this site at `www.behaviors.com`.

Summary

Director is the most comprehensive multimedia authoring tool on the market today. It enables you to create sophisticated multimedia applications for virtually every medium that exists to deliver interactive content. You use Director to create and combine all of the elements commonly used in multimedia applications — text, graphics, animation, sound, and video — and then add interactivity and multiuser functionality with its powerful scripting language (Lingo).

Before moving on to Chapter 2, review some of the things that were covered in this chapter:

- Director uses a theatrical metaphor for its interface. A Director file is called a *movie*, the window that the movie plays in is called the *Stage*, resources used in a movie are called *cast members*, *sprites* on the Stage are choreographed using the *Score*, and commands that tell the sprites what to do are called *scripts*.

- Nearly every function in Director has a floating window associated with it, including bitmap editing (the Paint window), Bézier vector graphics (the Shape window), text creation (the Text window and the Field window), shapes (the Tool Palette), sprites (the Score), and navigation (the Control Panel).
- Director is truly a right-brain/left-brain application. It combines a graphical interface that is understandable to graphic artists and animators with a powerful scripting language that enables programmers to create incredibly complex applications.
- Xtras are individual components (like plug-ins) that add extra functionality to the program. They are created by Macromedia and third-party developers.
- Director has a context-sensitive help engine as well as a comprehensive Web site that make it easier to learn how to use the program and to keep current with the most recent features. ToolTips is another feature that makes Director more understandable by giving a brief description of an item while the mouse cursor pauses over it.

Chapter 2 discusses working with graphics in Director.

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