



macromedia®  
director<sup>mx</sup>  
and lingo

phil gross

training from the source

## Macromedia Director MX and Lingo: Training from the Source



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# introduction

Macromedia Director MX is an internationally best-selling multimedia authoring program and the leading high-end tool for creating interactive media for the World Wide Web, CDs, information kiosks, presentations, and corporate intranets. Director's easy-to-use interface lets you combine text, graphics, sound, video, vector graphics, and other media in any sequence and then add interactive features with Lingo, the program's powerful scripting language. This Macromedia Training from the Source training course introduces you to the major features of Director MX and guides you step by step through the development of several real-world Director projects.

For those who want to focus on Director's friendly user-interface programming, the first 15 lessons are a course in the capabilities of Director MX. The course covers the fundamentals of creating interactive multimedia, including graphics, text, animation, sound, and digital video. This course begins with Director's user interface and finishes with the training necessary to create and publish Macromedia Shockwave content suitable for display on the Web. Lingo programming is not required for these first 15 lessons.

The remaining 12 lessons give you the tools to take more control of the multimedia elements used in Director projects. While using and expanding on the multimedia material in the first 15 lessons, these remaining lessons focus largely on Lingo, Director's renowned internal programming language. These lessons begin with the basics of Lingo, so previous programming knowledge is not required. In the process of learning Lingo, you will learn how to include interactivity, provide internal navigation, and manipulate graphics, text, sound, and video in professional-quality presentations.

In addition to the lessons in the printed portion of this book, four lessons are included on the book's CD. These bonus lessons cover interesting topics that add to your knowledge of Director. The lessons on the CD are independent of the printed lessons

and do not contain material required for the first 27 lessons, but you will undoubtedly find the material worthwhile. Lesson 29, “Director 3D,” gives you a glimpse into how you can use Director’s real-time 3D capabilities to provide 3D content, even over the Internet. The lesson shows you how you can easily add animated 3D text and interactive 3D objects to your movies. Because the 3D content of the lesson is controlled using Director’s built-in behaviors, you do not need to know programming to read this lesson—once you have read through Lesson 15, you should be able to tackle the 3D material introduced in Lesson 29. Lessons 28, 30, and 31 require knowledge of Lingo programming, so read these lessons after you have read the first 27 lessons. Lesson 28, “Using Lingo on the Web,” is especially useful if you are creating Shockwave content or are accessing the Internet from your movies.

The 50-hour curriculum includes these lessons:

- Lesson 1:** Director Basics
- Lesson 2:** Animated Bullet Lists
- Lesson 3:** Reversing Animations
- Lesson 4:** Transitions, Sounds, and Video
- Lesson 5:** Adding Interactivity
- Lesson 6:** More Animation Techniques
- Lesson 7:** Keyframes and Layers
- Lesson 8:** Film Loops and Buttons
- Lesson 9:** Built-in Behaviors
- Lesson 10:** Custom Cursors and Buttons
- Lesson 11:** Alpha Channels and Masks
- Lesson 12:** Sprite Properties
- Lesson 13:** Markers and Navigation
- Lesson 14:** Fonts and Menus
- Lesson 15:** Packaging Movies
- Lesson 16:** Learning Lingo
- Lesson 17:** Handlers and Events
- Lesson 18:** Navigating with Lingo
- Lesson 19:** Advanced Navigation
- Lesson 20:** Synchronizing with Digital Video
- Lesson 21:** Introduction to Properties
- Lesson 22:** Controlling Sprites with Lingo
- Lesson 23:** Keyboard Control
- Lesson 24:** Using Lists and Multiple Casts
- Lesson 25:** Databases and Lists
- Lesson 26:** Using a List Database

**Lesson 27:** Input, Accessibility, and Flash

**Lesson 28:** Using Lingo on the Web (CD)

**Lesson 29:** Director 3D (CD)

**Lesson 30:** Creating Hypertext (CD)

**Lesson 31:** Monitoring Director (CD)

Each lesson begins with an overview of the lesson's content and learning objectives and is divided into short tasks that break the skills into bite-size units. Lessons also include these special features:

**Tips:** Shortcuts for performing common tasks and solutions to common problems using the skills you learn in the lessons.

**Boldface terms:** New vocabulary that will come in handy as you use Director and work with multimedia.

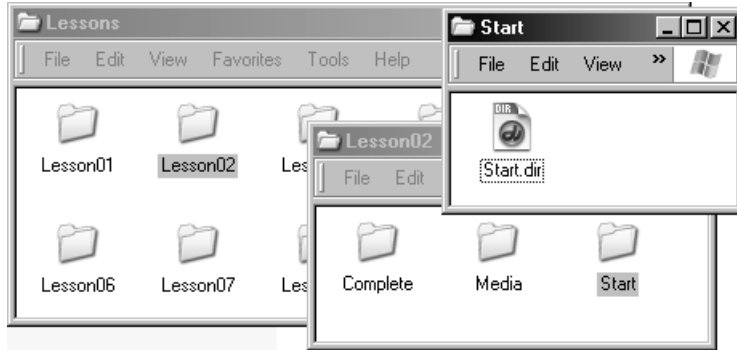
**Menu commands and keyboard shortcuts:** Alternative methods for executing commands in Director MX Studio. Menu commands are shown like this: Menu > Command > Subcommand. Keyboard shortcuts (when available) are shown in parentheses after a step; a plus sign between the names of keys means to press the keys simultaneously; for example, "Choose Window > Script to open the Script editor (Windows Ctrl+O, Macintosh Command+O)."

Appendixes A and B provide quick reference to the Windows and Macintosh shortcuts you can use to give commands in Director.

As you complete these lessons, you will develop the skills you need to complete your own Director projects. By the end of the course, you should have mastered all of the skills listed in "What You Will Learn" at the end of this introduction.

All of the files you need for the lessons are included in the Lessons folder on the enclosed CD. Files for each lesson appear in their own folders, titled with the lesson number. You do not need to copy the Lessons folder to your hard drive; you can complete the lessons by running the files from the CD. However, you will probably want to save your projects on your hard drive.

The folder for each lesson contains a Complete folder, a Media folder, and a Start folder. The Complete folder contains completed files for the lesson, for your inspection and comparison. The Media folder contains the media elements that you need to complete the lesson. Certain projects require you to use prebuilt files. The prebuilt files are partially created Director files that relieve you of some of the busywork and allow you to focus on the lesson elements. The prebuilt files are identified at the beginning of each lesson and can be found in the Start folder for that lesson.



*Files for each lesson appear in their own folders, titled with the lesson number. The Complete folder contains completed Director files for each lesson. The Media folder contains the media elements you need to complete each lesson. If a lesson requires a prebuilt file, you will find the file, usually named Start.dir, in the Start folder.*

## **AUTHORIZED TRAINING FROM MACROMEDIA**

The lesson plans in this book were developed by some of Macromedia's most successful trainers and refined through extensive experience to meet students' needs. Macromedia Training from the Source courses offer the best available training for Macromedia programs.

The instructions in this manual are designed for multimedia developers, graphic artists, instructional designers, illustrators, Webmasters, and anyone who wants to become a multimedia developer or Web designer. This course assumes that you are a beginner with Director but are familiar with the basic methods of giving commands on a Windows or Macintosh computer, such as choosing items from menus and opening and saving files. For more information on basic tasks, see the documentation provided with your computer or operating system software.

The instructions in this book also assume that you have Director MX installed on a Windows or Macintosh computer, and that your computer meets the system requirements listed at the end of this introduction. This minimum configuration will allow you to run Director MX and open the files included on the enclosed CD.

We hope you enjoy the course.

## **WHAT YOU WILL LEARN**

### **In this course, you will:**

- Create, import, and sequence media elements in Director multimedia presentations
- Incorporate graphics, sound, and text into your projects
- Create attractive screen transitions
- Animate media elements to include movement in Director movies



- Create film loop animations
- Add interactive navigation to presentations
- Create buttons that provide user feedback
- Learn to turn any on-screen object into an interactive interface element
- Use Shockwave to produce movies for playback on the World Wide Web
- Create transparency effects with Director's alpha channel support
- Create custom cursors for your program
- Learn to use Lingo, Director's scripting language
- Control the screen with the keyboard
- Create a database
- Link to the Internet
- Create hypertext

## MINIMUM SYSTEM REQUIREMENTS

### Windows

- Pentium II processor or compatible, 300 MHz or faster
- Windows 98 SE, 2000, XP
- 64MB available RAM (128MB recommended)
- 100MB available disk space
- CD-ROM drive
- 800 × 600 screen resolution
- 8-bit color (256 colors) monitor depth
- Windows-compatible sound card
- QuickTime 3 for Windows
- 14.4 baud modem and Internet access
- A Web browser that supports Shockwave (such as Netscape Navigator version 4.0 or later, Microsoft Internet Explorer version 4.0 or later, or AOL version 4.0 or later)
- Microsoft DirectX 5.2 or OpenGL (recommended)
- 3D accelerator (recommended)
- The Shockwave plug-in. Don't worry if you don't have it; we will tell you how to get it when you need it.

### Macintosh

- Power Macintosh G3 Processor
- OS X 10.1 or higher
- 128MB available RAM
- 100MB available disk space
- 800 × 600 screen resolution
- 8-bit color (256 colors) monitor depth
- QuickTime 3
- 14.4 baud modem and Internet access
- A Web browser that supports Shockwave (such as Netscape Navigator version 4.0 or later, Microsoft Internet Explorer version 4.5 or later, or AOL 4.0 or later)
- OpenGL 1.1.2 (recommended)
- 3D accelerator (recommended)
- The Shockwave plug-in. Don't worry if you don't have it; we will tell you how to get it when you need it.

# transitions, sounds, and video

## LESSON 4

In this lesson, you will continue building the Taj Mahal travelogue by adding sound, selecting transitions such as dissolves and wipes from a list of transition types built into Director to help you present new scenes, and adding a digital video to the end of the movie.

If you would like to view the result of this lesson, open the Complete folder in the Lesson04 folder and play TajMah2.dir.



*With special effects such as transitions, sound, and digital video, you can capture your audience's attention and keep it. These effects let you create a montage of images, as shown here.*

## WHAT YOU WILL LEARN

### In this lesson, you will:

- Modify the registration point of a cast member
- Exchange cast members in the Score
- Apply screen transitions
- Add sounds to a movie, including a sound that plays repeatedly
- Add a digital video to a movie

## APPROXIMATE TIME

This lesson should take about 1½ hours to complete.

## LESSON FILES

### Media Files:

*None*

### Starting Files:

*Lessons\Lesson04\Start\Start.dir*

*Lessons\Lesson04\Start\QTmovie.mov*

### Completed Projects:

*Lessons\Lesson04\Complete\TajMah2.dir*

## SETTING REGISTRATION POINTS

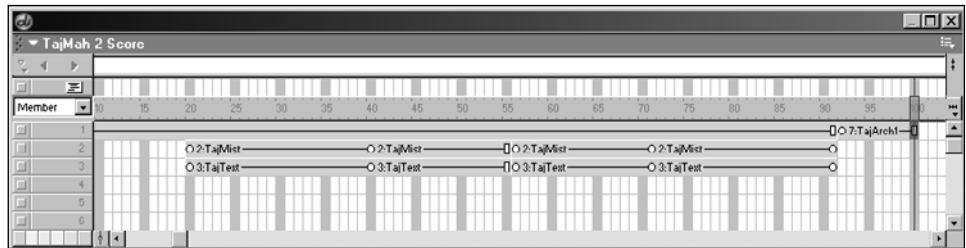
Director uses **registration points** to position images on the Stage. A registration point provides a fixed reference point within an image. By default, Director assigns a registration point in the center of all graphic image sprites and at the upper-left corner of other types of sprites. Sometimes, however, you may want to move a registration point to help you align an object on the Stage. In the next task, you'll modify the registration point of an image.

**1) In your Projects folder, open the TajMah1 movie you created in the previous lesson. Save the movie as *TajMah2.dir*.**

Alternatively, you can use the Start.dir file provided in the Start folder for Lesson04 on the CD. If you want to use the provided Start file, copy it to your Projects folder, along with the QTmovie.mov file. Then rename the Start.dir file *TajMah2.dir*. This preserves the link between the Director movie and the QuickTime movie.

**2) Drag cast member 7 (TajArch1) from the Cast window to channel 1, frame 92, in the Score. Then drag the end frame of the sprite to frame 100.**

The sprite now occupies frames 92 through 100 in channel 1.



The sprite appears in the center of the Stage. Sprites that appear in the center of the Stage have a registration point at the center of the image. This is Director's default registration point for the image.

### 3) Double-click the sprite on the Stage.

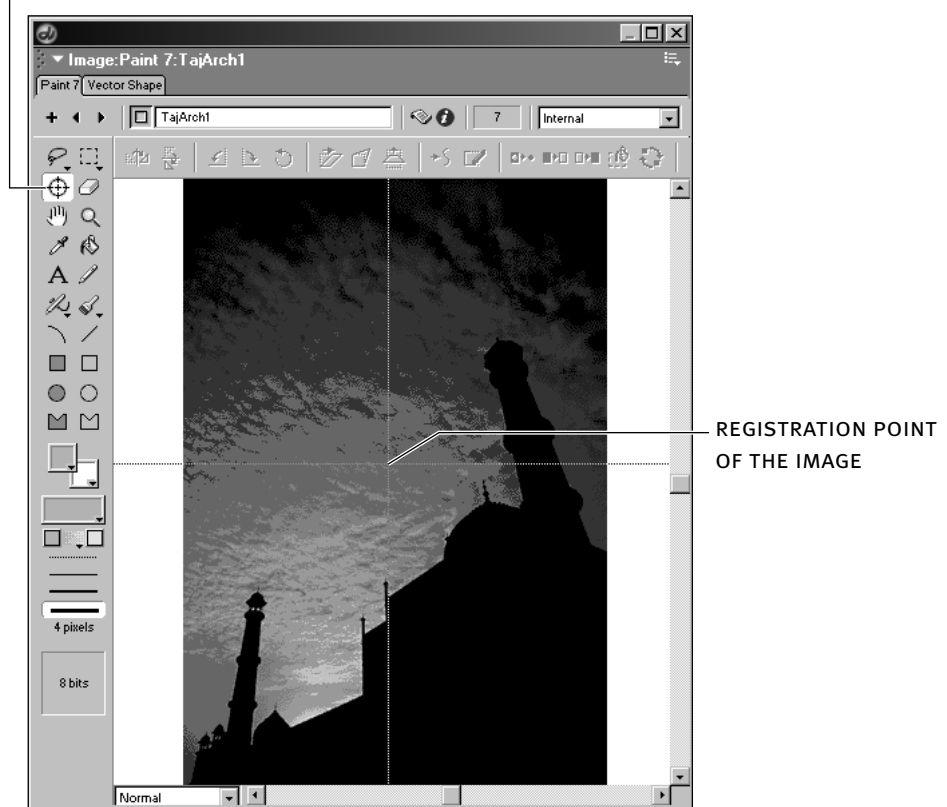
This opens the Paint editor and displays an editable version of the image. You get the same result when you double-click the cast member for this sprite. Director also provides a context menu (Windows right-click, Macintosh Control-click) that offers many window and edit options.



**4) Select the Registration Point tool in the Paint window.**

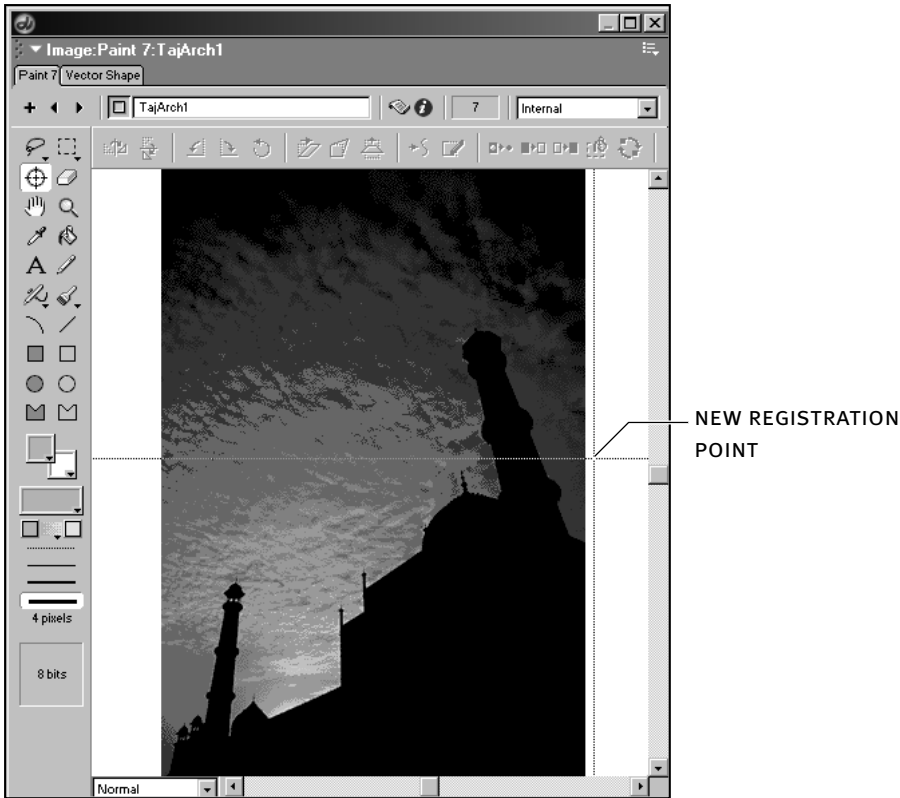
Once you click the Registration Point tool, you'll see the intersecting lines at the center of the image that make up the registration point. You can move these crosshairs to a new location on the image to change the way Director displays the image in a movie. The registration point can be set for an image in the application used to create it, or you can set the registration point in Director's Paint window.

**REGISTRATION POINT TOOL**

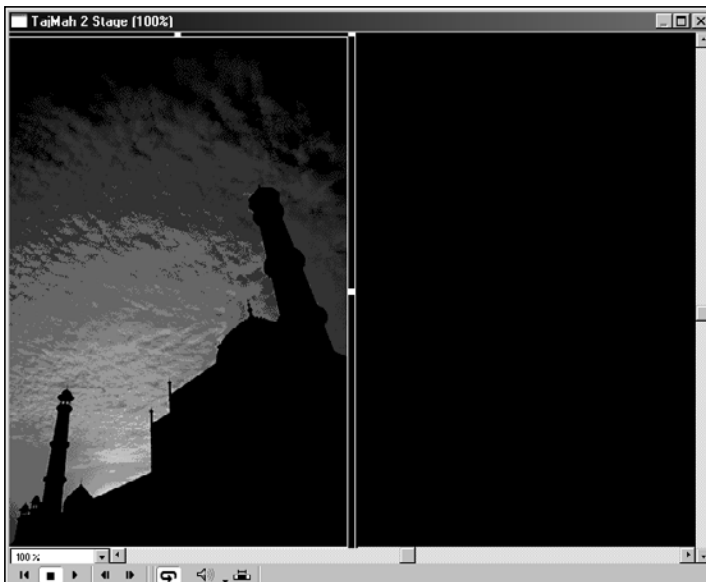


**5) Drag the crosshairs to the right edge of the image to reset the registration point. Then close the Paint window.**

Now the registration point is at the right edge and near the center of the image.



The sprite appears at a new location on the Stage because you moved the image's registration point. Director centers the registration point on the Stage; thus, the registration point of this image is at the center of the Stage, which positions the image at the left of the Stage's center.



## EXCHANGING CAST MEMBERS

Next, you'll copy and paste the TajArch1 sprite into channel 1 directly after its current position. Then you'll use the Exchange Cast Members command to exchange the pasted TajArch1 sprite with TajArch2 on the Stage.

**1) In the Score, select the TajArch1 sprite in channel 1 and then choose Edit > Copy Sprites (Windows Ctrl+C, Macintosh Command+C).**

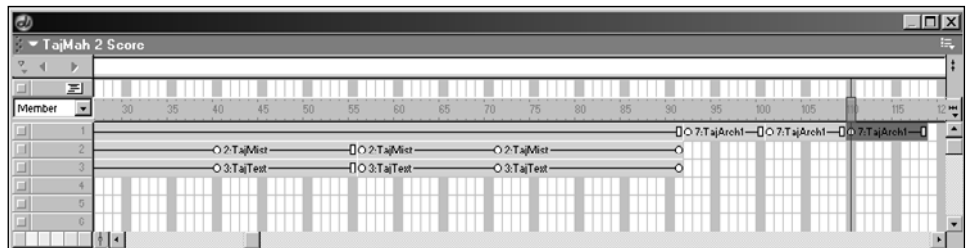
You'll make several copies of this sprite in the Score.

**2) Click frame 101, channel 1, and choose Edit > Paste Sprites (Windows Ctrl+V, Macintosh Command+V).**

You have made one copy. The sprite is still on the clipboard, so you can make another copy.

**3) Click frame 110, channel 1, and choose Edit > Paste Sprites again.**

The sprite labeled 7:TajArch1 now appears three times in channel 1, in frames 92 through 118.



In the next steps, you'll exchange one of the TajArch1 sprites you pasted into channel 1 with a TajArch2 sprite.

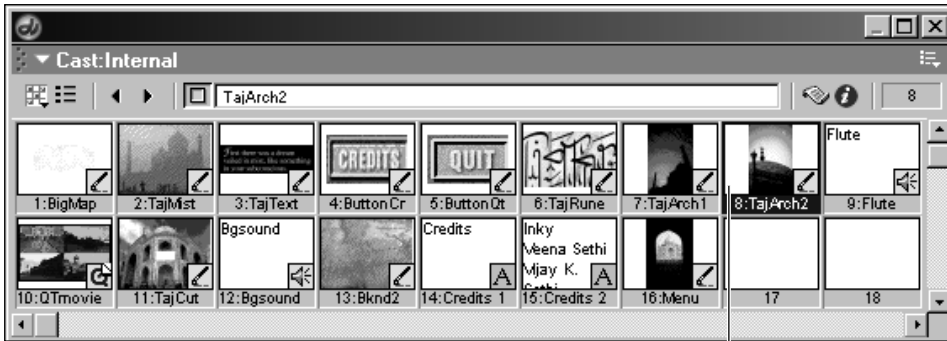
**4) In the Score, select the sprite you pasted into channel 1, frames 101 through 109.**

You'll exchange this sprite for another. Sprites are derived from cast members, and Director allows you to exchange cast members easily.

**5) In the Cast, select cast member 8 (TajArch2).**

Be sure that the Cast window is active (in the foreground) and that cast member 8 is selected, or the following step will not work.





SELECT CAST MEMBER 8

- 6) On the toolbar at the top of the screen, click the Exchange Cast Members tool (Windows Ctrl+E, Macintosh Command+E).

EXCHANGE CAST MEMBERS

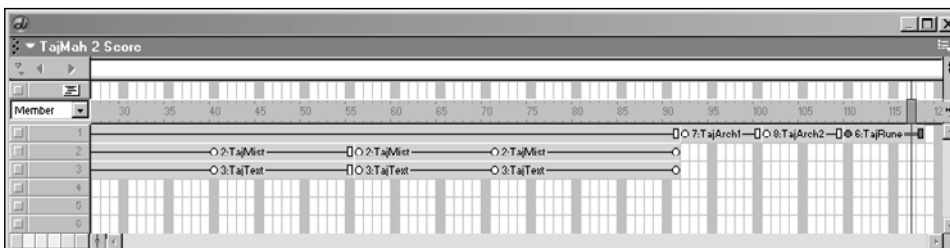


In the Score, the sprite's label changes to 8:TajArch2, reflecting the cast member used for the sprite. Now when the playback head arrives in frame 101, Director will display the TajArch2 image.

Next, you'll exchange cast members in the last sprite you pasted. The new sprite will be TajRune.

- 7) In the Score, select the sprite in channel 1, frames 110 through 118; in the Cast window, select cast member 6; and on the toolbar at the top of the screen, click the Exchange Cast Members tool.

The last sprite in channel 1 is now labeled 6:TajRune.



## 8) Rewind and play the movie.

Note that the images you exchanged, TajArch2 and TajRune, appear in different positions on the Stage than the TajArch1 image. You didn't have to position them. The registration point on each of the three images in this sequence is in a different location on the art itself.

You set the registration point of the TajArch1 image at the right edge, near the center. The TajArch2 image has its registration point at the left edge, near the center, and the TajRune image's registration point is at its center. By default, Director always displays an image with its registration point centered on the Stage. The different registration points on the images themselves make one image appear to the left, another to the right, and the last image at the center of the Stage.

Look at the registration points of each of the images you exchanged to see where they are. Once you are familiar with the way that Director places sprites on the Stage, you'll find manipulating the appearance of your productions easy.

**TIP** *You have seen that you can open the Paint window by double-clicking a cast member or a sprite on the Stage. Another way to open this window is to double-click the sprite in the Score.*

You just used Director's Exchange Cast Members feature to produce a simple montage of graphical images that appear in different areas on the Stage. You could have accomplished the same effect by dragging the TajArch2 and TajRune images to the Score and then resizing the sprites, but copying and using Exchange Cast Members requires fewer keystrokes to get the same job done.

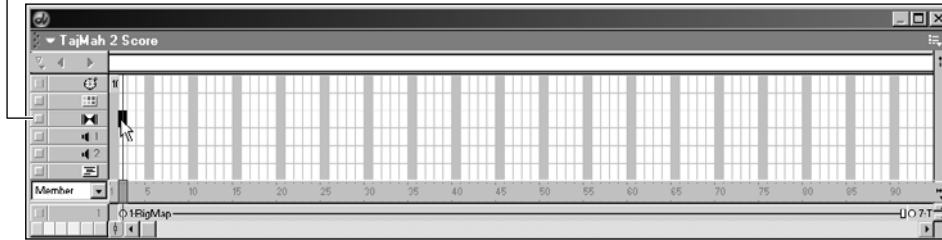
## 9) Save your work.

### USING A SCREEN TRANSITION

In this task, you will select a screen **transition** to introduce your viewers to the images as they appear in the travelogue presentation. You've probably heard of dissolves, wipes, and fades in traditional filmmaking. In Director, screen transitions are visual effects used to reveal or remove objects on the Stage. For example, a Wipe Left transition displays the next frame of the movie by wiping it onto the screen starting from the right side of the Stage and moving toward the left side, as if the viewer were pushing aside a curtain. You can apply the transition to the entire Stage or to only the areas that are changing on the Stage, and you can adjust the duration and smoothness of most transitions.

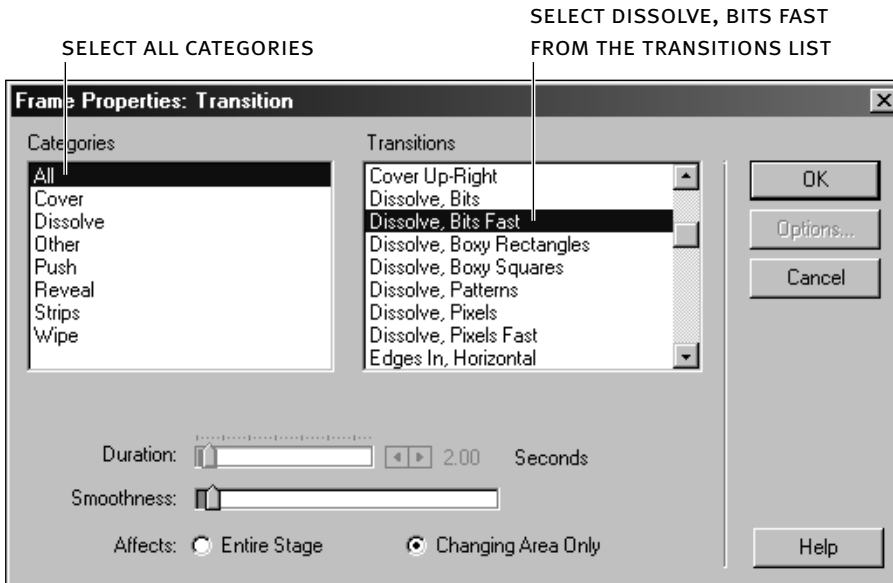
1) In the transition channel, double-click frame 2 to display the Transition dialog box.

TRANSITION CHANNEL

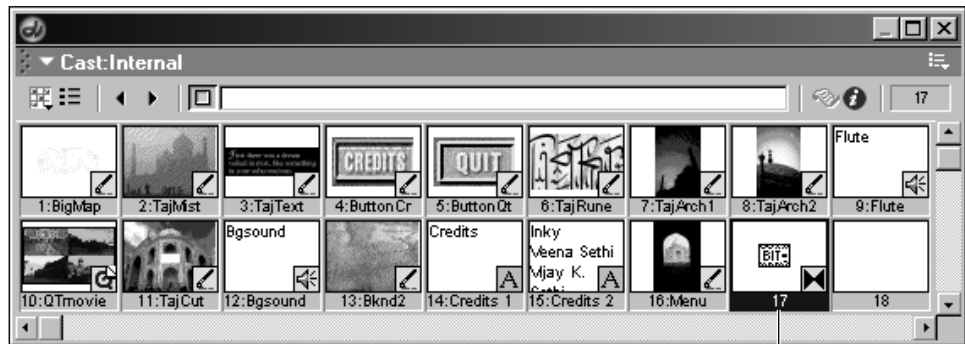


Frame 1 contains the black Stage, and frame 2 contains the background sprite that you added earlier (in Lesson 3). Always place a transition in the frame where new sprites appear on the Stage so the transition effect can reveal the sprites. In this case, the new sprite that appears in frame 2 is the BigMap sprite. With the transition applied to frame 2, the BigMap sprite will be revealed as the playback head moves from frame 1 (the black Stage) to frame 2 (where the BigMap sprite first appears). The transition actually begins to take effect when Director begins to draw frame 2.

2) In the Categories list, select All, and in the Transitions list, select Dissolve, Bits Fast. Then click OK.



The transition now becomes cast member 17 in the Cast window.



THE TRANSITION BECOMES CAST MEMBER 17

**3) Select frame 2 in the transition channel and copy it.**

You'll use this same transition in other parts of the project; you can copy and paste a transition just like any other sprite.

**4) Select frame 92 in the transition channel and paste the transition.**

At frame 92, the TajArch1 sprite appears on the Stage. Placing transitions where new sprites appear on the Stage is a good way to introduce new scenes in a presentation. Since the image will change to the TajArch2 image and then to the TajRune image, you'll also place transitions in the frames where those images appear on the Stage.

**5) Paste the transition into frames 101 and 110 in the transition channel.**

You have placed Dissolve, Bits Fast transitions in the Score where new images appear on the Stage.

**6) Rewind and play the movie.**

Now you can see how the transition looks in all four places.

**7) Save your work.**

**TIP** *In addition to the transitions available in the Transitions dialog box, many other transition effects are available as Xtras—extensions that add new capabilities to Macromedia products. Xtras use the Macromedia Open Architecture (MOA) standard to ensure that they work across the Macromedia product spectrum. Go to Macromedia's Web site for information on transition Xtras currently available from third parties. Once you have acquired or created an Xtra, make it available to Director by copying it to Director's Xtras folder.*

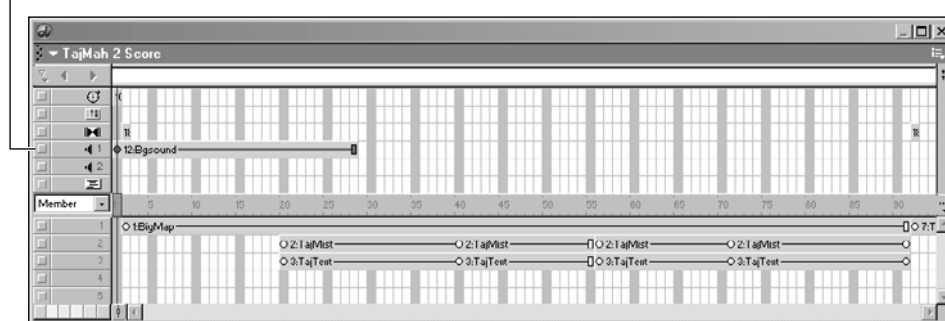
## ADDING SOUNDS TO THE SCORE

The next task is to add sound in two places in the Score. In one case, the sound will **loop**, or play continuously throughout the movie. In the other case, the sound will play for only a few frames.

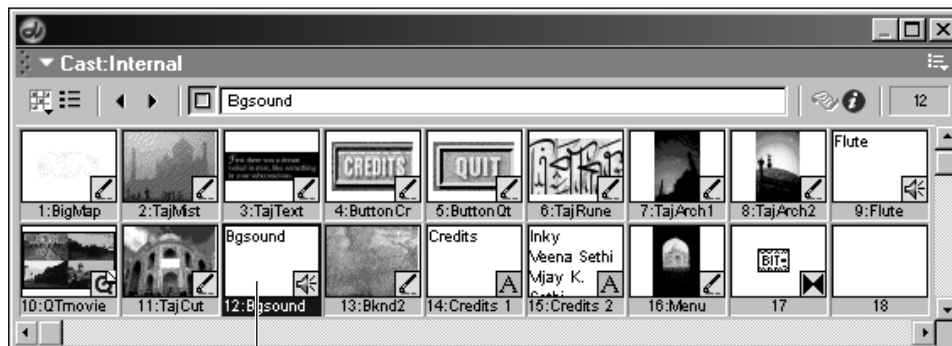
### 1) Drag cast member 12 (Bgsound) from the Cast window to sound channel 1, frame 1, in the Score.

The sound sprite will appear in the sound channel just as other sprites appear in the sprite channels. This sound will play in the background throughout the production, so start it in frame 1.

#### SOUND CHANNEL 1



### 2) In the Cast window, double-click cast member 12.

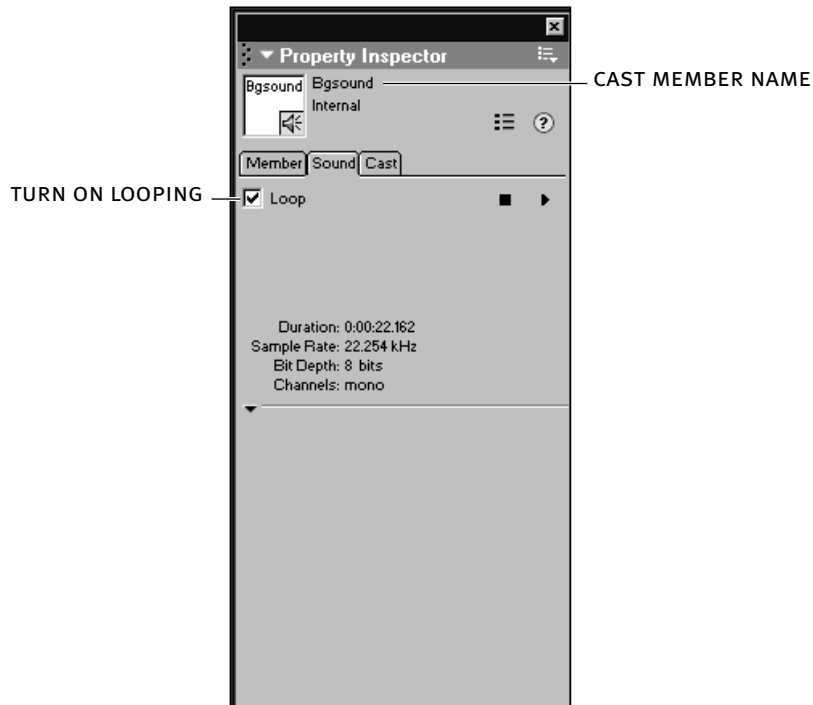


DOUBLE-CLICK BGSOUND

Double-clicking a sound cast member opens the Property Inspector with the Sound tab selected.

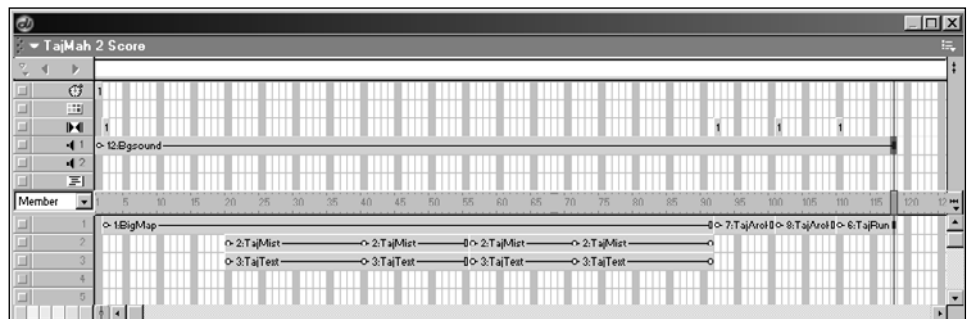
### 3) In the Property Inspector, check the Loop box.

Often you'll want a particular sound to play throughout a movie. Setting the Loop option starts the sound again when it reaches the end of the file. This is a good way to establish background music for a movie. If you don't check Loop, the sound will stop playing at the end of the sound file.



### 4) Drag the end frame of the Bgsound sprite in sound channel 1 to frame 118.

Even when you have set a sound file to loop, the sprite for the sound must extend through every frame in which you want the sound to play. Extending the sprite ensures that the sound plays through to the end of the presentation in frame 118. Your Score should now look like this:



## 5) Rewind and play the movie.

The sound plays throughout the movie and adds life to the presentation.

Now you will make the movie more dramatic by adding another sound in sound channel 2. Adding a second sound in the sound channels is one way you can add more audio interest to a movie. The sound you'll add to the Taj Mahal travelogue will play only when the TajArch and TajRune graphics are displayed, but it will play at the same time that the background sound is playing.

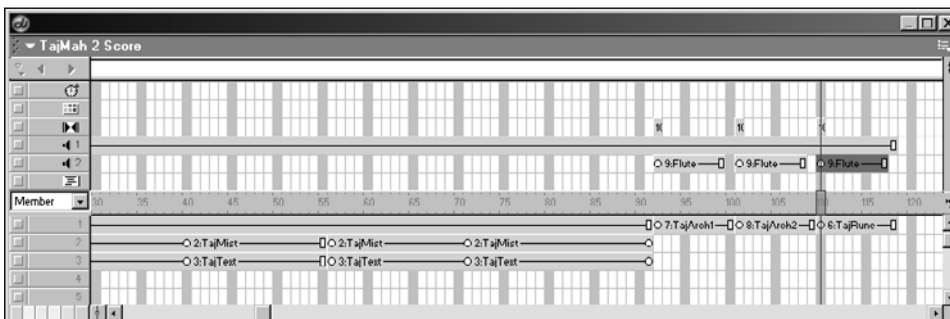
**TIP** *Even small sounds can add life to a project and can be reused throughout a movie without dramatically affecting the movie's file size. Since file size is always a consideration when downloading movies over the Web, you'll want to limit the size of the sound files you use in a movie. In addition, sound effects can be sampled at a lower rate than a voice-over file. Sampling reduces the dynamic range of a sound file—removing the sound file's highest and deepest sounds—so the sound can still be heard, but only at its middle ranges. When digitized speech is sampled, it typically never runs at less than 8 bits, 22 kHz, but even at this rate, quality is drastically reduced, whereas sampled sound effects can run at half that size, at 8 bits, 11 kHz, and still sound fine. In addition, using mono instead of stereo can cut the size of the sound media in half.*

## 6) Drag cast member 9 (Flute) to sound channel 2, frame 92, in the Score. Change the sound's end frame to 99.

The Flute sound will play when the TajArch1 image appears on the Stage. To make the sound play for each of the images that follow, you'll copy the sound sprite and paste it into the frames where the remaining images appear.

## 7) Select the Flute sound sprite, copy it, and then paste it into frames 101 and 110 in sound channel 2.

This will make the Flute sound play three times in the presentation, announcing the images as each appears on Stage. A blank frame is necessary between each of the Flute sound sprites.



### 8) Rewind and play the movie.

Great sound effects! As the Flute sound plays, the sound in channel 1 continues playing. The transitions you placed in frames 92, 101, and 110 also help to announce images in the movie. You can see how sound and Director's transitions can bring a presentation to life.

### 9) Click the on/off toggle in sound channel 1 to turn off the looping music.

During long projects, you'll get tired of hearing sounds playing over and over. To turn off the sounds temporarily, click the box at the far left of the channel. This will highlight the box, indicating that the sounds in that channel have been toggled off. To hear the sounds at any time, click the box to toggle the sound on. Notice that every channel has an on/off toggle.

WHEN YOU CLICK HERE, THE INDICATOR BECOMES HIGHLIGHTED,  
AND THE SOUND IS TURNED OFF IN THE CHANNEL



**TIP** *The on/off toggle states are not saved when you save a movie. Closing Director sets the toggle state to the default state: on. Director does remember the toggle state as long as it is running, however. If you toggle off a channel and then open a new movie, the off state will be applied to the new movie. If you don't seem to be getting any effects from a channel, check whether the channel has been turned off. This behavior applies to effects channels, the behavior channel, and sprite channels.*

### 10) Save your work.



## ADDING DIGITAL VIDEO

Now it is time to assemble the ending of the presentation by adding a digital video file. Digital videos are digital movies that you can incorporate into a Director movie as you would any other graphical cast member: by placing it in the Score or on the Stage.

### **1) Find the QuickTime movie named QTmovie in the Cast and double-click it to bring up Director's QuickTime viewer.**

The viewer provides standard controls at the bottom of the window that allow you to play the digital video. After you have played the video and seen what the video should look like, close the QuickTime viewer.

**NOTE** *If the digital video does not appear in the QuickTime viewer, you probably have lost the link between Director and the video file. Digital video is always kept in a separate file from the Director movie, and Director must know how to link to the video file. Typically, Director does a good job of keeping track of file links; however, the link may have been broken as you moved between the CD and your Projects folder. To restore the link, select the QTmovie cast member in the Cast, switch to the Member tab in the Property Inspector, and click the Link button—the button with three dots on it—next to the Filename text box. The Link button opens a standard Open dialog box. Use the Open dialog box to link to the QTmovie.mov file that you copied to your Projects folder.*

### **2) Drag the graphic cast member 11 (TajCut) from the Cast window to channel 1, frame 119, of the Score. Then set the sprite's end frame to 130.**

The digital video will play on top of this new background graphic.

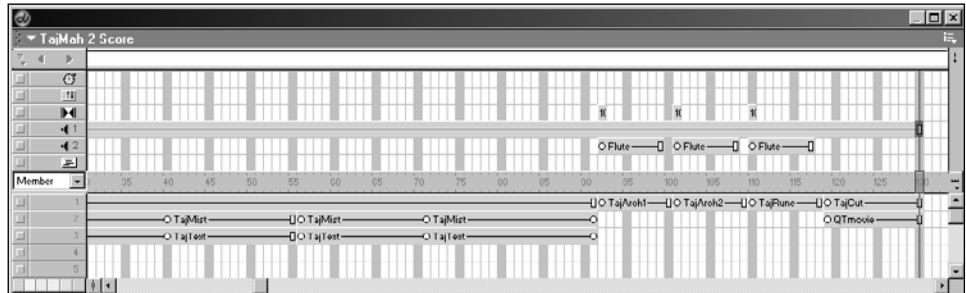
### **3) Drag cast member 10 (QTmovie) to channel 2, frame 119, of the Score. Change the end frame of the QTmovie sprite to 130.**

This file is a QuickTime digital video that was created for the Taj Mahal—Sights and Sounds CD. The QuickTime video is already included in the Cast for you, but you can import QuickTime video just as you import other elements.

To make sure that the video will play to completion, you will need to add a tempo setting that will make the playback head wait until the video is finished playing before it continues.

**4) Select the background music sprite in sound channel 1 and set its end frame to 130.**

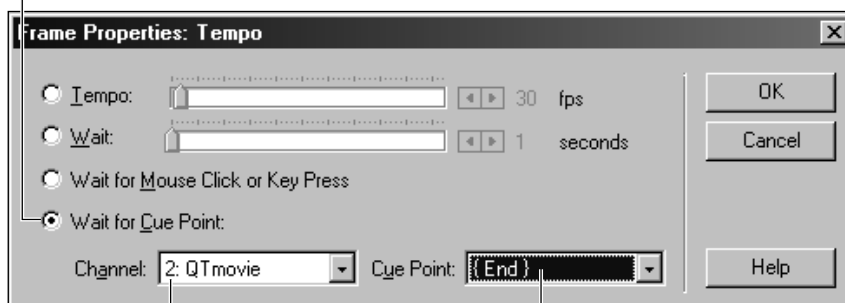
Remember that a sound's sprite must appear in the sound channel of every frame where you want the sound to play. This action ensures that the sound continues to play during the new part of the movie you are adding.



**5) Double-click frame 120 in the tempo channel to open a Tempo dialog box. In the dialog box, click Wait for Cue Point. In the Channel field, select 2:QTmovie, and in the Cue Point field, select {End}. Click OK to close the dialog box.**

In frame 119, Director begins to display the TajCut and QTMovie sprites. Because you set a tempo that affects the digital video sprite one frame later, Director will not have to process the tempo instructions at the same time that it starts to display a new image and play the digital video. This makes the presentation smoother since Director doesn't have to process so many instructions at once.

**SELECT WAIT FOR CUE POINT**



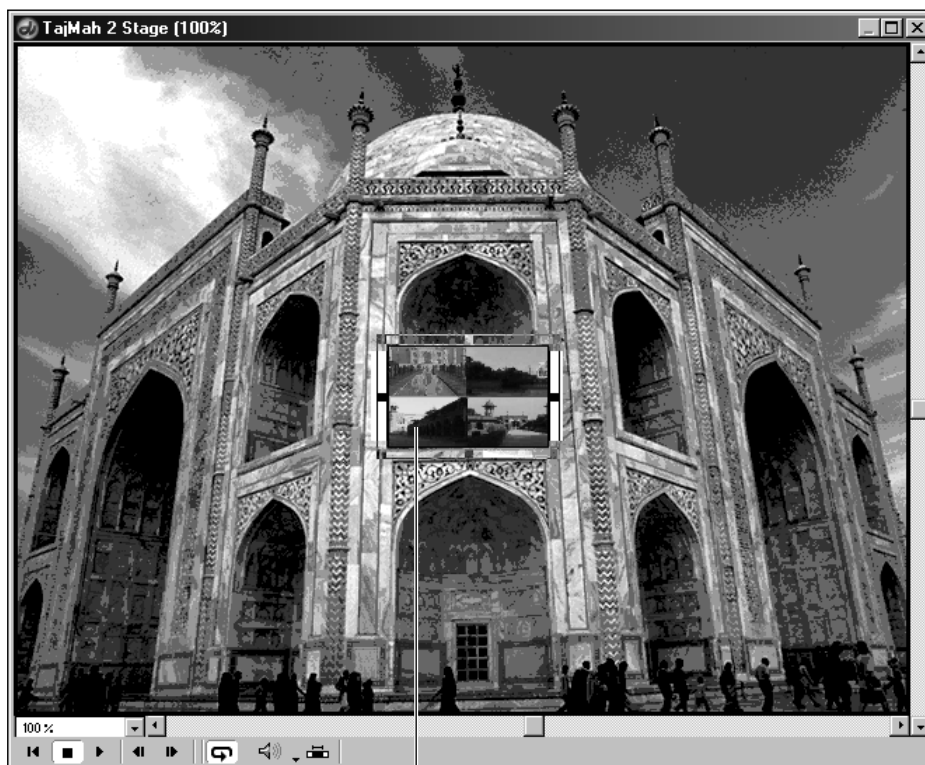
SELECT 2: QTMOVIE FROM  
THE CHANNEL MENU

SELECT {END} FROM  
THE CUE POINT MENU

These tempo selections allow the digital video to play to completion before the playback head moves ahead in the movie.

**6) On the Stage, center the sprite for the digital video (10:QTmovie) over the cutout in the image (11:TajCut).**

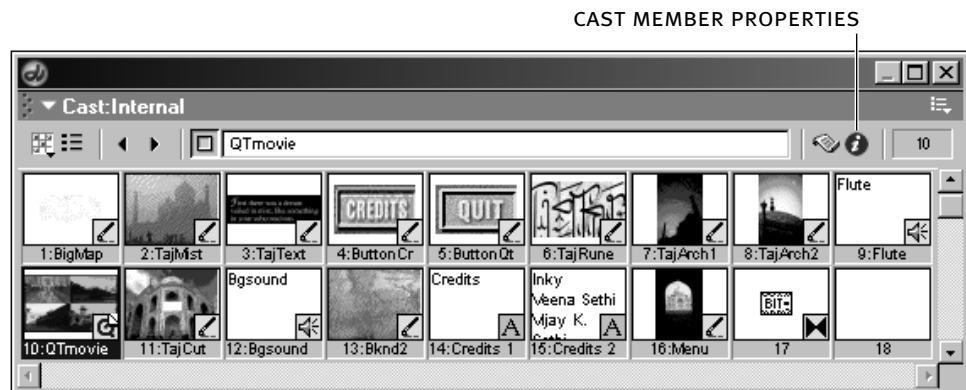
The cutout area is a different size than the digital video sprite, but you can scale a digital video so that its dimensions match those of any rectangular area. In the following steps, you resize the QTmovie sprite to fit inside the cutout in the background image.



CENTER THE DIGITAL VIDEO OVER THE WHITE CUTOUT AREA IN THE TAJCUT IMAGE

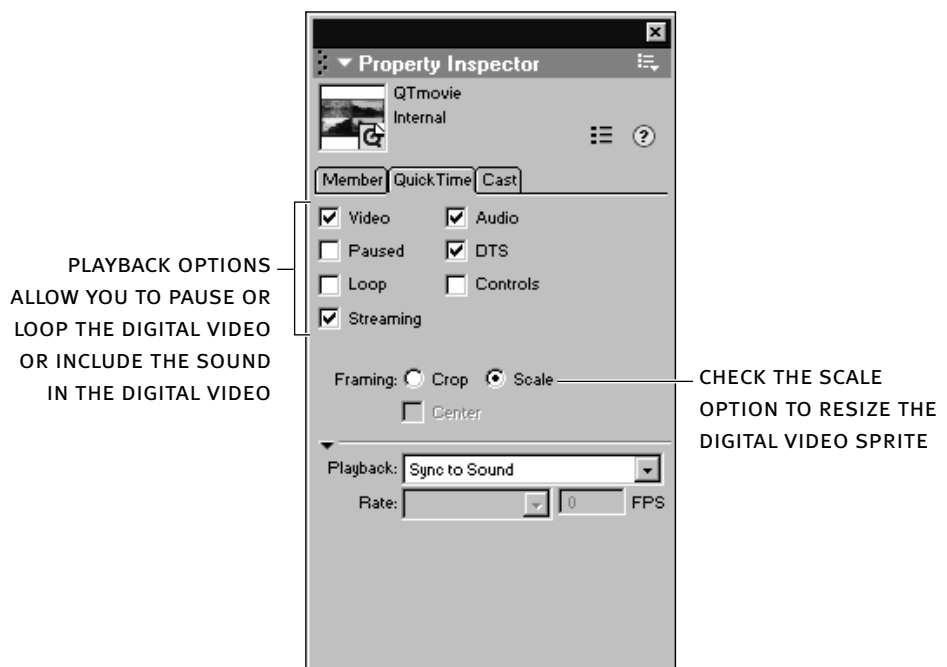
**7) Select the QTmovie cast member (cast member 10) in the Cast window and click the Cast Member Properties button.**

The Cast Member Properties button is at the upper right of the Cast window. This button looks identical to the Property Inspector button on Director's toolbar, but using it in the Cast window opens the PI to the QuickTime tab.



**8) With the Property Inspector displayed in the Graphics view, select the Scale radio button.**

With the Scale option selected, Director allows you to drag the handles on the digital video sprite to resize it to fit inside the cutout area on the background image. If the Crop radio button is selected, the sprite can be resized, but the video is cropped to the size of the sprite instead of being scaled to the sprite's new size.



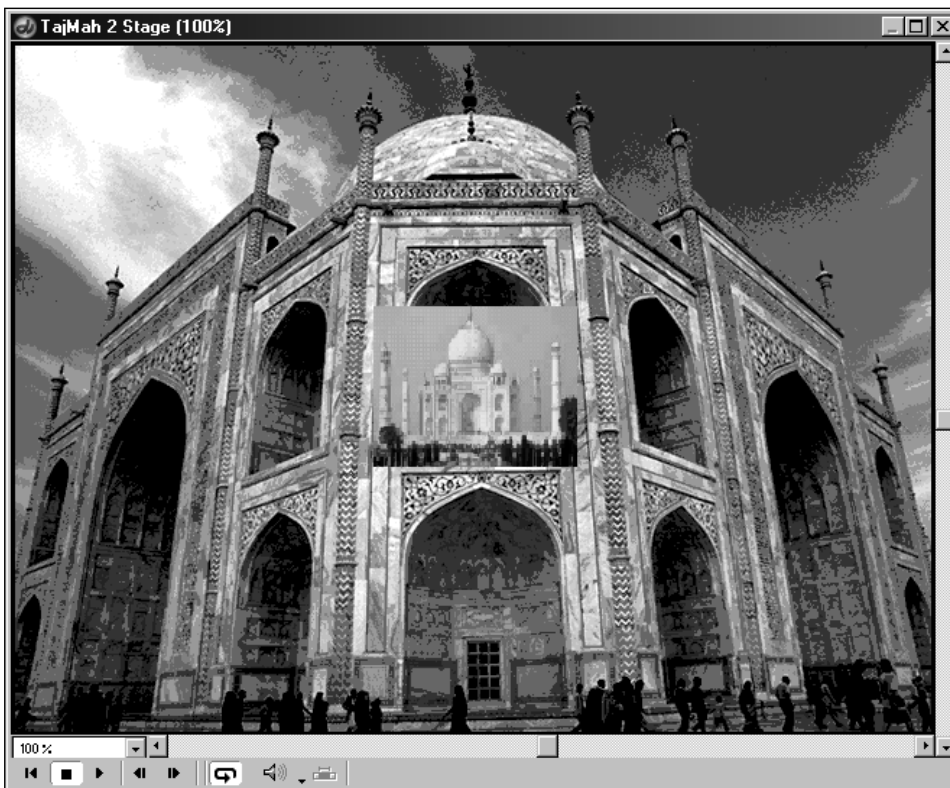
**9) Uncheck the Audio check box for the digital video.**

There is no sound for this video, so Director doesn't need to concern itself with playing sound.

**10) In the Score, select the entire QTmovie sprite. On the Stage, drag the resize handles that surround the digital video sprite to make it cover the cutout in the background image.**

The cutout in the background image is not necessary for the display of the video; it just gives you an indication of where and how big to make the video sprite.

**TIP** *Digital video performance is best when the video is scaled up or down by multiples of two—for instance, double the height and width or half the height and width. Otherwise, Director must perform myriad time-consuming calculations to convert the image, possibly resulting in dropped frames and poor performance. For exact sizes, you can use the PI to set a width and height rather than resizing the sprite.*



**11) Rewind and play the movie.**

After the TajArch and TajRune images appear, the digital video plays. You see the entire digital video because you used the tempo channel to instruct Director to play it completely before advancing the playback head.

In the next step, you use the tempo channel again to instruct Director to wait in the last frame of the presentation for 2 seconds. Setting a wait time at the end of a movie is a good idea so the Stage doesn't simply go blank at the end of the action. This is a nice finishing touch to add to any movie.

**12) In the tempo channel, double-click frame 130. Then click Wait, set the slider to 2 seconds, and click OK to close the dialog box.**

After the movie finishes playing, the last frame of the movie will stay on the Stage for 2 more seconds because the playback head will stay on this frame for 2 seconds.

**13) Save your work.**

Now you're ready to set up a menu and buttons for the Taj Mahal travelogue. In the next lesson, you'll use the remaining cast members to build a menu and incorporate interactive branching into the travelogue.

## WHAT YOU HAVE LEARNED

### In this lesson, you have:

- Set the registration point of a cast member (pages 132–135)
- Used the Exchange Cast Members tool to substitute cast members used for sprites (pages 136–137)
- Used the transition channel to add screen transitions to a movie (pages 138–140)
- Added sounds and used the Loop option to make a sound continuous (pages 141–144)
- Placed a digital video in a movie and scaled it to fit inside a rectangular area (pages 145–149)

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