Chapter 17 – Macromedia Flash MX 2004: Building Interactive Animations

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Chapter 17 – Macromedia Flash: Building Interactive Animations

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Objectives

• In this tutorial, you will learn:
  – To learn Flash MX 2004 multimedia development.
  – To learn Flash animation techniques.
  – To learn ActionScript 2.0, Flash’s object-oriented programming language.
  – To create an animation that preloads objects into a Flash movie.
  – To add sound to Flash movies.
  – To embed a Flash movie into a Web page.
17.1 Introduction

• Flash
  – Produce interactive, animated movies
    • Web-based banner advertisements
    • Interactive Web sites
    • Games
    • Web-based applications
  – Provides tools for drawing graphics, generating animation and adding sound and video
  – Tools for coding in its scripting language, ActionScript

• Flash Player plug-in
  – Installed in a Web browser to play flash movies
17.2 Flash Movie Development

- **Start page**
  - Contains a number of helpful options
    - Create From Template
    - Open a Recent Item

- Creating blank Flash document
  - Click **Flash Document** under the Create New heading

- **Tools** section
  - Contains tools that select, add and remove graphics from Flash movies

- **View** section
  - Contains two tools that modify what portion of stage

- **Colors** section
  - Provides colors for shapes, lines, and filled areas

- **Options** section
  - Contains settings for the active tool
17.2 Flash Movie Development

Fig. 17.1 Flash MX development environment.
17.2 Flash Movie Development

- Selection tool
- Line tool
- Pen tool
- Oval tool
- Pencil tool
- Free transform tool
- Ink bottle tool
- Dropper tool
- Hand tool
- Subselection tool
- Lasso tool
- Text tool
- Rectangle tool
- Brush tool
- Fill transform tool
- Paint bucket tool
- Eraser tool
- Zoom tool
- Stroke color
- Fill color
- Tool Options

Fig. 17.2 Flash MX Toolbox.
17.3 Learning Flash with Hands-On Examples

• Open a new Flash movie file
  – Select **New** from the **File** menu
  – In the **New Document** dialog, select **Flash Document** under **General** tab and click **OK**
  – Choose **Save As...** from **File** menu

• Movie options
  – Select **Document Properties**
    • **Frame Rate**
      – The speed at which movie frames display
    • **Dimensions**
      – Define size of movie as it displays on screen
    • **Background Color**
      – Stage color
      – Click **Background Color** box to select background color
17.3 Learning Flash with Hands-On Examples

Fig. 17.3 New Document dialog.
17.3 Learning Flash with Hands-On Examples

Fig. 17.4 Flash MX 2004 **Document Properties** dialog.
17.3 Learning Flash with Hands-On Examples

Fig. 17.5 Selecting a background color.
17.3.1 Creating a Shape with the Oval Tool

- Flash creates shapes using vectors
  - Vectors are mathematical equations that define size, shape and color
- Some graphics applications create raster graphics
  - Defined by areas of colored pixels
- Oval
  - Stroke color
    - Color of a shape’s outline
  - Fill color
    - Color that fills the shape
  - **Black and White** button
    - Resets the stroke color to black and the fill color to white
  - **Swap Colors**
    - Switches the stroke and fill color
17.3.1 Creating a Shape with the Oval Tool

Fig. 17.6 Setting the fill and stroke colors.
17.3.1 Creating a Shape with the Oval Tool

Fig. 17.7  Keyframe added to the timeline.
17.3.1 Creating a Shape with the Oval Tool

Fig. 17.8 Making multiple selections with the selection tool.
17.3.1 Creating a Shape with the Oval Tool

- Stroke and fill color
- Stroke width
- Stroke style
- Selection width and height
- Selection location

Fig. 17.9 Modifying the size of a shape with the Property Inspector.
17.3.1 Creating a Shape with the Oval Tool

Fig. 17.10 Choosing a gradient fill.
17.3.2 Adding Text to a Button

• Text tool
  – Adds text to Flash movies
17.3.2 Adding Text to a Button

Fig. 17.11 Setting the font face, size, weight and color with the Property Inspector.
17.3.2 Adding Text to a Button

Fig. 17.12  Adding text to the button.
17.3.3 Converting a Shape into a Symbol

- Flash movie
  - Parent movie
    - A scene
    - Contains the entire movie including all graphics and symbols
    - Reusable movie elements
      - Graphics
        - Ideal for static images and basic animations
      - Buttons
        - Objects that perform button actions
      - Movie clips
        - Ideal for recurring animations
  - Movie explorer
    - Displays the movie structure
17.3.3 Converting a Shape into a Symbol

Fig. 17.13  Selecting an object with the selection tool.
17.3.3 Converting a Shape into a Symbol

Fig. 17.14 Creating a new symbol with the Convert to Symbol dialog.
17.3.3 Converting a Shape into a Symbol

Fig. 17.15  *Library* panel.
17.3.3 Converting a Shape into a Symbol

Fig. 17.16 Movie Explorer for ceoassist.fla.
17.3.4 Editing Button Symbols

• **Edit Symbols** button
  – Four frames
    • Button states
      – **Up** state
        • Default state before user presses the button or rolls over with mouse
      – **Over** state
        • User rolls over the button with mouse
      – **Down** state
        • Plays when user presses a button
    • **Hit** state
      – Not visible when viewing the movie
      – Defines active area of the button
17.3.4 Editing Button Symbols

Fig. 17.17   Modifying button states with a button’s editing stage.
17.3.5 Adding Keyframes

Fig. 17.18  Inserting a keyframe.
17.3.6 Adding Sound to a Button

- Flash imports sounds in the WAV (Windows), AIFF (Macintosh) or MP3 formats
- Optimize as needed
17.3.6 Adding Sound to a Button

Fig. 17.19 Adding sound to a button.
17.3.6 Adding Sound to a Button

Fig. 17.20 Optimizing sound with the Sound Properties dialog.
17.3.7 Verifying Changes with Test Movie

• Published Flash movies
  –Shockwave Flash extension .swf

• Select **Test Movie** from **Control** menu to export movie into the Flash Player
17.3.7 Verifying Changes with Test Movie

Fig. 17.21 GO button in its up and over states.
17.3.8 Adding Layers to a Movie

• **Insert Layer** button
  – Places a layer named **Layer 2** above the selected layer
17.3.8 Adding Layers to a Movie

Fig. 17.22 Renaming a layer.

- Rename a layer by double clicking its name
- Insert a new layer
- Delete layer
17.3.8 Adding Layers to a Movie

Fig. 17.23 Setting text alignment with the Property Inspector.
17.3.8 Adding Layers to a Movie

Fig. 17.24 Creating a title with the text tool.
17.3.9 Animating Text with Tweening

- **Two methods to tween objects**
  - **Shape tweening**
    - Morphs an object from one shape to another
  - **Motion tweening**
    - Moves objects around the stage
    - Can be applied to symbols or grouped objects
17.3.9 Animating Text with Tweening

Fig. 17.25 Adding a keyframe to create an animation.
17.3.9 Animating Text with Tweening

Fig. 17.26 Creating a motion tween.
17.3.9 Animating Text with Tweening

Fig. 17.27 Adding ActionScript to a frame with the Actions panel.
17.3.10 Adding a Text Field

- Text field
  - Contains a string that changes every time the user presses the button
17.3.10 Adding a Text Field

Fig. 17.28  Creating a text field.
17.3.10 Adding a Text Field

Fig. 17.29 Creating a dynamic text field with the Property Inspector.
17.3.11 Adding ActionScript

• Add ActionScript to the button
  – Change the contents of the text field every time a user clicks the button
17.3.11 Adding ActionScript

Fig. 17.30 Adding an action to a button with the Actions panel.
17.4 Creating a Projector (.exe) File with Publish

- Publish Flash in two formats
  - Select **Publish Settings...** from **File** menu to open the **Publish Settings** dialog
  - Select **Flash** and **Windows Projector** checkboxes and uncheck all others
  - Click **OK** to enable the new settings
  - Select **Publish** from **File** menu
17.4 Creating a Projector (.exe) File with Publish

Fig. 17.31 Published Flash files.
17.5 Manually Embedding a Flash Movie in a Web Page

• Add Flash movies to Web sites
  – object
    • Makes movie viewable in Internet Explorer
  – embed
    • Makes movie viewable in Netscape
<?xml version = "1.0"?>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
  "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">

<!-- Embedding a Flash movie into a Web site.: embedFlash.html -->
<!-- Embedding a Flash movie into a Web site -->

<html xmlns = "http://www.w3.org/1999/xhtml">
  <head>
    <title>Adding Flash to your Web site</title>
  </head>
  <body>
    <!-- The following object tag tells the -->
    <!-- Microsoft Internet Explorer browser to -->
    <!-- play the Flash movie and where to find -->
    <!-- the Flash Player plug-in if it is not -->
    <!-- installed. -->
  </body>
</html>
<object classid="clsid:d27cdb6e-ae6d-11cf-96b8-444553540000"
codebase="http://download.macromedia.com/pub/shockwave/cabs/flash/swflash.cab#version=7,0,0,0">
  <param name="movie" value="CeoAssistant.swf" />
</object>

<!-- The following embed tag tells the Netscape browser to play the Flash movie and where to find the Flash Player plug-in if it is not installed. -->

<embed src="CeoAssistant.swf" pluginspage="http://www.macromedia.com/go/getflashplayer"/>

<!-- Non-Flash viewing page content -->

<noembed>
  This Web site contains the CEO Assistant 1.0 Flash movie. You must have the Flash Player plug-in to view the Flash movie.
</noembed>

</object>
17.6.1 Importing and Manipulating Bitmaps

- Lasso tool
  - Selects areas of shapes
  - Magic wand
    - Selects areas of similar colors
  - Polygonal mode
    - Selects straight-edged areas

- Eraser tool
  - Removes shape areas by clicking and dragging across

- Paintbrush tool
  - Applies color the same way the eraser removes color

- Paint behind
  - Sets the tool to only paint in area void of color information

- Paint inside
  - Paints inside a line boundary
17.6.2 Creating an Advertisement Banner with Masking

• **Masking**
  – Hides portion or layers
  – Masking layer
    • Hides objects in the layers beneath it
17.6.2 Creating an Advertisement Banner with Masking

Fig. 17.33  Resizing an image with the free transform tool.
17.6.2 Creating an Advertisement Banner with Masking

Rainbow gradient fill

No Color

Fig. 17.34 Creating the oval graphic.
17.6.2 Creating an Advertisement Banner with Masking

Fig. 17.35 Creating a mask layer.
17.6.2 Creating an Advertisement Banner with Masking

![Completed banner.](image)

Fig. 17.36  Completed banner.
17.6.3 Adding Online Help to Forms

• Applying all the techniques previously to the creation of an online form that offers interactive help
17.6.3 Adding Online Help to Forms

Fig. 17.37 Adjusting the line spacing with the Format Options panel.
17.6.3 Adding Online Help to Forms

Fig. 17.38 Creating a rectangle with rounded corners.

Bug2Bug.com
Registration Form

Name: 
Member#: 
Password: 

Round Rectangle Radius option
17.6.3 Adding Online Help to Forms

Fig. 17.39  Creating multiple instances of a symbol with the Library panel.
17.6.3 Adding Online Help to Forms

Fig. 17.40 Input and password text field creation.
17.6.3 Adding Online Help to Forms

Red flag indicates presence of frame label

Fig. 17.41 Adding Frame Labels using the **Property Inspector**.
17.6.3 Adding Online Help to Forms

Fig. 17.42 Centering an image on the stage with the Property Inspector.
17.6.3 Adding Online Help to Forms

Fig. 17.43 Creating a shape tween.
17.6.3 Adding Online Help to Forms

Fig. 17.44 Adding the field symbol to the nameWindow movie clip.
17.6.3 Adding Online Help to Forms

Fig. 17.45  Creating an animation with the form field symbol.
17.6.3 Adding Online Help to Forms

Fig. 17.46 Duplicating movie clip symbols with the **Library** panel.
17.6.3 Adding Online Help to Forms

Fig. 17.47  Creating a frame-by-frame animation.
17.6.3 Adding Online Help to Forms

Fig. 17.48 Bug2Bug.com help form.
17.7 Creating a Web-Site Introduction

- Preloader
  - Simple animation that plays while the rest of the Web page is loading
17.7 Creating a Web-Site Introduction

Fig. 17.49    Creating a rotating object with the motion tween **Rotate** option.
17.7 Creating a Web-Site Introduction

Fig. 17.50 Inserted movie clips.
17.7 Creating a Web-Site Introduction

Fig. 17.51 Changing gradient colors with the Color Mixer panel.
17.7 Creating a Web-Site Introduction

Fig. 17.52 Adding an intermediate color to a gradient.

Resulting gradient

Click and drag to add or remove a color
17.7 Creating a Web-Site Introduction

Fig. 17.53  Defining the hit area of a button.
17.7 Creating a Web-Site Introduction

Fig. 17.54 Creating an animation to preload images.
17.8 ActionScript

• With the following functions, you can build some fairly complex Flash movies
### 17.8 ActionScript

<table>
<thead>
<tr>
<th>Action</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>goto</td>
<td>Jump to a frame or scene in another part of the movie.</td>
</tr>
<tr>
<td>play</td>
<td>Start a movie at certain points at which the movie may have been stopped.</td>
</tr>
<tr>
<td>stop</td>
<td>Stop a movie.</td>
</tr>
<tr>
<td>toggleHighQuality</td>
<td>Turn anti-aliasing on and off. When it is turned off, the movie is able to play faster, but renders with rough edges.</td>
</tr>
<tr>
<td>stopAllSounds</td>
<td>Stop the sound track without affecting the movie.</td>
</tr>
<tr>
<td>getURL</td>
<td>Load a URL into a new or existing browser window.</td>
</tr>
<tr>
<td>FSCommand</td>
<td>Insert JavaScript or other scripting languages into a Flash movie.</td>
</tr>
<tr>
<td>loadMovie/unloadMovie</td>
<td>Load a SWF or JPEG file into the Flash Player from the current movie. Can also load another SWF into a particular movie.</td>
</tr>
<tr>
<td>ifFrameLoaded</td>
<td>Check whether certain frames have been loaded.</td>
</tr>
<tr>
<td>onClipEvent</td>
<td>Assigns actions to a movie clip based on specific events. The events include load, unload, enterFrame, mouseUp, mouseDown, mouseMove, keyUp, keyDown and data.</td>
</tr>
<tr>
<td>on</td>
<td>Assign actions such as Press, Release and RollOver to a button.</td>
</tr>
<tr>
<td>if</td>
<td>Set up condition statements that run only when the condition is true.</td>
</tr>
<tr>
<td>while/do while</td>
<td>Run a collection of statements while a condition statement is true.</td>
</tr>
<tr>
<td>setProperty</td>
<td>Change the attributes of a movie clip while the movie plays.</td>
</tr>
<tr>
<td>duplicateMovieClip/ removeMovieClip</td>
<td>Dynamically add a movie clip to a movie or remove a clip from a movie.</td>
</tr>
<tr>
<td>startDrag/stopDrag</td>
<td>Move a movie clip while the movie is running.</td>
</tr>
<tr>
<td>trace</td>
<td>Display programming notes or variable values while testing a movie.</td>
</tr>
<tr>
<td>// (comment)</td>
<td>Keep track of personal notes in a frame or action for future reference.</td>
</tr>
</tbody>
</table>

Fig. 17.55 Additional ActionScript functions.
17.9 Web Resources

- www.macromedia.com
- www.macromedia.com/software/flash
- www.actionscripts.org
- www.flashkit.com
- www.moock.org
- www.openswf.org
- www.webmonkey.com/multimedia/shockwave_flash
- www.shockwave.com