How to Create an Animated Face

This activity walks you step by step through the process of creating a simple animation by using Macromedia Flash 8. You will use many basic Flash techniques, including drawing tools, motion and shape tweens, button symbols, and basic ActionScript to provide user controls. You will also import a sound file to provide a musical soundtrack while the movie plays. After you have tested your movie, you will publish it for playback by others, either through a browser or directly with Flash Player.

## Draw Facial Features

Draw the right eye

1. Start Flash and open a blank new document.

2. The new document contains one layer and one empty keyframe.

3. Select the **Oval** tool and draw a small circle to represent the right eye on a face (**Figure 1**).

    Your circle may not be blue.

4. Select the **Selection** tool and double-click the circle's center to select it. You should see both its outline (stroke) and center (fill) selected.

5. To change the outline color of the eye, click the Stroke Color box in the Property inspector and select a new color (**Figure 2**). To change the fill color, use the Fill Color box.

6. On the Timeline, double-click the layer name, **Layer 1** (**Figure 3**).

    This selects the layer name so you can rename it.

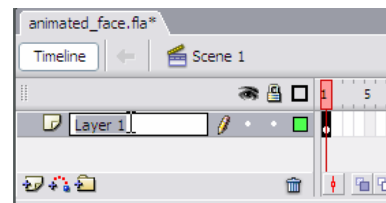7. Rename the layer *Right Eye* and press **Enter** (Windows) or **Return** (Macintosh) (**Figure 4**).
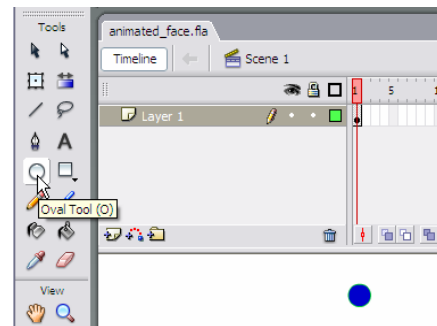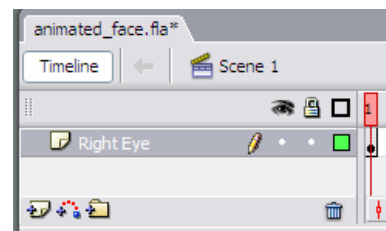

Figure 1 Right eye drawn with Oval tool
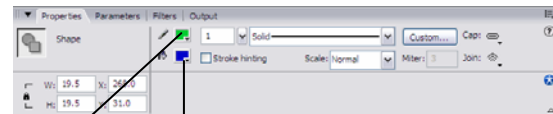
Stroke color   Fill color

Figure 2 Image Property inspector

Figure 3 Layer name

Figure 4 New layer name

Save the eye graphic as a symbol in the library

Instead of creating two eyes separately, convert the right eye from a shape to a graphic symbol. This adds the eye to the library so you can use it over and over. This will also reduce the size of your finished movie.

8. On the Right Eye layer, click frame **1** to select it (**Figure 5**).

   This automatically selects the contents of frame 1.

   Note: If the right eye is not completely selected, double-click the eye on the Stage with the Selection tool to select it.

9. Select **Modify > Convert to Symbol**.

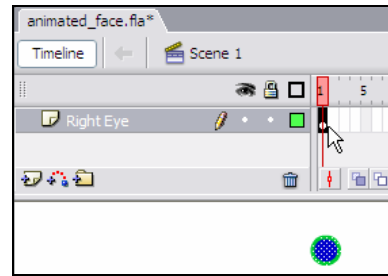   The Convert to Symbol dialog box opens (**Figure 6**).

10. In the dialog box, name the symbol *eye*, select **Graphic** as the behavior, and click **OK (Figure 7)**.

   The eye on the Stage is now just an instance (copy) of the master eye symbol, which is stored in the library. The eye now has a single blue selection border and can be selected with a single click.
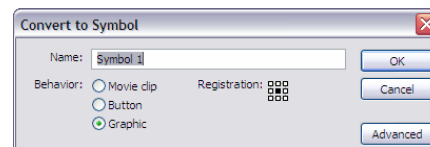
11. Select **Window > Library** to see that your symbol has been added to the Library panel (**Figure 8**).

   Note: You must select the eye symbol in the library to see the graphic in the preview window.
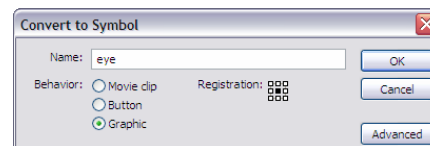
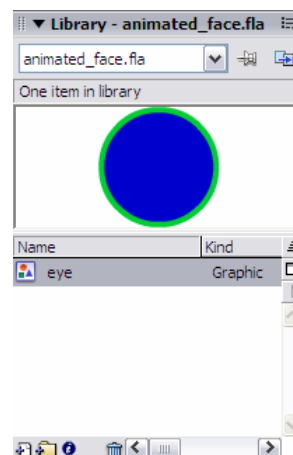   You can now reuse the eye symbol as many times as you want without redrawing it.

Figure 5 Frame 1 selected

Figure 6 Convert to Symbol dialog box


Figure 7 Symbol name


Figure 8 Library panel

Reuse the eye symbol to create the left eye

12. Click the **Insert Layer** button in the lower left corner of the Timeline to insert a new layer (**Figure 9**).

13. Double-click the layer name and change the name to *Left Eye*.

14. On the Left Eye layer, select frame **1**.

15. Select the eye symbol in the Library panel and drag the symbol onto the Stage (**Figure 10**).

    You now have a second instance of the eye on the Stage. Using instances from the library keeps the file size of your movie smaller than copying and pasting. Smaller movies load faster in a browser.
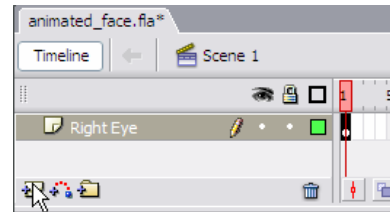
Figure 9 Insert Layer button
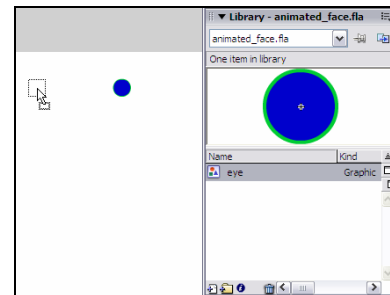
Figure 10 Drag eye symbol onto Stage

Draw the nose

16. Insert a new layer and name it *Nose*.

17. Select frame **1** on the Nose layer.

18. Select the **Line** tool and draw two lines that form an angle to represent a nose (**Figure 11**).

19. To adjust the angle after you've drawn it, use the **Subselection** tool (white arrow) to drag one end of the line. (You might try dragging one end of a line with the Arrow tool to see the difference between the two tools.)
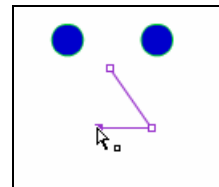
Figure 11 Draw nose

Add frames to make a three-second movie

A Flash movie typically plays 12 frames per second. To keep the nose on the Stage for 3 seconds, for example, you need to insert 36 additional frames on the Nose layer after frame 1, the current frame. (Starting at frame 1, it will take the movie 3 seconds to reach frame 37, because 1 + 36 = 37.)

20. Select frame **37** on the Nose layer and select **Insert > Timeline > Frame**.

    Flash inserts frames through frame 37 (**Figure 12**). Observe that the *playhead* (the red rectangle at the top of the Timeline) is on frame 37 and that the nose is visible but the eyes have disappeared. At the bottom of the Timeline, you can see that this movie is currently 37 frames, is set to play at 12 frames per second, and will play for 3 seconds.
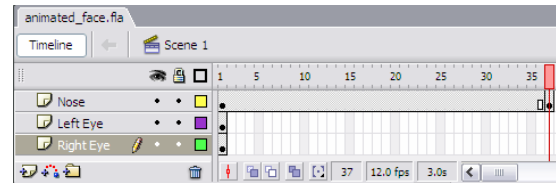
    Note: The keyboard shortcut for inserting a frame is F5.

21. Drag the playhead to various frames.

    The nose remains visible in frames 1 through 37, but the eyes appear only in frame 1.

22. To see your movie, drag the playhead to frame **1** and then select **Control > Play**.

    At this point, not much is happening beyond frame 1.

Figure 12 Frame inserted in Timeline

Draw the mouth

23. Insert a new layer and name it *Mouth*.

24. Select frame **1** of the Mouth layer.

25. Draw a mouth in frame 1.

    - Use the **Line** tool to draw a straight line (**Figure 13**).

    - Select the **Selection** tool and click on the Stage away from the line to deselect it.

    - Move the pointer toward the middle of the line. When a curve appears next to the pointer, drag the middle of the line downward to create a smile (**Figure 14**).

    - When you release the mouse button, only the smile remains (**Figure 15**).

Figure 13 Mouth as straight line

Figure 14 Drag line with Arrow tool

Figure 15 Mouth complete

Animate the Facial Features

Use motion tweens to animate the eyes

Because you created the eyes by using a graphic symbol, you can animate them by using a motion tween. To create the motion tween, you need a start keyframe and an end keyframe containing the same symbol. You can then use a motion tween to fill the frames between the keyframes.

1. On the Right Eye layer, select frame **37** and select **Insert > Timeline > Keyframe**. This will be the end keyframe.

   A keyframe signals Flash that some animation action begins or ends at that frame.

2. On the Right Eye layer, select frame **37** and drag the right eye a short distance.

3. Select any frame between frames 1 and 36 on the Right Eye layer.

4. In the Property inspector, select **Motion** from the **Tween** menu to create a motion tween (**Figure 16**).

   **Note:** You can also select **Insert > Timeline > Create Motion Tween**.

   Notice the frames containing the motion tween are now light blue and contain a solid arrow running from the start frame to the end frame.

5. Position the playhead on frame **1** and select **Control > Play** to play your movie and see the effect of the motion tween.

   The right eye gradually moves from its original position in frame 1 to the new position in frame 37. Notice that only the right eye moves.

   Note: If you want to change the motion, move only the symbol in keyframe 37.

6. Select frame **37** on the Left Eye layer and insert a keyframe.

7. Move the left eye the same distance as the right eye, and then create a motion tween between the first and last frames on the Left Eye layer.
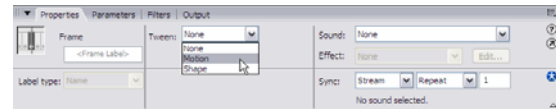
Figure 16 Tween menu

Use a shape tween to animate the mouth

Because you created the mouth by using one of the drawing tools (the Line tool) and have not converted the mouth to a symbol, it is still a shape. You can use a shape tween to animate the mouth.

8. Select frame **37** on the Mouth layer and insert a keyframe.

9. With the Selection tool, click on the Stage away from the mouth line to deselect it. Then drag the mouth line into a bigger smile.

10. To create a shape tween between the first and last frames on the Mouth layer, click a frame between frames 1 and 37, and select **Shape** from the **Tween** menu in the Property inspector.

    Notice the frames containing the shape tween are now light green and contain a solid arrow running from the start frame to the end frame.

10. Select **File > Save**.

11. Select **Control > Test Movie** to see it play.

    Selecting Control > Test Movie exports a .swf file and plays it in a preview window. When the movie reaches the last frame, it loops back to frame 1 and plays again.

12. Select **File > Close** to close the preview window.

Create any additional animated facial features as you choose.

Add User Control

In Flash you can use ActionScript to enable the viewer to control a movie. You use *frame actions* to tell the movie what to do when it reaches a specific frame. You use *object actions* to associate the control with an object such as a button symbol. Object actions, such as button actions, let you give your visitors more control over the movie.

For example:

- You can attach a *stop* action to the first frame of your movie so the movie will not play past frame 1 until the viewer makes that happen.

- You can add a Start button in the first frame of your movie and attach a *goto* action so the movie will resume playing when the viewer clicks the Start button.

- You can add a Stop button that will be available after the viewer clicks the Start button. If you attach a *stop* action to the Stop button, the movie will stop when the viewer clicks the button.

Attach a *stop* action to the first frame

1. Select the top layer on the Timeline and insert a new layer.

    The new layer is inserted at the top of the list.

    Note: A new layer is always inserted above the currently selected layer. To change the order of layers on the Timeline, select a layer and drag it to the desired position in the list.

2. Name the new layer *Actions*.

3. Select the first frame of the Actions layer.

    This is where you will place the *stop* action telling the movie to stop and not begin playing automatically.

4. Select **Window > Actions**.

    The Actions Panel opens (**Figure 17**). Notice that the panel title bar reads Actions – Frame. This is because you are applying an action to a frame, not to a button or movie clip.

5. Make sure Script Assist is on (the right pane will appear split, as in **Figure 17**). If it is not, click the Script Assist button.

    Script Assist makes it easier to add ActionScript to your Flash documents by letting you fill in dialog boxes instead of directly writing code.

6. In the Actions toolbox, click the **Global Functions** category to display subcategories of actions (**Figure 18**).
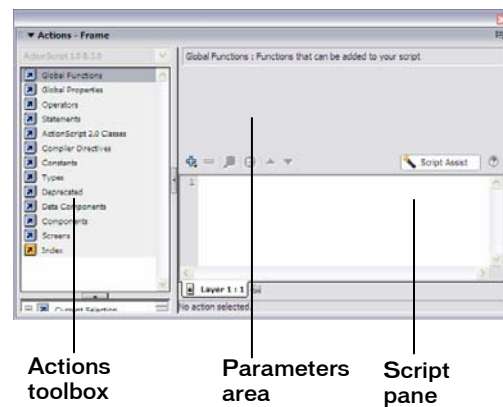

Actions toolbox   **Parameters area**   **Script pane**

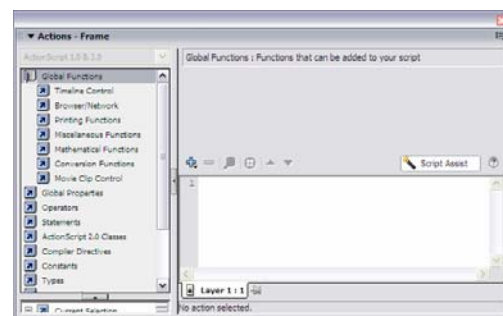**Figure 17** Actions panel

Figure 18 Global functions category expanded

7. Click the **Timeline Control** category to expand it (**Figure 19**).

8. Select the *stop* action. To attach the *stop* action to frame 1, either double-click the *stop* icon or drag it to the Script pane.

9. Close the Actions panel and look in frame **1** of the Actions layer.

   The frame contains a small letter *a* indicating this frame contains an action (**Figure 20**).
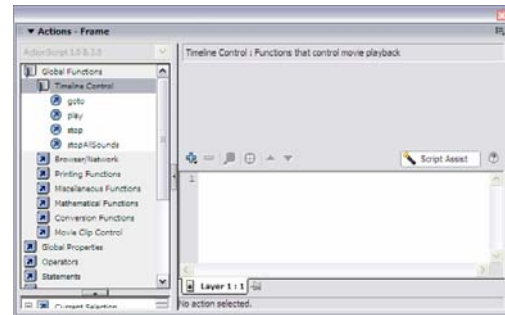
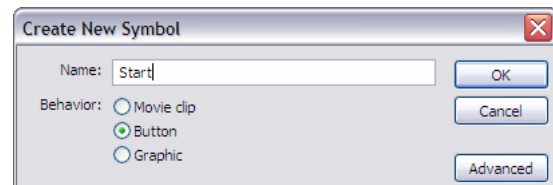**Figure 19** Timeline control category expanded
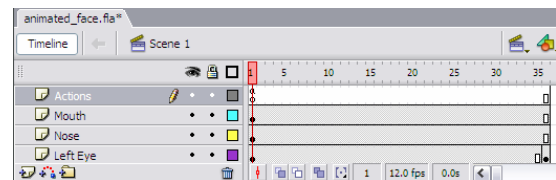
Figure 20 Frame with action added

Create a Start button

Now that you've placed a stop action in frame 1, you need to create an object action giving the user the ability to start the movie. The object action needs to be associated with an object, so first create a Start button.

10. Insert a new layer and name it *Buttons*.

11. Select frame **1** on the Buttons layer, and select **Insert > New Symbol**.

    The Create New Symbol dialog box opens.

12. Name the symbol *Start*, select **Button** for the Behavior, and click **OK (Figure 21)**.

    Flash switches to symbol-editing mode, with a new blank Stage for your button symbol. The name of your button appears on the information bar at the top of the Stage (**Figure 22**).

    The Timeline displays four frames for the four states of a button (**Figure 23**). Each frame (or button *state*) has a specific function:

    - The *Up* state represents the button's appearance when the pointer is *not* over the button.

    - The *Over* state represents the button's appearance when the pointer is over the button.

    - The *Down* state represents the button's appearance as it is clicked.

    - The *Hit* state defines the target area that responds to a mouse click. This area is not visible when the movie plays.

Figure 21 Create New Symbol dialog box
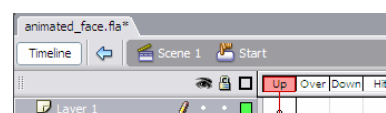
Figure 22 Symbol-editing mode
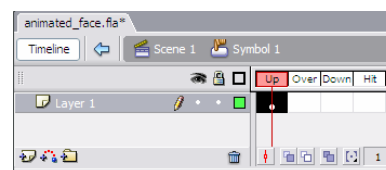
Figure 23 Button Timeline

13. Select the **Up** frame.

14. Use the Rectangle tool to draw a rectangular button on the Stage. Use the Property inspector to set stroke and fill colors for the Up state of the button.

15. Insert keyframes in the Over, Down, and Hit frames.

    By inserting keyframes, you automatically copy the rectangle to the other states of the button.

    Note: Flash automatically inserts a keyframe in the Up frame.

16. Select the **Over** frame. Using the Selection tool, double-click the button on the Stage to select it, and change the stroke or fill color for the Over state in the Property inspector.

17. Select the **Down** frame. Using the Selection tool, double-click the button on the Stage and change the stroke or fill color for the Down state.

18. Select the **Hit** frame. Use the Rectangle tool to draw a rectangular target area that will respond to a mouse click.

    Note: It doesn't matter what colors you use for the Hit area, because this rectangle is not visible to viewers of your movie. If you skip this step, Flash will automatically define the target area to be the same as the button shape.

19. Insert a layer and name it *Text*.

20. Select the **Up** frame on the Text layer and use the Text tool to type *Start*. Use the Property inspector to change the font, size, and color of the text. Center the text within the rectangle shape.

21. To exit symbol-editing mode and return to editing the movie, click **Scene 1** on the information bar at the top of the Stage or select **Edit > Edit Document**.

    Your Start button does not appear on the Stage yet, but it is stored in the library.

Create a Stop button

You can repeat the steps you used to create the Start button, or you can simply duplicate and then modify the Start button.
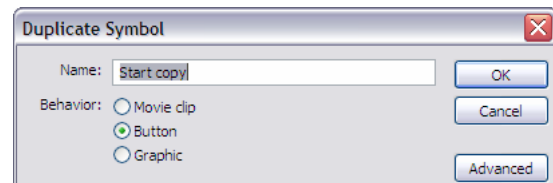
22. Make sure the Library panel is open. (If not, select **Window > Library**.)

23. Select the **Start** button symbol in the library.

24. Select **Duplicate** from the Library panel options menu in the upper right corner of the panel (**Figure 24**).

   The Duplicate Symbol dialog box opens (**Figure 25**).

25. Make sure **Button** is selected for Behavior. Name the new symbol *Stop* and click **OK**.

26. In the Library panel, double-click the icon for the Stop symbol to edit the symbol (**Figure 26**).

27. Select frame **1** of the text layer, and use the Text tool to edit the text to read *Stop*.

28. Click **Scene 1** or select **Edit > Edit document** to exit symbol-editing mode.
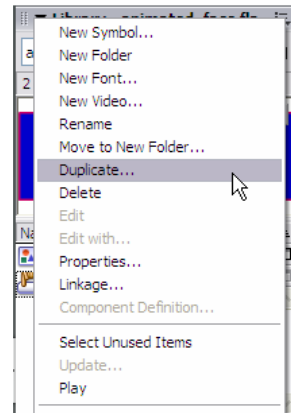
Figure 24 Library panel options menu

Figure 25 Duplicate Symbol dialog box
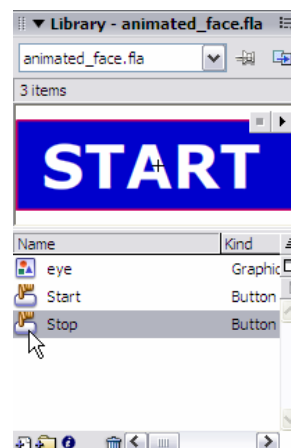
Figure 26 Edit Stop symbol

Place the buttons on the Stage

29. Select frame **1** on the Buttons layer.

30. Make sure the Library panel is open. (If not, select **Window > Library**.)

31. Drag the **Start** button from the library onto the Stage.

32. Select frame **2** on the Buttons layer and insert a keyframe.

33. Delete the **Start** button from frame 2.

34. Drag the **Stop** button onto the Stage.

35. Click the **Onion Skin Outlines** button at the bottom of the Timeline (**Figure 27**).

With onion skinning turned on, you can view a range of frames. This will help you align the Start and Stop buttons.

36. Move the **Start** and **Stop** buttons until both of them are in the same position on the Stage.

Note: To fine-tune the position of the buttons, select a button and use the up, down, left, and right arrow keys.

37. Click the **Onion Skin Outlines** button again to turn off onion-skinning.

Add button actions

38. Select frame **1** on the Buttons layer, select the **Start** button on the Stage, and open the Actions panel (Window > Actions).

Note: Be sure to select the **Start** button, or your action will be applied to the frame, not the button. The Action panel's title bar should say *Actions - Button*.

39. Make sure Script Assist is turned on (**Figure 28**). If you don't see the Parameters area, click the **Script Assist** button.

40. In the Actions toolbox, expand the **Global Functions** and **Timeline** categories and drag **goto** to the lower right panel.

Flash automatically adds an *on(release)* command to the script along with the *goto* action. This means the *goto* action executes when the visitor releases the Start button.

41. Make sure **Go to and Play** is selected in the parameters area.
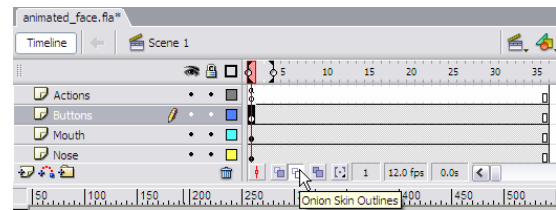
Figure 27 Onion Skin Outlines button

Parameters area   **Script pane**
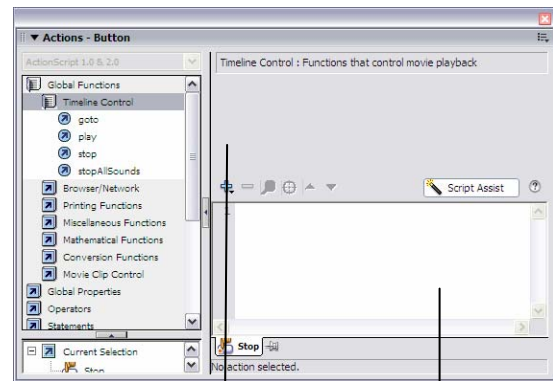
Figure 28 Script Assist turned on

42. Be sure the setting for Scene in the parameters area is **<Current scene>**, and Type is **Frame Number**. For Frame, type *2*.

This action will start the animation in frames 2 through 37.

Notice that the settings you made in the parameters area are reflected in the Script pane at the bottom of the panel. This is the ActionScript that controls the actions in your movie (**Figure 29**).

**43.** Select frame **2** on the Buttons layer and select the **Stop** button.

Note: You may need to collapse the Actions panel to see the layers. To collapse the Actions panel, click the down arrow on the title bar.

44. Make sure the Actions panel is expanded, and double-click *goto*.

45. In the parameters area of the Actions panel, select **Go to and Stop**. For Frame, type **1**.

This action will stop the animation and redisplay the Start button in frame 1.

Next, make the movie loop through frames 2–37 until the viewer clicks Stop. You do this by using a Frame action.

46. Insert a keyframe in frame 37 of the Actions layer.

47. In the Actions panel, double-click *goto*.

48. In the parameters area, select **Go to and Play**, and type *2* for Frame.

49. Close the Actions panel, save your movie, and select **Control > Test Movie** to test it.

50. Select **File > Close** to close the preview window.
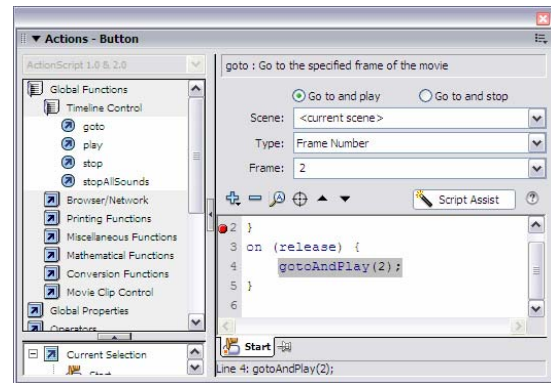
Figure 29 Parameters for the *goto* action

Add Sound

1. Insert a new layer below the Actions layer and name it *Sound*.

2. Select **File > Import > Import to Library**.

    The Import to Library dialog box opens.

3. Locate and select a sound file saved on your computer. Click **Open** (Windows) or **Import to Library** (Macintosh).

    The sound is added to the library.

    Note: You can download free music loops and sound-effect clips at www.flashkit.com, for example.

4. Select frame **2** on the Sound layer and insert a keyframe.

5. Open the library and drag the sound file from the library onto the Stage.

    Flash inserts the sound on the Sound layer, starting in frame 2.

6. Select frame **2** on the Sound layer. In the Property inspector, select **Start** from the first Sync menu and select **Loop** from the second Sync menu (**Figure 30**).

7. To stop the sound when the viewer clicks the Stop button:

    • Select frame **2** on the Buttons layer.

    • Select the **Stop** button.

    • Select **Window > Actions**.

    • Double-click *stopAllSounds* in the Movie Control category of the Actions toolbox.

    • Close the Actions panel.

    • Save the movie and test it.
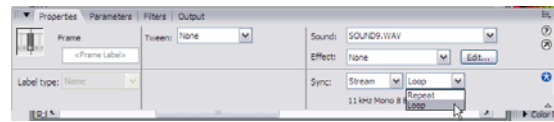
**Figure 30** Sound Property inspector

Publish Your Movie

When you're ready to deliver your movie to an audience, you can publish the Flash document (FLA file) for playback. The Publish command creates a Flash SWF file (playable with Flash Player) and an HTML document that inserts your Flash movie in a browser window. For viewers who do not have Flash Player installed, you can select to publish the FLA file in alternative file formats—GIF, JPEG, PNG, or QuickTime—with the HTML needed to display them in a browser window.

1. Select **File > Publish Settings** to open the Publish Settings dialog box (**Figure 31**).

2. Use the **Formats** tab to determine which file formats to output when you publish.

3. Use the **Flash** tab to determine which Flash Player you are publishing to (**Figure 32**). If you think your audience might not have the latest player, you might want to select an older player.

4. Select **Generate Size Report** to see a detailed report of size for each asset in your movie.

5. Select **Protect from Import** to prevent anyone from importing your SWF file into Flash and converting it back to a FLA file.

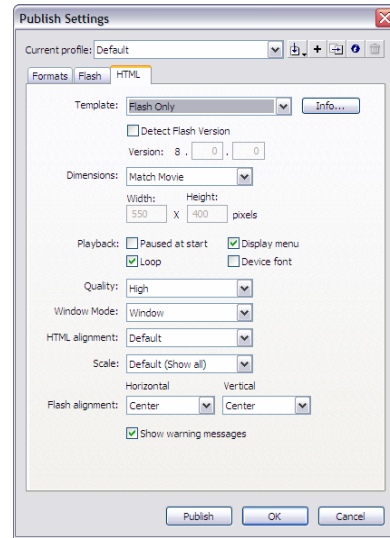6. Select **Compress Movie** to reduce the file size of the exported movie.
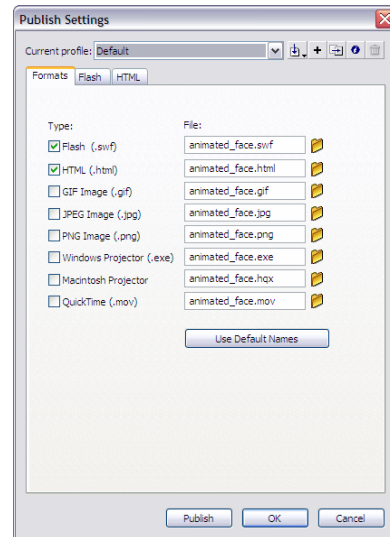
Figure 31 Publish Settings dialog box
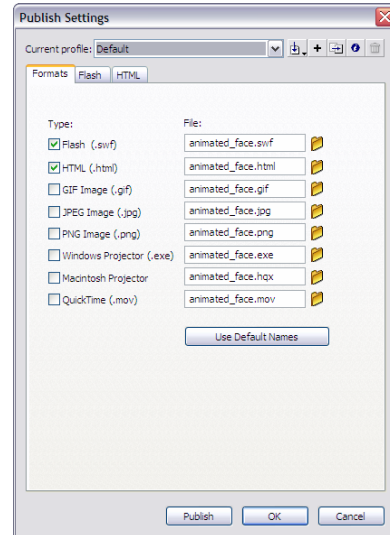
Figure 32 Flash tab of Publish Settings dialog box

7. Use the **HTML** tab to control settings for the HTML file (**Figure 33**).

8. To publish your movie, click the Publish button.

Figure 33 HTML tab of Publish Settings dialog box