Using Visual Objects

In this unit, you will learn how to best incorporate visual, graphical objects in Flash Lite applications while considering the target device.

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Objectives

After completing this unit, you should be able to:

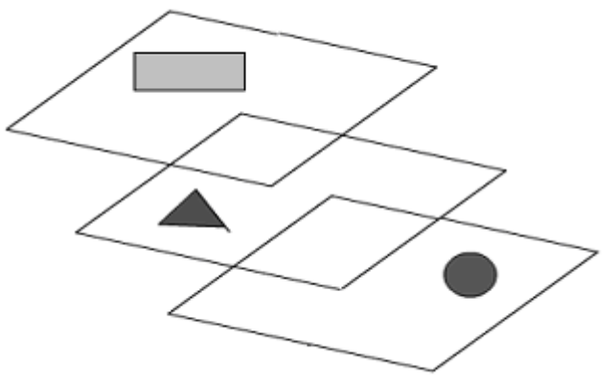
- ▶Organize assets for mobile applications
- ▶Use bitmap and vector graphic assets appropriately
- ▶Create vector images
- ▶Optimize assets for mobile applications
- ▶Effectively use MovieClips
- ▶Effectively use Buttons
- ▶Add Mask effects

Organizing Mobile Applications

Throughout this course, you will focus on best practices in mobile development. Any well architected mobile application needs to be organized efficently to allow for updating and maintaining of the application.

Organizing assets using layers

Use layers to organize a Flash document's assets. Layers are literally tiers of content that sit on top of each other. In the diagram below, there are three layers, each with an asset on them.



depicting layers

Organizing assets using layers (continued)

When working in a Flash document you'll insert, name and arrange layers so that you can:

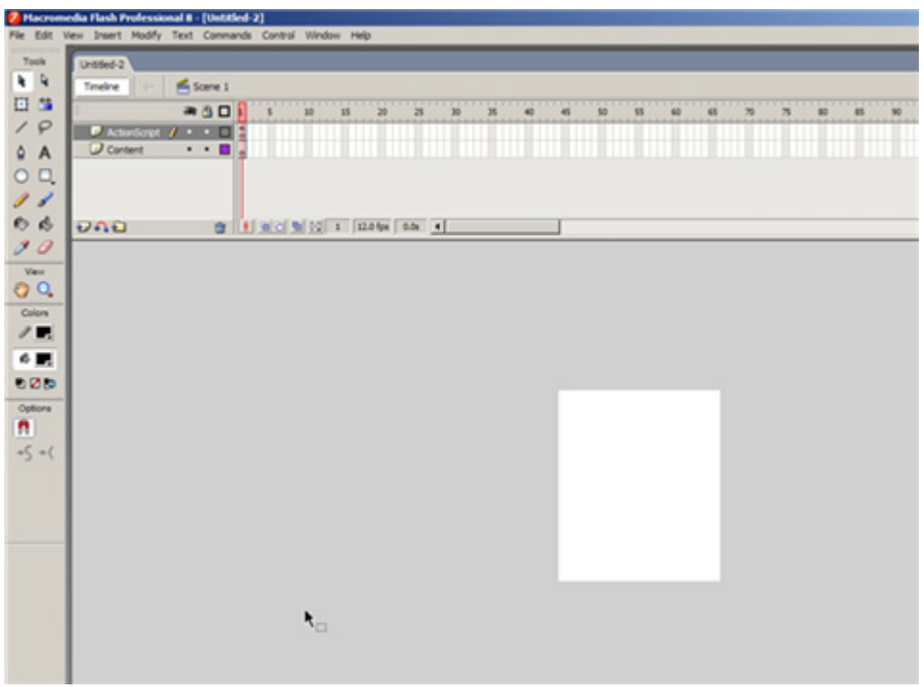
- ▶Control the stacking order and depth within a Flash document for spatial arrangement.
- ▶Place assets on their own layers to easily manipulate and track them.
- ▶Prevent assets from interacting with and merging one another.

For example, a Flash document may have the following layers as a best practice:

- ▶Text layer
- ▶Background layer
- ▶Image layer

Understanding mobile template layers

A new Flash document created with the mobile template contains two layers named ActionScript and Content. This follows best practices in Flash development. You will most likely create more of your own layers to contain each asset on the Stage.



Mobile template with Content and ActionScript layer

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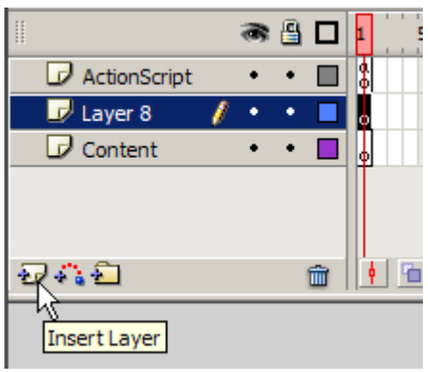
Creating a new layer

To insert a new layer select Insert > Timeline > Layer or select the Insert Layer icon.



inserting a new layer

New layers are inserted at the top of the layer stack.

Note: It is a best practice, related to visual object load order, to always leave the ActionScript layer at the top of the layer stack.

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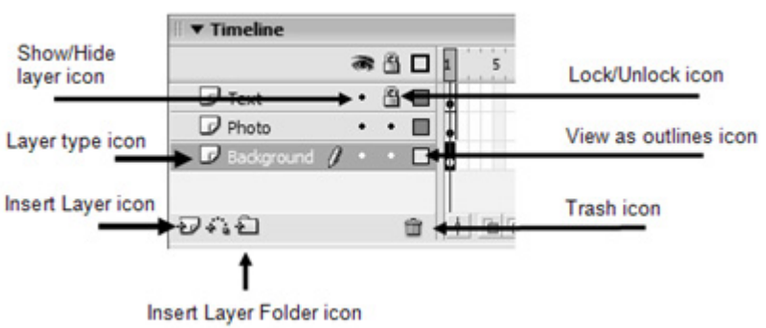
Working with layers

Once you have created layers and added assets to them, you can:

- ▶Rename a layer by double-clicking on it and entering a new name.
- ▶Select and drag layers to change their stacking order.
- ▶Lock/unlock layers to control what's edited when.
- ▶Turn visibility on and off during editing to control document display while editing.
- ▶Select and drag layers to the Trash to delete them.

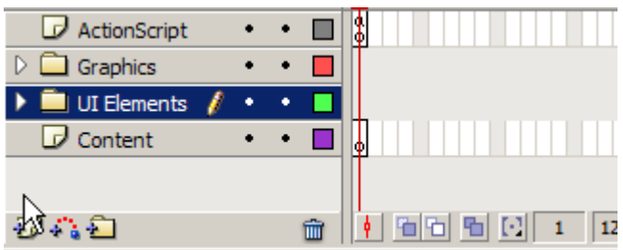


Layers panel

Adobe

Using layer folders

You can use layer folders to organize layers when a Flash document contains many assets. To use layer folders, click the Insert Layer Folder icon to add a layer folder and drag layers into the new layer folder.

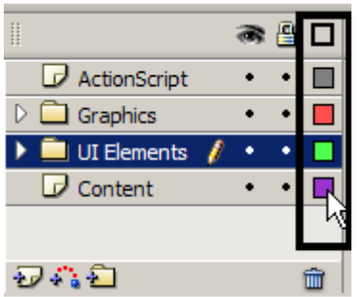


layer folders

Adobe

Using outline view

Clicking the View as outlines icon will show only the outlines of the assets in a layer, which can be very useful when trying to arrange content on the Stage.



View as Outline Icons

Adobe

Setting layer properties

Right-clicking the Layer and choosing properties will open the Layer Properties dialog box, where you can change the layer's name and behavior.

layer properties

Adobe

Walkthrough 1: Organizing Graphical Assets

In this walkthrough, you will perform the following tasks:

- ▶Use a mobile template.
- ▶Use layers to organize graphical and text assets.

Understanding Image Types

A Flash document can contain a variety of assets. Flash assets can include images, text and sound.

Two types of images are supported in publishing environments:

- ▶Vector graphics
- ▶Bitmap images

Understanding vector images

Vector graphics are made up of well-defined shapes such as curves, points and lines. Each shape within the graphic is mathematically defined. Common vector-based file types are displayed in the table below:

Vector Graphics

File Type	Created by
EPS	Adobe Illustrator
AI	Adobe Illustrator
CD	Corel Draw
DW	AutoCAD
FH9	Macromedia Freehand 9
FH10	Macromedia Freehand 10

Understanding vector images(continued)

Vector graphics have a unique characteristic in that they are defined by mathematical equations. This makes them scalable.

You create vector-based graphics in drawing packages such as Fireworks or Freehand. You can also create them directly in the Flash development environment.

vector image

Best practices for vector images with mobile devices

Authoring Flash Lite applications requires careful consideration of the use of resources. Some of the best practices with using vector images are on the next slides:

Optimize vector shapes

The more dimension a shape has, the more Flash will have to do to render that shape. So optimize your vector shapes as much as possible. This can be especially helpful with small vector shapes such as icons. Your icon might be so small that lots of the detail is being lost, yet if the complexity of the shape is retained that's extra work for the mobile player to render. In some cases using a bitmap instead of vectors shapes might be a better solution for mobile devices.

Corners are better than curves

Corners can be mathematically simplier to render than curves. When possible, stick with flat edges, especially with very small vector shapes.

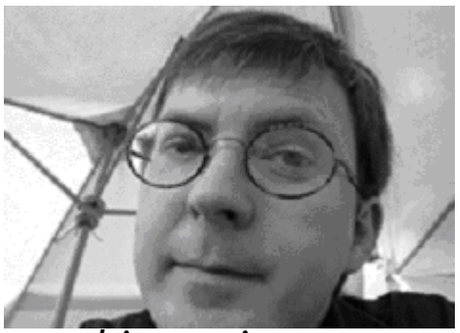
Avoid shape outlines

Whereas a fill has only an outside shape to render, stroke outlines have an inside and an outside to render. This mean twice as much work to draw a line over a fill. Avoid them when possible.

Understanding bitmaps

Bitmap images are made up of picture elements or pixels. Pixels store color data. A series of pixels provide a mosaic of the image data. JPG, BMP, PNG, GIF, and TIF are common bitmap image file types. Bitmap graphics:

- ▶Are defined by color information on a fixed grid.
- ▶Supports greater tonality and gradients.



bitmap image

Best practices for bitmap images with mobile devices

The following tips and tricks can help you have better performing Flash Lite applications using bitmap images.

Adobe

Avoid scaling or rotating bitmaps

The Flash Lite player does not support bitmap smoothing. This means that if you scale or rotate a bitmap in Flash, it will probably appear chunky. It is best to use bitmaps at their natural resolution. If you have a graphic that you need to scale or rotate, consider using vector shapes instead.

Adobe

Preparing bitmap images

You should optimize bitmap images as much as possible outside of the Flash authoring tool using a tool such as Adobe Photoshop.

Depending on the needs, and what handsets images will be displayed on, it may make sense to use lower resolution bitmap images. Also, you can scale bitmaps within the Flash environment. Always look for opportunities to reuse bitmap images throughout your application rather than importing a new image. Performance is always balanced by look and feel and there is no subsitute for testing content on multiple handsets.

Adobe

Comparing vectors vs. bitmaps

Use the following considerations to determine which type of image to use based on your needs.

Choose bitmaps over vectors

You should use bitmaps whenever possible. The native format of Flash is vector which includes all drawing and text, and vector images require procesing power and memory to render. It can be more efficient to creat text and artwork as a bitmap and import into the Flash authoring environment.

Adobe

Arrange bitmap layers and vector layers near each other

As the player renders the movie it needs to implement different renderers depending on the type of content. That switch between renderers takes a little time, which can add up. By ordering the layers that have vector content on them near each other and doing the same for bitmaps the player can render them faster by switching less.

Vector graphics pro's and con's

- More CPU intensive
- Scale without losing resolution.
- Tend to be smaller than bitmap files. It is a good format for graphics that require precise measurements.
- Because of their mathematical foundation, vector graphics are scalable.
- Because they don't need to store every picture element, their file size can be much more manageable than bitmap images.
- The more complex the graphic, the bigger the file size will ultimately be.
- You can't get photograph quality artwork with vector images.

Bitmap image pro's and con's

- ▶Bitmap is a good format for detailed images such as photographs.
- ▶Scaling is limited by the resolution for the pixel data.
- ▶File size tends to be high due to so much data.

Importing Images

You can import both bitmap and vector-based images to the Flash development environment.

A common web design practice is to:

- ▶Create, retouch and optimize images in an image edit program such as Adobe Freehand or Fireworks.
- ▶Import those images into Flash.
- ▶Use Flash authoring tools to combine images with other assets, position assets and add effects such motion to create a Flash document.
- ▶Publish a Flash document using Flash compression tools to deliver lightweight SWF files to the browser.

Select File > Import > Import to Stage to import an image to the Stage. Once imported, you use a variety of authoring tools to position and modify the image on the stage.

Note: The image assets that you add to the Stage are also added to the document Library. You'll learn more about the document Library later on in this unit.

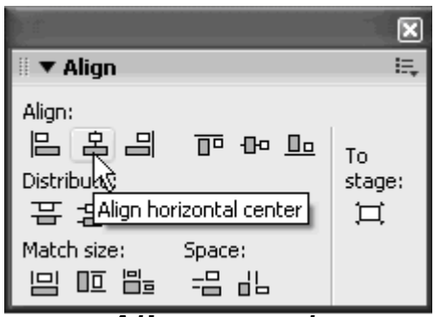
Positioning images

To position images on the Stage you can:

- ▶Use drag and drop.
- ▶Use the Align panel.
- ▶Use the Property inspector.

Using the Align panel

You can use the Align panel to arrange assets.



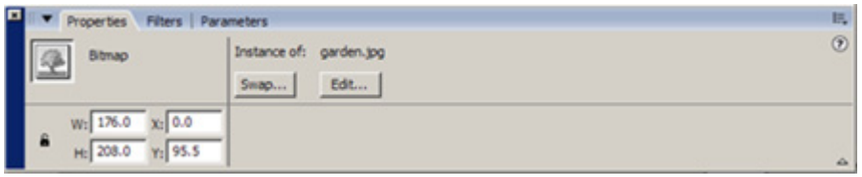
Align panel

When the To Stage button is selected on the Align panel, assets are aligned with respect to the top, bottom, left, right and center or the Stage. When it is deselected, assets are aligned with respect to their edges and centers.

Adobe

Using the Property inspector

Using the Property Inspector, you can change an image asset's X and Y coordinates, as well as its Width and Height. You can also swap the image asset with another bitmap in the document Library, or use the round-trip editing feature of Flash to edit the image in a tool such as Fireworks.



Property inspector

Adobe

Walkthrough 2: Importing Images

In this walkthrough, you will perform the following tasks:

- ▶Import a bitmap image
- ▶Position the bitmap

Creating Vector Images

You can create vector graphics directly in Flash using a variety of authoring tools. You'll do this, for example, to add a shape to create motion effects.

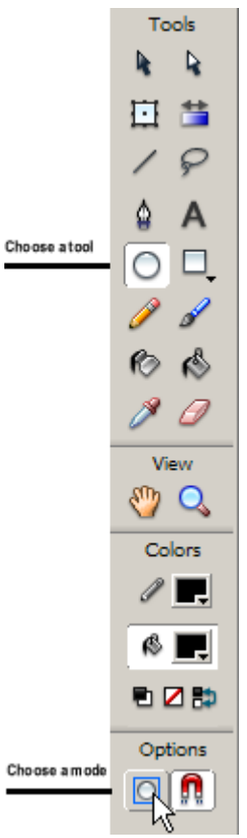
Understanding the object drawing model

Macromedia Flash 8 utilizes two different vector drawing models:

- ▶Merge Drawing Mode: Shapes drawing with the Merge Drawing model will intersect and merge together when they overlap. Stroke and fill are drawn as two separate graphics. The merge drawing model is the default drawing mode in Flash.
- ▶Object Drawing Mode: Shapes drawn with the Object Drawing model are drawn as independent grouped graphics that do not merge or intersect with other vector graphics on the Stage.

Understanding the object drawing model(continued)

The supported drawing tools are the Pencil, Line, Pen, Brush, Oval, Rectangle, and Polygon tools.



Select a drawing tool then the drawing mode

Adobe

Understanding the object drawing model (continued)

Select the Object Drawing button from the Options category of the Tools panel, or press the J key to toggle between the Merge and Object Drawing models. The Object Drawing button lets you toggle between the Merge and Object Drawing models.

Using the drawing tools

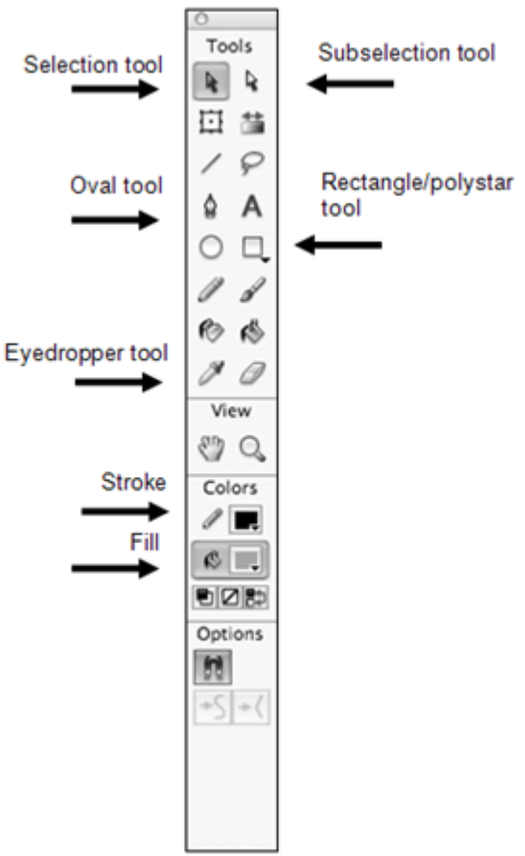
The Tools panel provides a variety of tools to help you:

- ▶Create shapes.
- ▶Select shapes so that you can change their properties.
- ▶Fill and apply stroke.

You can use these tools in conjunction with other authoring tools such as the Property inspector to create and modify Flash vector graphics.

Using the drawing tools

The tools that you'll use most often when creating and modifying Flash vector graphics are displayed below:



tools panel

Adobe

Using the Natural Drawing Tools

Use Flash natural drawing tools with graphics drawn in either drawing model to reshape any line or element within a vector graphic to make it smoother - more natural looking.

To access natural drawing tools, select the Arrow tool and hold the mouse over a portion of a shape on the Stage.

The cursor changes to:

- An arrow with a circle arc when placed over a line.

line arc circle

Adobe

Using the Natural Drawing Tools

- An arrow with a right angle when placed over a corner

corner right angle

- Now that you have your natural drawing tool selected, you can drag in the corners and sides to make different shapes.

dragging natural drawing tools

Note: You cannot use the natural drawing tools with graphics that have been grouped.

Using guides and rulers

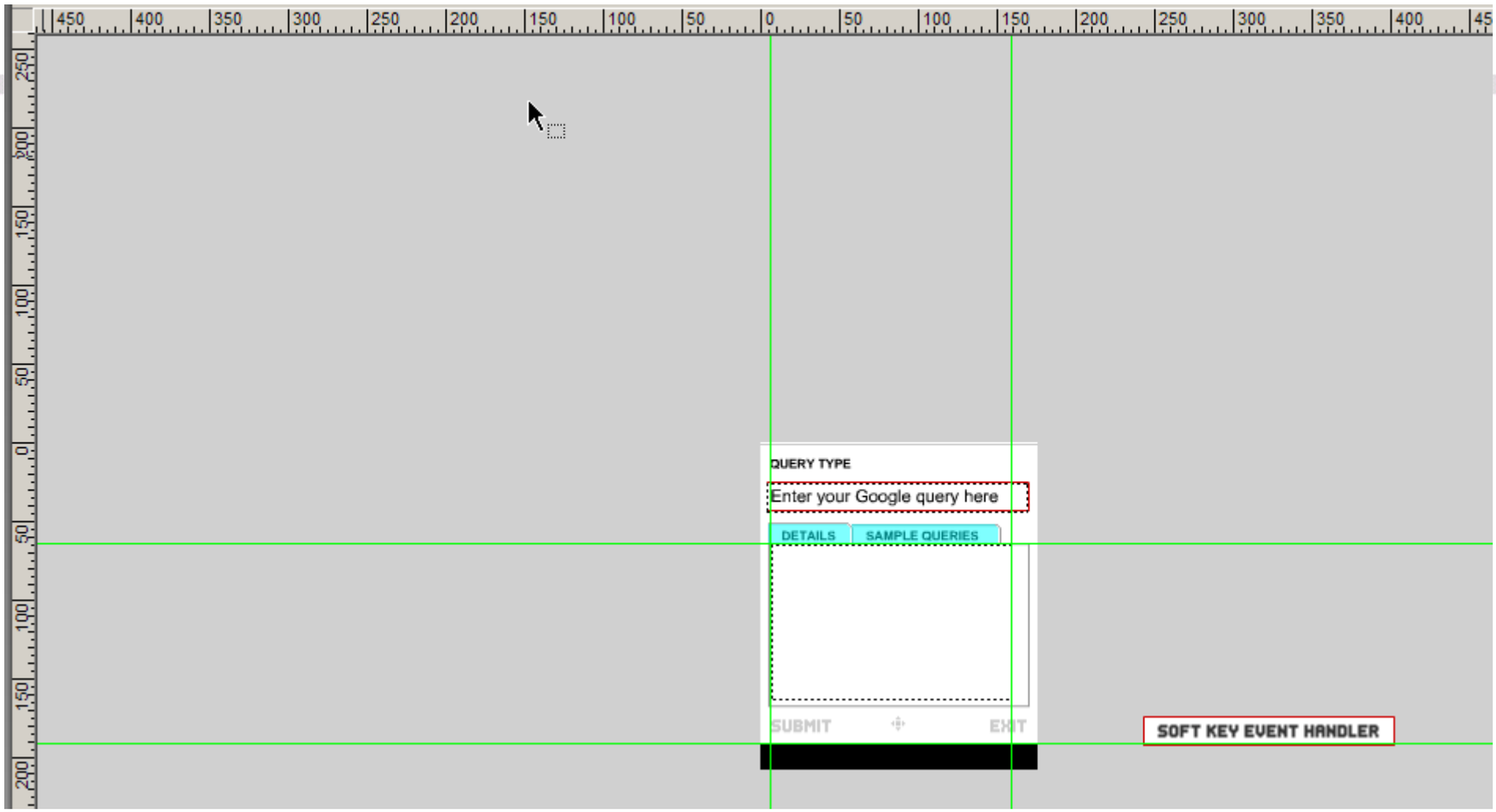
Use rulers and guides when it's important how you draw and position shapes on the Stage.

Use the View submenu to enable and show guides and rulers:

- ▶Select View > Rulers to display rulers at the top and to the left of the Stage.
- ▶Select View > Guides and enable Show Guides so that you can drag guides down from the rulers and position them on the Stage.
- ▶Select Snapping > Snap to Guides and enable it so that you can drag shapes and other assets near guide intersections and they will snap into position.

Using guides and rulers

Once you've enabled the Guides, you can click within the ruler area, either the horizontal or vertical ruler, and drag out a guide and place it anywhere you'd like.



guides and rulers

Adobe

Specifying stroke vs. fill

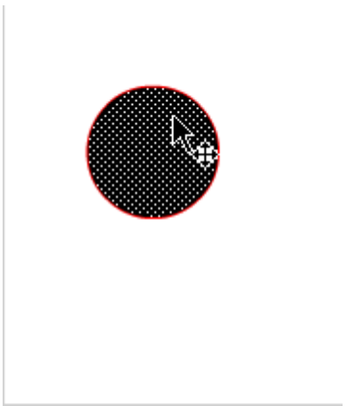
Using Flash, when you draw an object like an oval or a rectangle, it creates the shape in two pieces by default:

- The stroke, which is the outline of the shape
- The fill, which is inside the shape

You can select the stroke and fill separately, and you can set them to different colors. The object's fill and stroke are separate shapes. This helps maintain the smallest possible file size, as well as lets you control them separately.

Selecting the fill

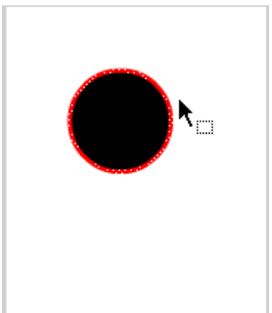
When you use the Selection tool to click once inside an oval, you have selected the fill. You can tell because the fill becomes dotted, and the Property inspector shows the properties of the fill.



oval with fill selected

Selecting the stroke

When you select the stroke, you can now see the properties of the stroke in the Property inspector. Care must be taken because you can easily drag the stroke apart from the fill.



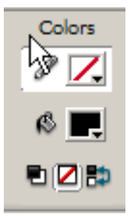
oval with stroke selected

Selecting the stroke and fill

If you want to change the entire oval, you will need to select both the stroke and the fill. You can do so by double-clicking inside the shape. Now you will be able to change both stroke and fill properties in the Property inspector.

Removing Stroke or Fill

If you do not wish to have a stroke, or do not wish to have a fill, you can choose the red slashed box in either the stroke or fill options in the Color section of the Toolbar.



transparent stroke

You can remove the stroke or fill prior to or after drawing the object.

Adobe

Grouping Shapes

If you want to affect the stroke and fill together as one object, you can group them together.

Double-click on the shape to select both the stroke and the fill. Then choose Modify > Group to make them into one object.

Walkthrough 3: Creating Drawings in Flash

In this walkthrough, you will perform the following tasks:

- ▶Use Guides and Rulers
- ▶Use the Flash drawing tools

Organizing Mobile Applications

Optimizing Mobile Applications

To ensure your Flash Lite applications give optimum performance, you should create your assets as symbols. In this section you will learn about symbols, the library where they are stored, and how to work with symbols.

Adobe

Using symbols

A symbol is a reusable object within Flash. It can be as simple as a static drawing or as complex as a movie clip that runs within another movie clip.

Symbols let you create assets and easily reuse them. This helps to keep your document small when you are using more than one occurrence of an asset. Symbols can also help you use the same asset in different ways.

There are three symbol types or symbol behaviors for use with mobile applications:

- ▶Graphic
- ▶Button
- ▶Movie clip

Symbols are stored in a Flash document's Library.

Note: A fourth symbol type, Font, is not used in mobile applications as it is with regular Flash applications.

Creating a graphic symbol

Use graphic symbols for static images and to create reusable pieces of animation that are tied to the main Timeline. Graphic symbols operate in sync with the main Timeline.

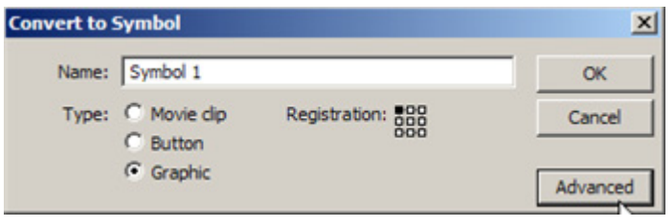
Graphic symbols cannot be controlled with ActionScript, and cannot contain ActionScript or button symbols or sounds. Since they are not programmable, they have less of a file size burden than a movie clip symbol (covered later in this unit).

To create a Graphic symbol:

- ▶Select the asset on the Stage you want to convert to a symbol.
- ▶Right-click (ctrl-click on Mac) on the asset and choose Convert to Symbol, select Modify > Convert to Symbol, or drag it to the Library.

Creating a graphic symbol (continued)

- Name the symbol, choose the Graphic behavior type and define its Registration as top- left corner in the Convert to Symbol dialog box.



Convert to symbol dialog

Note: it is unnecessary to put any form of "type" information in a Symbol (such as a "gr" prefix, or the like) as the Symbol type appears next to the name in the Library

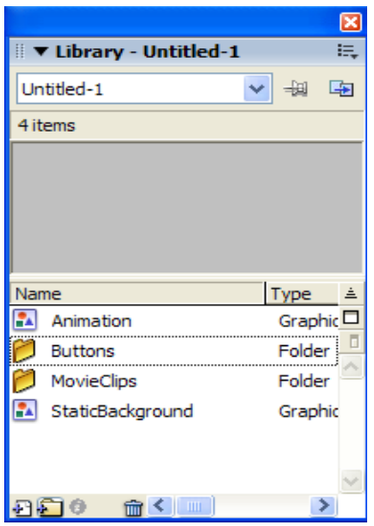
Adobe

Using the library

Any symbol you create in or any file you import to a document is automatically placed in the document Library.

The Library panel displays the contents of a document's Library.

Select Window > Library to open the Library panel in the development environment.



library of symbols

Adobe

Using symbol instances

Once a symbol is stored in a document's Library, you can use it repeatedly in and across documents by dragging it from the Library to the Stage.

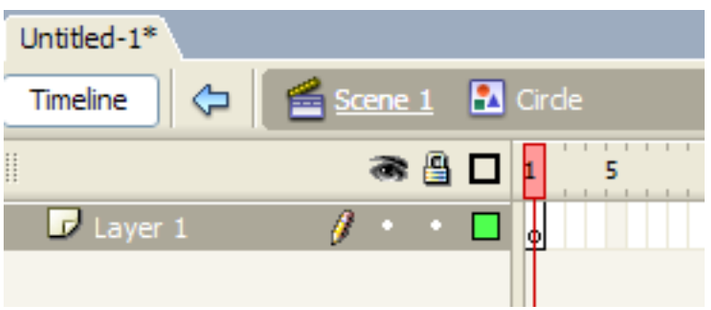
When you drag a symbol onto the Stage, Flash places a copy, or instance, of that symbol on the Stage.

Symbols act as templates and instances are unique occurrences of that template on the Stage.

Understanding symbol edit modes

When you drag an instance of a symbol onto the stage, the instance will remain selected, until de-selected. Double-click the instance (or right-click and select Edit) to enter symbol editing mode. In symbol editing

In the example below, the `grCircle` icon on the document's information bar, above the Timeline panel, indicates that you are in symbol editing mode with the symbol:



symbol editing mode for grCircle

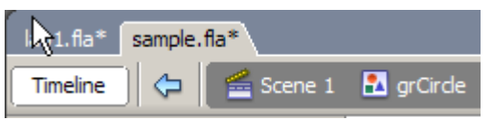
Adobe

Each symbol has its own timeline and layer structure apart from the main timeline. When you click on a symbol directly from the Library or you click on a symbol and choose edit mode, you are automatically placed into symbol editing mode.

In symbol editing mode, you cannot see any other objects on the stage; you can only see the assets in the symbol itself.

Any change that you make while editing the symbol will affect the symbol in the Library and every instance of that symbol within the document. Other symbols and the main timeline will not be affected.

Select the Scene 1 icon or the arrow on the document's title bar to return to editing the main document.

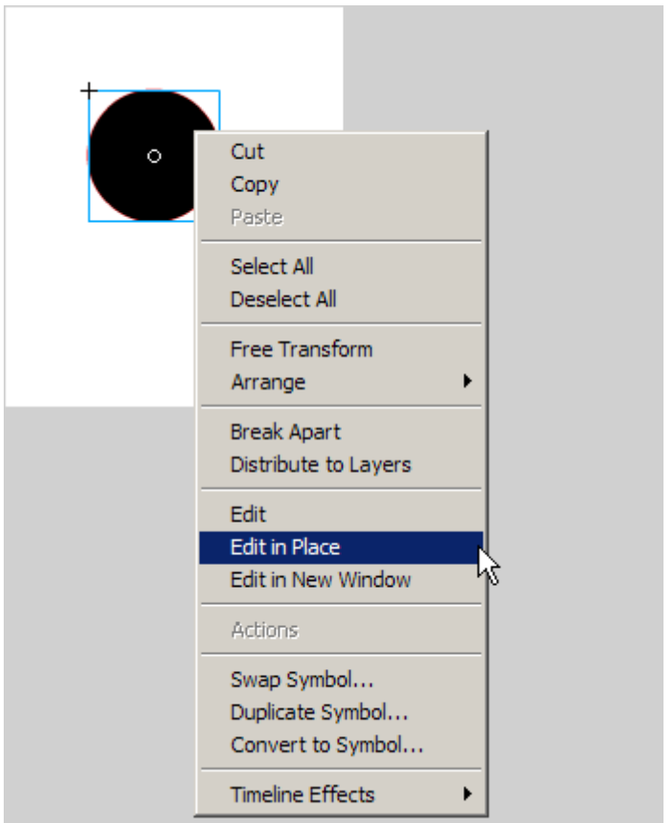


Edit bar: editing modes

Adobe

Understanding Edit in Place mode

Symbol editing mode also allows you to edit a symbol in place. To access Edit in Place mode, you double click on a symbol instance from the stage or choose Edit in Place from the context menu.



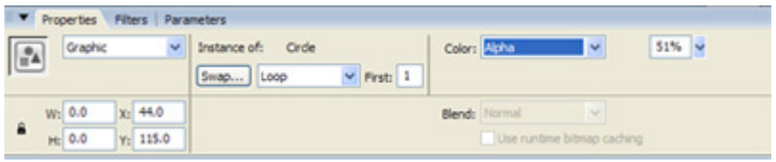
Edit in Place context menu option

Adobe

Edit in place mode means that all other assets of the main timeline are visible from within the symbol timeline. This can be confusing because you need to remember which pieces are part of the symbol and which pieces are part of the main document; however it can be very useful for design to make sure assets appear in the proper location.

Modifying symbol instances

You can modify an instance without affecting the symbol by clicking on the instance once and using the Property inspector to make changes. Change an instance by, for example, modifying its color, size, orientation or location.



change instance in Property inspector

You cannot make fundamental changes to an instance apart from its symbol. For example, you can't change an instance's overall shape.

Adobe

Walkthrough 4: Using Graphic Symbols

In this walkthrough, you will perform the following tasks:

- ▶Create a graphic symbol.
- ▶Edit a graphic symbol.
- ▶Use instances of a graphic symbol.

Understanding Movie Clips

The main timeline is a movie clip and you can think of each separate movie clip as having the functionality of the main timeline. Movie clips have more overhead than graphic symbols because they have much more functionality. However, if you are just using static backgrounds or artwork, you should use a graphic symbol for mobile development.

Movie clips are useful because:

- ▶Movie clips can be manipulated in more ways then the other symbols.
- ▶Movie clip Timelines are independent of the main document Timeline.
- ▶Movie clips can be manipulated using ActionScript making them ideal for many types of user interaction.
- ▶Movie clips can be used to structure your application to create paging structures, feedback mechanisms, and to provide containers for external content.

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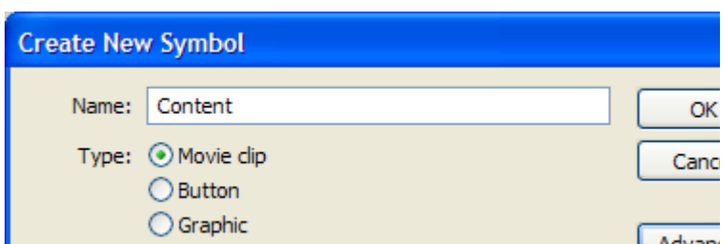
Adding a movie clip to a document

Any visual object in Flash, such as imported artwork or text, can be placed in a movie clip Timeline. Movie clips can be created from scratch or, if the asset is already on the Stage, it can be converted or placed inside of a movie clip symbol:

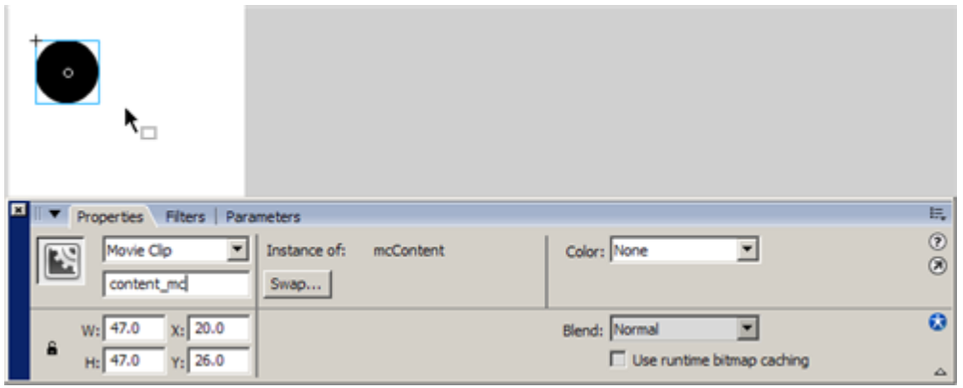
- ▶Select Insert > New Symbol to create a symbol from scratch and populate it with assets.
- ▶Right-click (ctrl-click on Mac) an asset and select Convert to Symbol from the context menu.
- ▶Select the asset, and then from the menus select Modify > Convert to Symbol.
- ▶Drag the asset into the Library.



creating a movie clip

Adobe

Once you've created your movie clip symbol, assign it an instance name in the Property inspector. You use the instance name of the movie clip to control it with ActionScript.



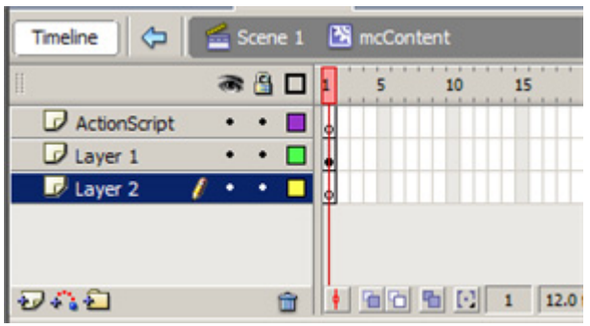
a movie clip with an instance name

Adobe

Adding content to a movie clip Timeline

Movie clip Timelines can have their own layer structure. What's more, they can contain anything that the main document can contain, including other movie clips.

Once in symbol editing mode, you can add layers, import content, and add symbol instances to any movie clip Timeline.



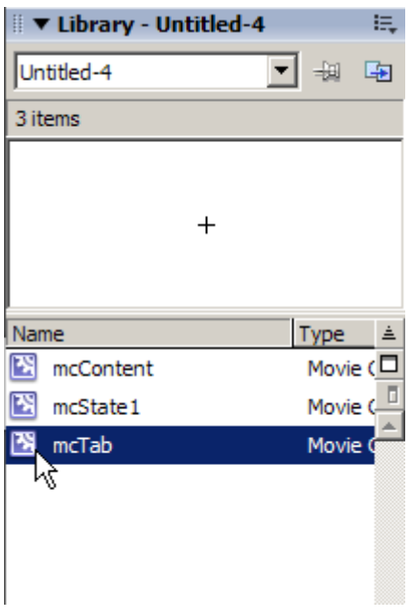
a movie clip Timeline being edited from the Stage

Adobe

Editing movie clip Timelines

To edit a movie clip Timeline:

- ▶Double-click a movie clip instance on the Stage to enter edit in place mode.
- ▶Double-click the movie clip icon of the movie clip you wish to edit in the document Library.



movie clips in the library

Adobe

Nesting movie clips

One of the most powerful features of Flash is the ability to place movie clips, which are independent submovies, inside a movie. Movie clips enable you to have multiple, nonlinear events occurring in a movie—for example, in a movie of an underwater scene, you could have two movie clips of fish swimming in different directions at different speeds.

A movie clip is a symbol with its own Timeline and properties (such as color, transparency, rotation, and so on). To use a movie clip symbol in a movie, you place an instance of the symbol on the Stage.

Most important, you can use ActionScript to communicate between movie clips (or between a movie clip and the main movie). Actions on one movie clip (or on the main Timeline) can control another movie clip to create interrelated events.

Nesting movie clips (continued)

In the movie of the underwater scene, you could have a movie clip of a snorkeler swimming and another movie clip of a shark. You could send a message from the shark movie clip to the snorkeler movie clip, so that whenever the shark swims within a certain distance of the snorkeler, the snorkeler swims away in the other direction.

You can place movie clips inside of other movie clips—or nest the movie clips—to create a hierarchy of movie clips with interrelated events in your movie. In the underwater movie, you could place a movie clip of the snorkeler's kicking legs inside the snorkeler movie clip. You could make the snorkeler's legs kick faster and churn up more bubbles whenever the snorkeler swims away from the shark.

Best practices with symbols

Best practices for mobile development as it pertains to symbols include the following:

- ▶Place your artwork in symbols, and optimize them, either by selecting Modify > Shape > Optimize or using the subselection tool.
- ▶Remove all unnecessary points.
- ▶Use graphic symbols for flat shapes and lines.
- ▶Use movie clips when nesting symbols.

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Using graphic symbols

- Graphic symbols render faster since they are not active objects at runtime.
- Nested graphic symbols (static and animated) are broken down when exported; each nested symbol is exported with its own 12 placement bytes for each keyframe of the parent.

Using movie clip symbols

- Movie clips are exported only once, complete with all child content.
- A movie clip uses 12 bytes per keyframe after the 150 bytes for initialization. If a movie clip is used over 10 frames (for example, a tween), you save 1.2 KB in file size.
- Reduction in file size also corresponds to fewer objects to handle. The movie clip (instead of each nested graphic for each keyframe) is tracked, and the movie clip keeps track of its own contents. If that doesn't change, nothing else needs to be memorized.
- A movie clip carries a runtime overhead, because it is an active object. If you use movie clips for simple graphics (nothing nested, just shapes, outlines, and text), you will use more runtime memory.

Understanding Buttons

A button is another type of symbol in Flash that you create and store in the Library.

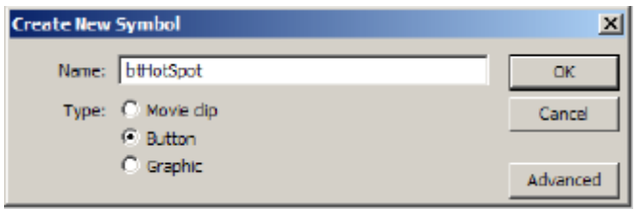
Buttons are hotspots that users use to navigate an application. You can attach ActionScript to buttons to execute code when a button is clicked or pressed using the joystick on the phone. Buttons are also used to trap other events such as keypresses and mapping the soft keys on the phone. The only Flash mouse events supported with the button are on(press) and on(release).

Like all symbols, buttons are reusable, so that you can use a single button instance many times without increasing file size.

Using buttons

To create a button symbol from scratch:

1. Select Insert > New Symbol to create a symbol.
2. Name the button symbol and assign it a Button type.



creating a button symbol

As with graphic and movie clip symbols, button symbols are stored in the document Library. The name you assign in the Create New Symbol dialog is the name of the item in the Library.

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Using button instances

Drag button symbols from the Library to the Stage to create button instances. As with other assets, place buttons on their own layer so that you can easily manage them separately from other assets.

When you drag an instance of a button to the Stage, a blue box displays around it to show that it's selected.

Understanding button states

A button instance has its own Timeline with four named frames, commonly referred to as a button's states. They are:

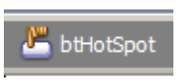
- ▶Up
- ▶Over
- ▶Down
- ▶Hit

You can use the states in the Timeline to add text or other assets such as sound, images, or movie clip symbols to the button and define how the button appears.

Entering the button’s Timeline

To enter a button's Timeline at any time double-click an instance of the symbol on the Stage to edit it in place, or double-click the type icon in the Library to edit the symbol by itself. When a button is double-clicked:

- The button's icon displays on the edit bar
- The button's Timeline replaces the main document's Timeline above the Stage.



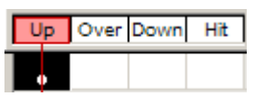
The Button icon

Adobe

Using the Up state

The up state is the button state that the user first sees, before the symbol is interacted with:

- If there's a Text Field in the up state, the user will see that text.
- If there is a graphic, the user will see that graphic.
- If nothing is in the up state, the user will see nothing.
- Because the up state is the first frame in the button Timeline, a keyframe is automatically inserted.

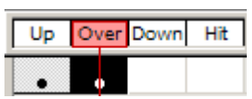


Up state of button Timeline

Adobe

Using the Over state

The over state is how the button appears when the user is over it but it has not been selected. If there's no keyframe inserted in this state, the over state will appear the same as the up state. This would mean there was no effect when the user put the mouse over the button.

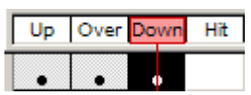


Over state of button Timeline

Adobe

Using the Down state

The down state is how the button appears when the user has selected it using the joystick. If no keyframe has been defined for this state, it will appear the same as the over state. There is no reaction to a button being clicked. It is a best practice to indicate that a button has been clicked by specifying a different appearance in the down state.



Down state of button Timeline

Adobe

Using the Hit state

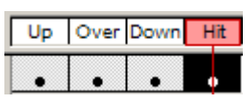
The hit state may be misleading; It defines the size and shape of the clickable area of a button, not what occurs when you click on the button as you may assume.

The fourth frame of a button's Timeline is the button's hit state. A hit state is the active area (or hot spot) of the button. The hit state is not visible to end-users.

The hit state is required. If a graphic is not placed in the hit state, Flash Lite will attempt to use whatever graphic is in the up state of the button as the button's active area..

You define the hit state by:

- ▶Selecting the hit frame and inserting a keyframe in it.
- ▶Drawing a shape to denote the active area of the button on the keyframe.



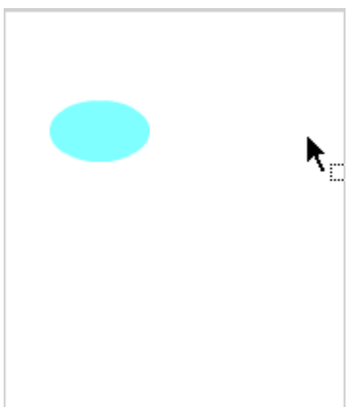
Hit state of a button Timeline

Adobe

Using invisible buttons as hotspots

Invisible buttons are buttons that only have a hit state defined, and you'll create them to place over other assets on the Stage. They act as hotspots, creating an invisible region that the user can select and have some type of interactivity occur.

Invisible buttons are represented in the development environment as a semi-transparent cyan shape



Invisible button Instance.

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Walkthrough 5: Creating a Movie Clip and Using Buttons

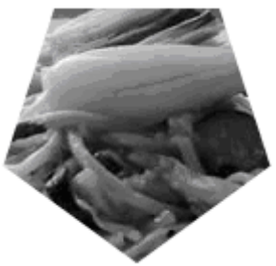
In this walkthrough, you will perform the following tasks:

- ▶Import Assets
- ▶Store the assets in a movie
- ▶Add Buttons

Creating Mask Effects

A Mask is a special type of layer that is used to reveal selected parts of another layer stacked underneath.

Create shapes on a Mask layer to create mask effects such as image spotlights that show pictures framed by a graphic shape layered on top of it. You can add animation to a mask effect to create transitional effects.



mask effect of an image

Adobe

Creating masks

Mask layers and the layer that they affect automatically lock when you apply the mask, which produces the mask effect in the authoring environment. If you unlock either layer, you will see your mask graphic again; however, this is only visible in authoring. When you test the movie you will see the mask behaving as expected.

Walkthrough 6: Creating a Mask Effect

In this walkthrough, you will perform the following tasks:

- ►Create a mask layer.
- ►Mask a visual Asset

Summary

- Layers allow you to organize assets and build a more maintainable application.
- Bitmap images use less memory and processor power than vector images because vectors require processing power to render.
- It is important to optimize assets as much as possible for mobile applications. This can occur outside of Flash in a tool such as Photoshop. It is always a balance between quality and performance and there is no substiture for testing content on an actual handset.
- Symbols act as a template and you can resuse assets throughout an application and save resources.
- Movie Clips have independent timelines.
- Masks allow you to create a “spotlight” effect.