

Flash is a revolutionary [technology](#) on the Internet through which rich multimedia content sites can be developed with ease. Flash is a vector-based program, which in simple terms means that the graphical information is stored in the form of mathematical formulae rather than pixel tables.

Vector information takes up lesser space compared to storing individual pixel values which results in Flash files being much smaller than their animated graphical counterparts.

In addition to animations, Flash can be used to make really complex multimedia content with interactivity and sound. Drop down or scrolling menus, animated buttons, custom animated cursors and even games can be made with Flash. Flash files are made using the Flash software developed by [Macromedia](#) (www.macromedia.com). You can download a demo version from the company site.

Flash is similar to other graphic programs as far as its drawing tools are concerned, which makes the learning curve easier if you have worked on Adobe PhotoShop or Paint Shop Pro.

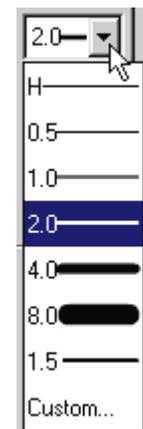
The series of lessons in this tutorial guide you through the basic concepts of Flash such as:

- Drawing tools.
- Frames, Layers and the Stage.
- Movie properties.
- Basic controls and commands available in the Flash menu.
- Embedding Flash in HTML pages.
- Symbols and why they are required.
- Creating and modifying symbols.
- Inspectors.

Flash design tutorial - Drawing tools in Flash

In addition to its main use, generating multimedia content, Flash provides a good interface for creating graphics from scratch. Graphics created in Flash can be saved in gif, jpg, png or other formats. Its vector capabilities allow for easy scaling without loss in quality or detail. With a bit of creativity you can easily make cartoons or other clipart... the

! *swami* and the apple below, took me less than 5 minutes (and I'm a biotechnologist, NOT an artist).





\There are five drawing tools in Flash, the rest are used to modify various aspects of the drawing. The drawing tools are found in **Drawing Toolbar**, which should be docked at the left side of the screen when you first start Flash. If you don't have this toolbar open, click on **Window - Toolbar...**, check the box in front of **Drawing** and click OK.

Flash drawing tools

Line Tool

Oval Tool

Rectangular Tool

Pencil Tool

Text Tool

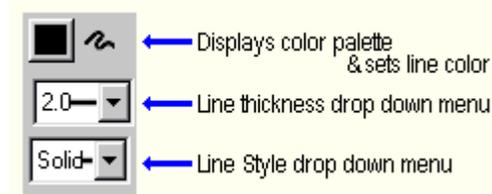
Flash also has two tools for selecting objects: the **Arrow tool**  and the **Lasso Tool** . If you are familiar with graphic software, you should have no problems in guessing the function of these tools. However, in Flash, their usefulness has been increased by **modifiers**.

You can select an object with the arrow tool by either clicking on it directly or dragging a rectangular shape around the object with the left-mouse button pressed. The Lasso tool on the other hand provides a much more free form for selection. It is generally used to select irregularly shaped objects.

Flash Tutorial - Using the Line tool

This section of the Flash tutorial introduces you to the simplest drawing tool in flash - the line tool.

The Line tool  is used for making straight lines. When activated the Line tool presents a set of **modifiers** below the toolbar. These modifiers control the various properties of the line such as thickness, color and style.



Clicking on the **Color Icon** with the left mouse button, presents a color palette. Move your mouse pointer over a color and left-click to select it.

The thickness of the line is set by selecting a value from the drop down menu (shown on the left). This menu displays a list of thickness values in pixels. **H** means a hairline thick line and **Custom**, lets you specify the thickness value via a pop up window.

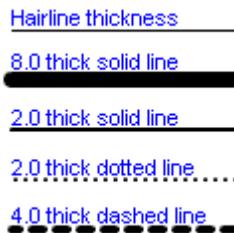
Line style such as solid, dashed, dotted, ragged etc can be selected from the Line Style drop down menu.

Tip: Using a line style other than solid will result in slightly larger file size. Be sure to test the file size before you populate your Flash movie with other styles.

Now, let's draw a few straight lines. Select the line tool and left-click somewhere in the movie and with the mouse button depressed drag to another location. You have your line. Simple?

Tip: If you want perfectly horizontal, vertical or diagonal lines, press SHIFT on the keyboard while drawing.

Here are some examples:



Once we have made a straight line, its shape and size can be changed using the mouse.

If you move your mouse pointer near one of the ends of the line, you'll notice that the pointer changes to . Left-click this end and drag it to a new location. Line size and orientation can be changed using this method.

Converting a straight line to a curve is also quite simple. Move you mouse pointer near the middle of the line, its

shape changes to . The display of a small curve icon at the bottom-right of the mouse pointer means that you can change the shape of the line. Left click and drag to convert it into a curve.

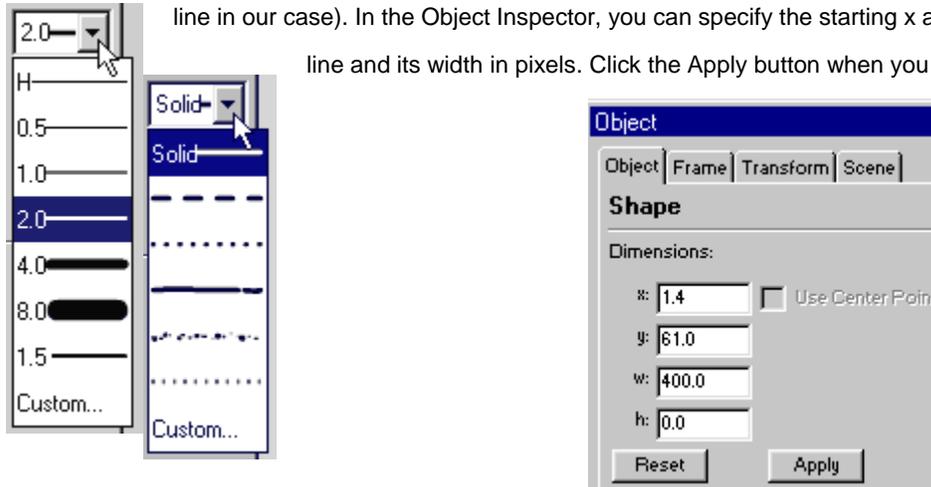
A (very) brief introduction to Inspectors

The mouse can be used for scaling, rotating and placing objects. (You'll learn how to accomplish all these in later sessions).

However, if you want precise control, I suggest you use **Inspectors**.

For example, the **Object Inspector** controls the properties of a line. Open it by clicking on **Window - Inspectors -**

Object. If the line is deselected, select it using the arrow tool . Selection places a sort of net over the object (the line in our case). In the Object Inspector, you can specify the starting x and y co-ordinates of the line and its width in pixels. Click the Apply button when you are through.



The **Transform Inspector**, which is closely associated with the Object Inspector lets you change the orientation and scale of objects (the line in our case).

Further, the **Transform** menu (**Modify - Transform**) also lets you change the orientation and the size of objects (line in our case). We shall look at this in the next session.

Thus, the shape, orientation and other properties of objects can be changed through the Transform menu, Inspectors and the Arrow tool modifiers. Sounds confusing? Don't worry, we would be looking at all these options soon

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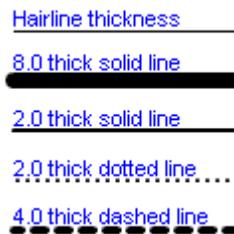
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Drawing Geometrical shapes - 2

Ovals and Circles with the Oval tool

Outline thickness set to 2 pixels and color to black. Solid line style was used for the outline. The fill color was set to a light blue shade.

Rectangles and Squares

Outline Color: Red

Outline Thickness: 2 pixels

Outline Style: Solid

Fill Color: Yellow

The rounded rectangle has 10 pixels as radius.

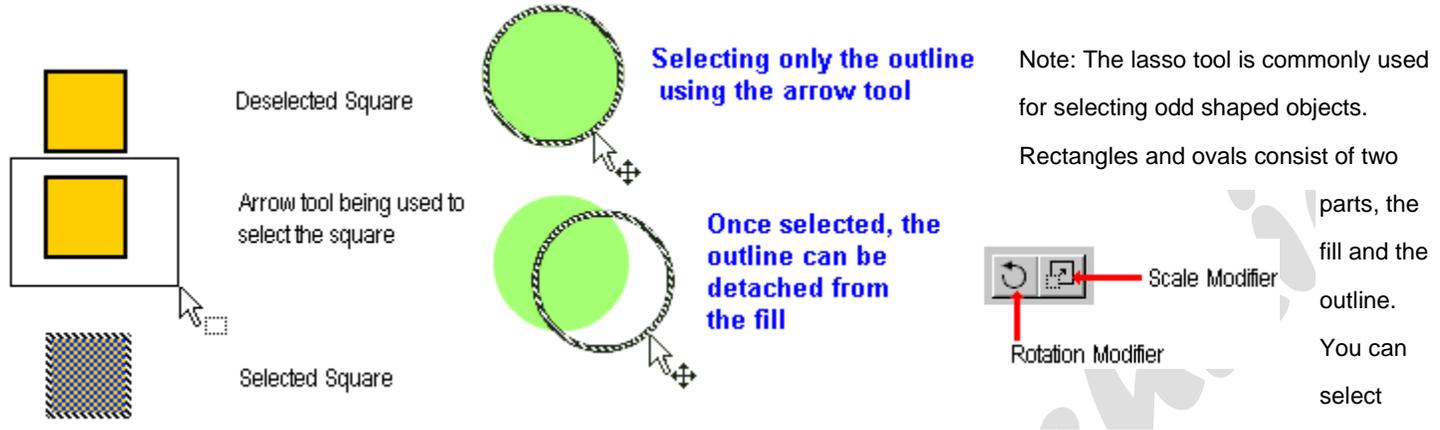
Moving shapes

Once you have created a shape you can place it where ever you want. To move a shape (or any other object for that matter) from one place to another, you have to select it first using either the **Arrow** or the **Lasso** tool.

Shapes/objects can be selected by

- Clicking on it with the Arrow tool
- dragging a rectangle around the shape using the arrow tool OR
- drawing a

loop with the lasso tool



these individually. Thus, to select only the fill, click inside the shape with the arrow tool. Outlines of circles and ovals can be selected by clicking on them. Selecting an outline of a rectangle or a square involves four clicks with the arrow tool, one for each side. (eight clicks in case of rounded rectangles).

Selecting a entire rectangle (outline and fill) using the arrow tool.

Selecting the outline of a circle and detaching it from the shape.

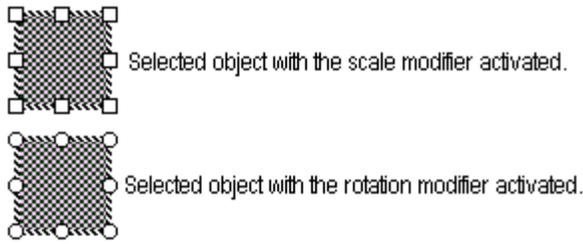
Sizing and rotating shapes

There are various ways to change the size and rotation of shapes in Flash. The simplest way to do this is to use the Arrow tool modifiers. When a shape is selected with the arrow tool, the modifiers are displayed below the toolbar. Here are two of them.

The scale modifier is employed for changing the size of the selected object. When it is activated, eight small square *Handles* are placed around the object. Dragging the corner handles increases or decreases the size of the object while dragging the central handles stretches the object in that direction.

The rotation modifier places eight small circular handles. The four in the corners, rotate the object while the central ones skew the object.

Flash makes it easy for you to work with these modifiers by changing the look of the mouse cursor depending upon the modifier you use.



(To resize or rotate odd shaped objects, select them using the lasso tool and then while the objects are still selected, click on the arrow tool to bring up the scale and rotate modifiers.)

Flash Drawing Course - The Pencil Tool

The Pencil Tool  functions similar to an ordinary pencil. However, the makers of Flash realized the difficulty some users might face when using the mouse as a pencil. So they added some features to this tool that make it easy for non-

experts to create splendid drawings.

When the pencil tool is selected, its modifiers are displayed below the toolbar as:



The first is the Pencil Mode Selection icon (discussed below). The color icon, when clicked, brings up the color palette helping you choose from the preset colors. The Line Thickness Drop Down menu lets you specify the thickness of the line and the last modifier is the Line Style Drop Down menu.

The Pencil Mode determines how the lines drawn with the pencil tool are processed by Flash. In **Straighten** mode, lines that are approximate straight are straightened, highly irregular curves are smoothed and separate lines are connected together. Shape recognition is enabled in this mode. This means that if you draw an approximate rectangle or circle, Flash will process your drawing and convert it to a shape! Don't trust me? Try it out.

With the **Smooth** option, irregular lines are converted to smooth curves, however, shape recognition and line straightening are not possible.

No processing takes place in the **Ink Mode**, thus, you are left with what you had drawn.

Smooth and Straighten modifiers of the Arrow tool

In a previous session, when discussing the modifiers of the Arrow tool , I had purposely left out two of its modifiers. Discussing them at that time would've be premature since these two modifiers, **Straighten** and **Smooth**, are most commonly used on lines drawn with the pencil tool.



The two modifiers act like buttons and they smoothen or straighten a line when clicked. For example, repeated clicking of the straighten button will make the selected line less curved

The Text Tool

Using the Text Tool **A** you can add text to Flash movies. If you have worked with a word processor before, most of the modifiers of this tool would be familiar to you.

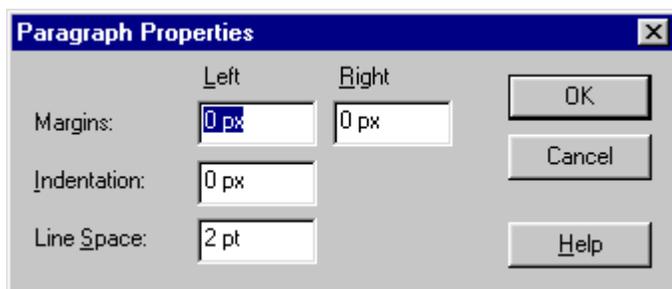
The first modifier is a drop down menu through which you can select the font. The second is a drop down menu plus a text field and lets you specify the font size. You can either select the size from the menu or type one in the text field.

Color for the text can be set using the color button.

The Bold **B** and Italic *I* buttons are toggle controls that let you change normal text to bold or italic, or vice versa.

The Alignment modifier sets the text alignment to **Left**, **Right**, **Center** or **Justify**.

On clicking the Paragraph modifier a **Paragraph Properties** window is displayed though which you can specify values for line spacing, indentation and margins.

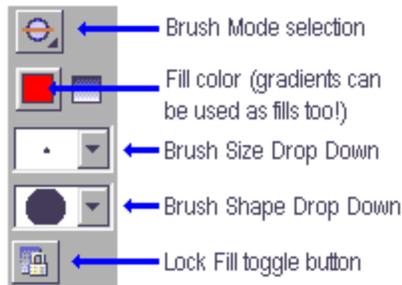


The last modifier is a text field creator. Text placed in this field is editable and can be modified by the user. It is generally used to make text fields in forms that gather visitor input such as name, password etc.

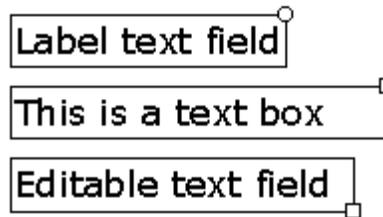
Text in Flash

Text in Flash can be divided into three categories depending on how it has been created.

- Label text:** This is the simplest type of text. It is generated whenever you click on the stage with the text tool. Label text keeps extending as you type and may continue beyond the movie boundaries. You have to explicitly press the 'ENTER' key to start a new line. The Label Text field is recognized by a small circle at the top-right corner.



- **Text Box:** A text box is created by left-clicking once on the stage, keeping the button pressed and dragging out an area with the mouse. It is recognized by a small square at the top-right corner. As you type text in a text box, Flash automatically wraps it.
- **Editable text:** discussed above, carry a small square at the bottom-right corner.



Brushes in Flash

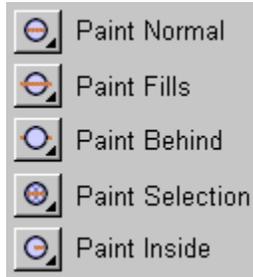
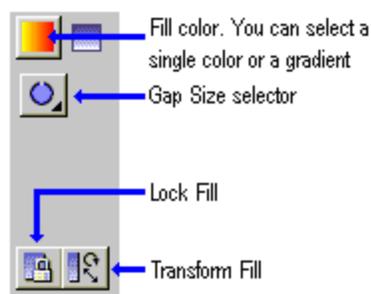
Brushes in Flash are slightly different from those in standard graphic software. The main difference lies in how you can selectively paint the components of an object. This is accomplished by choosing the correct brush mode from the **Brush Mode Modifier**.

The modifiers of the Brush Tool are described in the image below:

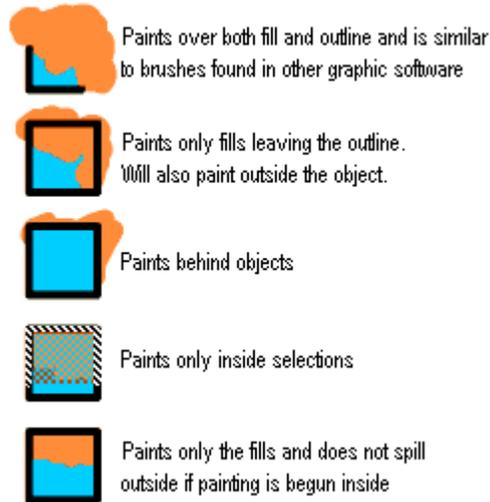
Note that in addition to single colors, you can paint with gradients.

The Brush Size and Brush Shape Drop Down menus let you select the size and the shape of the brush, respectively. The two Brush modifiers that require further explanation are the Brush Mode selector and the Lock Fill toggle button.

Brush Mode Selector



The Brush Mode selector is a pop-up menu. The five modes along with examples are presented below.



Lock Fill Toggle button

As mentioned before, gradients can also be used to paint objects. If this option is used to paint various objects/areas, all of them will be painted with the same gradient and will appear part of a single shape.

The Paint Bucket

The function of Flash's Paint Bucket is similar to the one found in other graphics software. You can use either a solid color or a gradient to fill objects with the bucket. However, since Flash is a vector based program, its paint Bucket also has a feature of closing any gaps in the objects' outline. (Note: Very large gaps cannot be closed automatically with the bucket. You have to do this manually using the Arrow tool).

The fill color lets you choose a solid color or a gradient.

Details of the Gap Size Selector modifier are presented in the image below.

The Transform Fill modifier lets you change the properties of gradient fills. For example, linear gradients are applied horizontally. In order to make a vertical gradient, you first have to fill the object with a linear gradient and change its orientation using this modifier.

 Don't Close Gaps: Will not fill an object if its outline contains gaps

 Close Small Gaps: Fills objects that have very small gaps in their outlines. Filling causes the closure of these gaps

 Close Medium Gaps

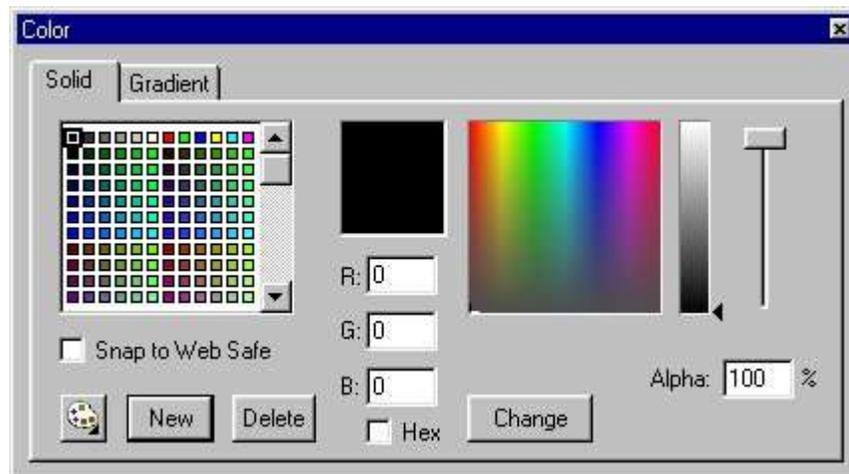
 Close Large Gaps. Closes large gaps and fills the objects

Gradients

Flash comes along with 6 in-built gradients, out of which two are linear and the others, radial. Further, you can unleash your creativity and make your own gradients.

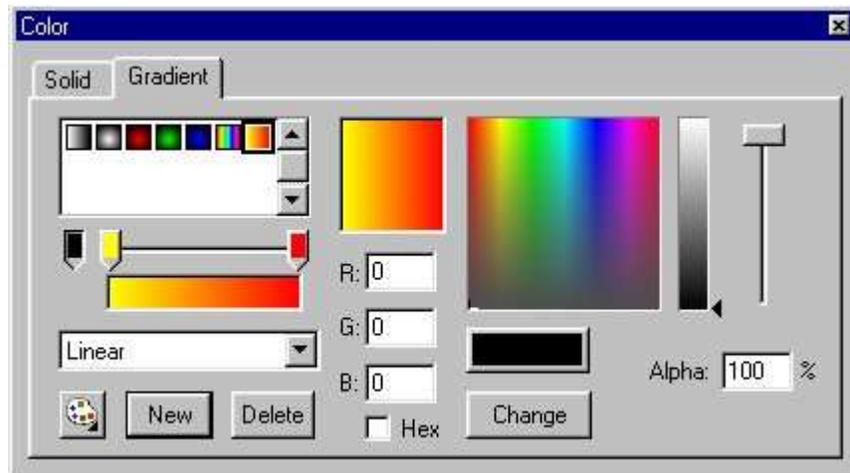
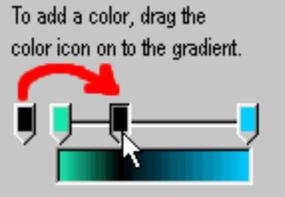
Clicking on the color icon in the modifier tray opens up the color palette. You can either be satisfied with the colors

Flash has to offer here or click on the top icon  to open up the color window.



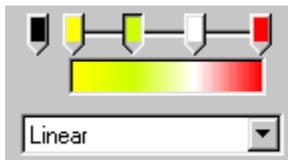
The **Solid** tab lets you define a custom color and also set its alpha (transparency) value. To create a new color, click on the **New** button and select it from the palette. The hue of the chosen color can be changed using the color slider.

The Alpha slider and its associated text field lets you specify the transparency value. Color can also be defined by typing its RGB or hexadecimal values in the text fields provided. Click on **Change** button when you are through.



To create a custom gradient start with clicking on the **New** button, select **Linear** or **Radial** type from the drop down menu. A gradient is made up of two or more colors represented by icons that look like . These color icons would be placed above the gradient. Click on this icon and select the color from the palette. To add more colors to the gradient, drag the color icon that is located on the left of the gradient, on to the gradient (refer image below). After you have included an additional icon to the gradient, you can change its color in the usual way. Remember that you can also use RGB or hexadecimal values to set a color.

An example of a multi-color gradient:



To remove a color icon from the gradient, use your mouse to drag it out of the gradient.

When you create a new color or gradient, Flash adds it to the palette. Selecting this color/gradient is now a matter of clicking on it with the mouse pointer.

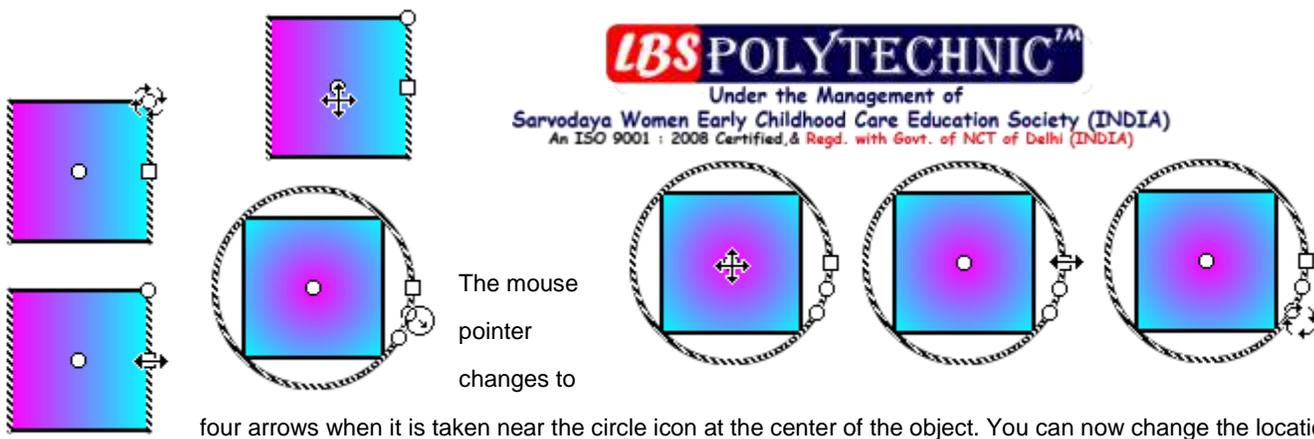
Transforming Gradient Fills

The Transform Fill modifier  of the Paint Bucket tool is used to change the location, size and rotation of gradient fills.

To transform a fill of an object, select the Paint Bucket tool and activate transform fill by clicking on the icon and then click inside the object.

Linear Gradients

When the transform fill icon is selected, three small icons appear on the object. These icons determine the kind of transformation that can be applied to the object.



The mouse pointer changes to four arrows when it is taken near the circle icon at the center of the object. You can now change the location of the fill by dragging it with the mouse.

The circle icon at the top-right lets you change the rotation of the fill. Thus, horizontal fills can be converted to vertical or diagonal fills. The fill can also be reversed by a 180° rotation.

Stretching the fill is possible by taking the mouse near the small square icon on the right and dragging it horizontally.

Radial Gradients

The activation of transform fill icon for a radial gradient fill presents four icons on the object.

The position of the radial fill can be changed by taking the mouse cursor near the circle icon at the center and dragging it to a new location.

The square icon lets you stretch the gradient fill.

The rotation of gradient can be modified through the circle icon at the bottom.

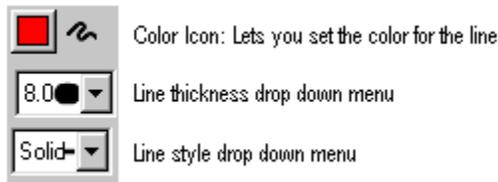
The size of the gradient can be increased or decreased by taking the mouse cursor near the circle icon and dragging it.

The Ink Bottle

Just as the Paint tool is used to change the fill of objects, you can use the Ink Bottle icon to modify the outline of object. The tool recognizes and works only on lines whether they form an outline of an object or are standalone lines created with the Line Tool or Pencil Tool.

In addition to changing the color of lines, you can also modify their thickness and style.

Flash ink bottle modifiers



Note: You can change the properties (color, style and thickness) of several lines (and outlines) by selecting all of them and clicking on the selection with the ink bottle modifier.

The Ink Bottle tool acts ONLY on lines, so if both outline and fill are selected, only the outline will be changed.

The Dropper tool

The Dropper tool in Flash  is somewhat different from those found in standard graphics software. In other software, the dropper is employed to pick a color from an image, however, in Flash the dropper tool not only picks up the color but also the properties of a fill or line.

Note that the Dropper has no modifiers. When you click on an outline with the dropper tool, the properties of the line such as color, thickness and style are picked up and Flash then activates the Ink Bottle since it understands that you would now be using this tool.

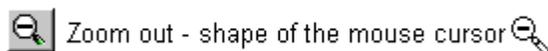
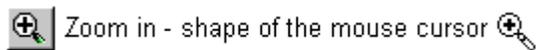
Similarly, if you click on an objects' fill with the dropper, Flash activates the Paint Bottle with the same properties as those if the object fill.

The Hand and Magnifier Tools

These two tools have simple functions.

The Hand tool  lets you pick the movie display window and place it at the desired location. It is specially helpful with movies whose dimensions are large and extend beyond the display area. In such cases, scroll bar usage can be quite cumbersome and Hand tool is preferred.

You can zoom in and out using the Magnifier tool. The shape of the mouse cursor changes depending upon the activated modifier.



The Eraser Tool

The Eraser tool compliments the drawing tools in Flash. On second thoughts, I should have put it in drawing tools category.

It's used for removing unwanted parts on an object. It differs from a similar tool found in standard graphics programs due to the fact that Flash is vector based.

The Erase Mode modifier changes the way the tool handles object components.

-  Erase Normal
-  Erase Fills
-  Erase Lines
-  Erase Selected Fills
-  Erase Inside

Here are some examples:

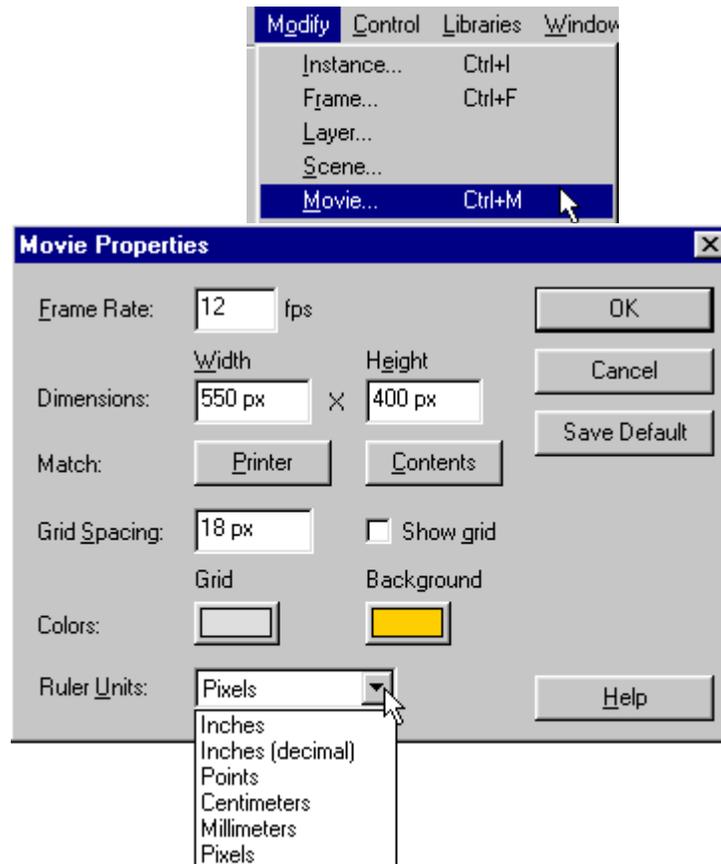


You can also select the shape and size of the Erase cursor using the drop down menu.

When the Eraser tool is used with the **Faucet** modifier , you can selectively delete an outline or a fill with a single click. The mouse cursor shape changes to  when this modifier is activated.

Modifying the movie properties

Attributes of the Flash movie can be changed using the Movie Properties window. Click on **Modify - Movie** to display this window.



The **Frame Rate** determines how fast a movie is played. The default value is 12, which means 12 frames are played per second. Increasing this value will play the movie faster.

The dimensions of the movie can be set through the **Width** and **Height** text fields.

To make drawing of objects and their placement easier, Flash provides a grid that can be turned on by checking the **Show Grid** checkbox. When used along with the **Snap to Grid** feature, Grids provide an indispensable tool for helping [developers](#) in placing, aligning and creating objects. The **Grid Spacing** text field takes a number as value and determines the amount of distance between the grid nodes.

Grid color as well as the background color of the movie can be modified by clicking on their respective icons and choosing a color from the palette.

Like other standard graphics software, Flash can display rulers (**View - Rulers**) and you can set its units through the **Rulers Units** drop down menu.

Grouping, ungrouping and breaking apart

Consider you have drawn two rectangles that overlap each other similar to the figure below:

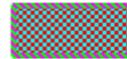
Now select the rectangle on top (the green one) and drag it to another location. You'll find that the lower rectangle has been cut. The reason for this is that Flash assumes the two shapes to be part of the same object. However, if we would have grouped each rectangle immediately after drawing it, the two would be treated as separate objects.

Group	Ctrl+G
Ungroup	Ctrl+Shift+G
Break Apart	Ctrl+B

other vector programs like CorelDraw, rectangle would be treated separately the same object. This is an important remember when making drawings in



Create a rectangle



Select both its outline and fill using the Arrow tool



Click Modify - Group

Note: In the two and not as point to Flash.

When a circle is created using the Oval tool , its outline and fill are two separate objects. They can be selected individually and placed anywhere on the screen. Grouping allows designers to pull related objects together in a bunch. Thus, the outline and the fill or a circle can be placed in a group so that they are not accidentally modified.

Grouping and ungrouping

Creating a group is as simple as selecting the objects and clicking on **Modify - Group**. In addition to grouping different objects, you can also place other groups into a single group. This kind of nesting is helpful in some cases but its overzealous use might lead to problems.

Once a group has been created, it can be split into its individual components through **Ungrouping**. Splitting nested groups to individual objects involves repeated ungrouping.

Grouping, Ungrouping and Break Apart are all found in the **Modify** menu.

Splitting text into individual alphabet

Label Text created with the text tool  is by default placed in a group. To split the text into individual alphabet, click **Modify - Break Apart**. You'll notice that each alphabet is now surrounded by the selection net and can be picked and moved individually.



Label Text is by default collected together in a group.
 Click Modify - Break Apart



Each alphabet is now surrounded by the selection net



Individual objects can be moved with the Arrow tool.

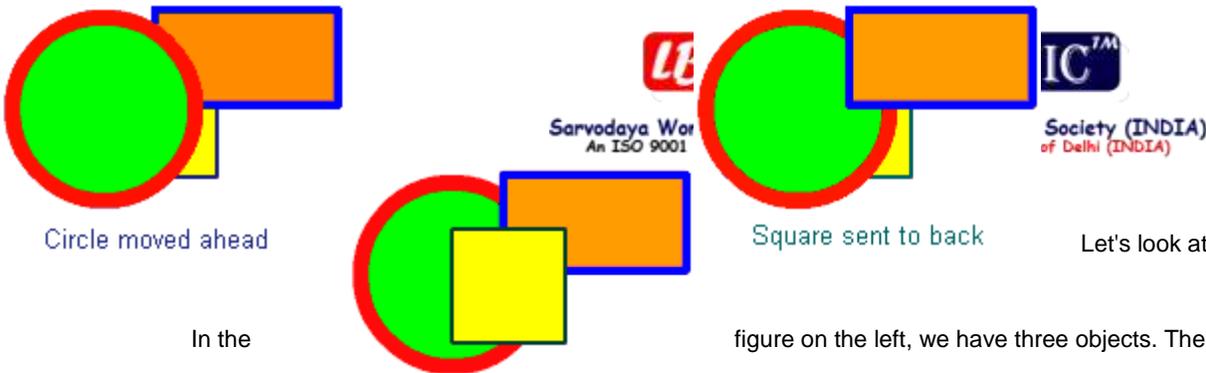
The stacking order

Groups and Symbols can be stacked relative to each other using Arrange from the **Modify** menu. Its options are:

Bring to Front	Ctrl+Shift+Up
Move Ahead	Ctrl+Up
Move Behind	Ctrl+Down
Send to Back	Ctrl+Shift+Down
<hr/>	
Lock	Ctrl+Alt+L
Unlock All	Ctrl+Alt+Shift+L

- **Bring to Front:** Puts the selected object on top of the rest.
- **Move Ahead:** Brings the selected object one level above.
- **Move Behind:** Takes the selected object one step lower in the stacking order.
- **Send to Back:** The selected object is moved at the lower most level of the stacking order.

(Note: Stacking works only on groups and symbols)



Circle moved ahead

Square sent to back

Let's look at some examples:

In the figure on the left, we have three objects. The circle has been stacked at the lowest level. Above it is the rectangle and the square is at the top.

Applying the **Send to Back** option on the square places it at the lower most stacking level. Now, the order from bottom to top is: square - circle - rectangle.

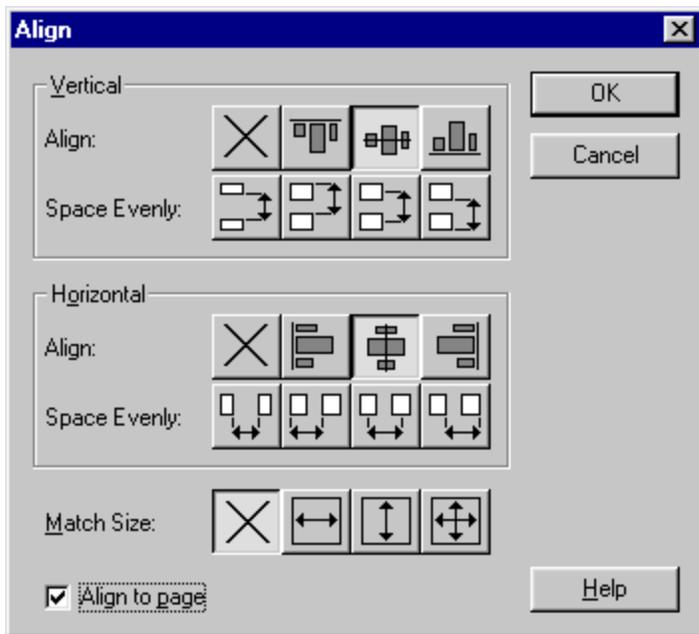
The circle can now be brought to the front by **Move Ahead** option. The stacking order is square - rectangle - circle.

Aligning

Like in other vector programs, you can also align objects, groups and symbols in Flash. The alignment options are displayed in the **Align** window found in the **Modify** menu.

In addition to alignments, Flash also allows you to match the size of different objects.

To place an object right at the center of the stage, select it first and then click on the third icon from the left in both horizontal and vertical alignments and check the **align to Page** checkbox. (refer figure below).



Selected objects can also be space evenly on the horizontal or vertical axis. The other options are quite self explanatory.

What are symbols?

You already know that Flash is a vector based graphic program. Storing graphical information as mathematical formulae results in small file size. Additionally, Flash allows the reuse of a graphic (and other objects) once it is converted into a symbol.

So what are symbols

Symbols are the greatest strength of Flash. They allow reuse of graphics, buttons or movie clips without significantly increasing the file size.

Flash stores all symbols in the movies' **Symbols Library**. Once an object is converted to a symbol, it is automatically placed in the library.

Symbols can be dragged from the library and placed on the stage. This creates an **Instance** of the symbol. You can consider the Instance as a copy of the symbol. Further, Flash allows the properties of an Instance to be changed.

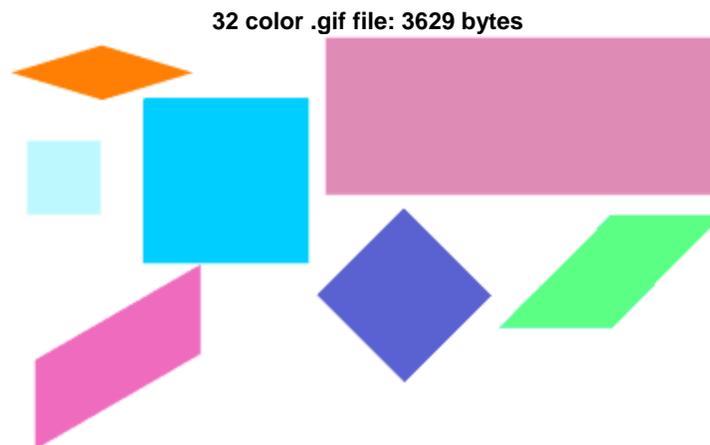
For example, in case of Graphic symbols, the size, rotation, color, transparency and brightness of the symbol can be modified yielding a completely different shape. However, since the graphic information is a copy, the file size does not increase much.

Consider the size difference between a Flash file and a 32 color GIF file.

Flash .swf file: 263 bytes



All the shapes above are copies of a single symbol.



Creating and using symbols

Symbol creation requires selecting the object and clicking **Insert - Convert to Symbol**. This brings up the **Symbols Properties** window where you can specify a **Name** for the symbol and its **Behavior**. Symbols can have one of the three Behaviors, **Graphic**, **Button** or **Movie Clip**.

Graphic symbols can contain static objects or animations (though it is recommended that animations are stored as [Movie Clips](#)). As you have seen in the previous session, Instances of Graphic symbols can be modified to yield completely different looking graphics.

(Creating instances and changing their properties are discussed in detail in following sessions).

Button symbols help in gathering user events such as mouse movement, mouse button clicks etc. They form the basis of mouse interactivity in Flash movies.

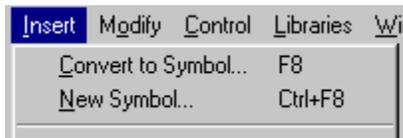
Movie Clip symbols have many uses. They can contain animations which run on their own time line. This means that Movie Clip animations are independent of the main movie time line.

Button and Movie Clip symbols are explained in detail along with examples in the [Advanced Flash Tutorial](#).

Let's create a Graphic symbol.

Step 1

Draw a circle on the main [movie](#) stage, select it and click **Insert - Convert to Symbol**.



Step 2

In the Symbol Properties window, type **circle** in the name field, set the Behavior to **Graphic** and click on OK.

(Note: Two symbols even if their behaviors are different cannot have the same name.)

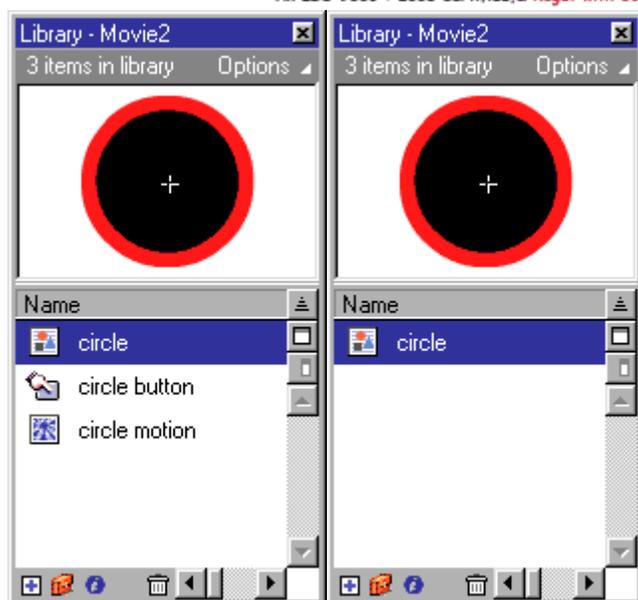


You'll notice that the circle is now surrounded by a square boundary. It signifies that the object has been turned into a symbol.

Additionally, Flash places a copy of the symbol in the Symbols Library.

Step 3

Click
Library.
the Flash
view of



Window - Library to display the Symbols
The library lists all the symbols attached to
file. The Library also displays a thumbnail
the symbol.

The next session will tell you how to make an instance of the circle symbol.

Creating Symbol Instances

In the previous session, we had made a graphic symbol out of a circle drawing and named it **circle**. To create an instance of **circle** symbol, open the Symbols library (**Window - Library**).

Drag the symbol from the library (you can click on the thumbnail or the symbol name in the list) and place it on the stage.

It's as simple as that!

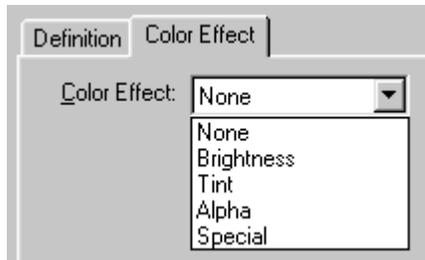
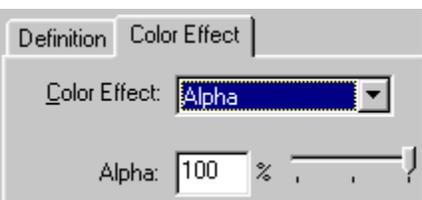
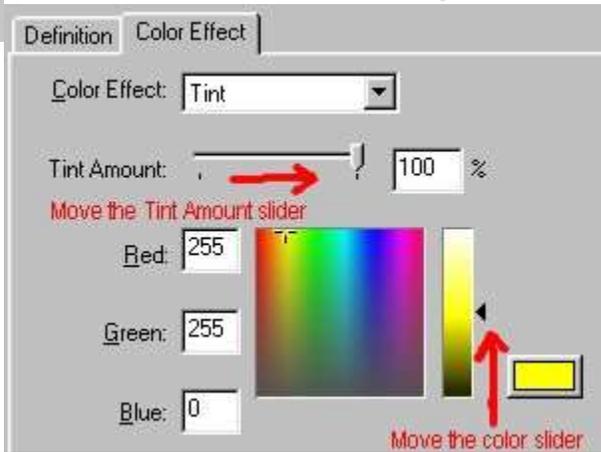
The Symbol Library

The library lists all the symbols that have been associated with the movie. Note: The three kinds of symbols are represented with different icons.

Here is an example of a library containing three symbols, a graphic symbol called **circle**, a button named **circle button** and a movie clip **circle motion**.

Modifying Graphic Symbol Instances

Once a graphic symbol has been dragged onto the main movie stage, bring up the **Instance Properties** window through **Modify - Instance**. Click on the Color tab in which you will find the **Color Effect** drop down menu.



We'll discuss each of these in brief.

Brightness

The brightness of the object can be changed by dragging the slider to the right or left or by typing a value in the text field. Evidently, a negative value will decrease the brightness while a positive value increases it.

Tint

Lets you change the color of the symbol. You can either use the **TintAmount** and the color sliders or type the RGB value in their respective text fields.

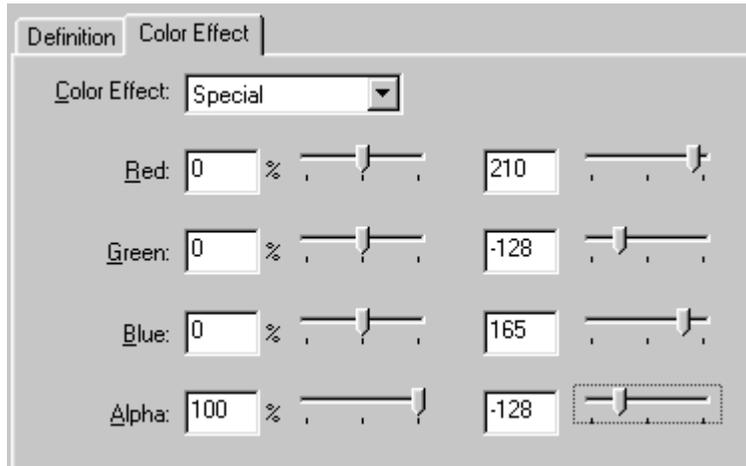
Alpha

Alpha determines the transparency of the symbol. At 100%, the object is fully visible, decreasing this value causes the symbol to fade progressively.

Special



Lets you apply both Alpha and Tint effect to the Symbol Instance.



Symbol and movie editing modes

Okay, here is the situation. You have almost completed a really complex Flash movie and you show it to a client. He tells you that they have registered their logo yesterday and it now has to carry a TM mark.

Thankfully the makers of Flash realized such situations. There are two editing modes in Flash, the **Movie editing mode** and the **Symbol editing mode**.

The **movie editing mode** is displayed when you first start Flash. The **symbol editing mode** allows you to make changes to a particular symbol without disturbing the rest of the movie. This means that you needn't create a symbol from scratch once again. Changes made to a symbol are reflected in all its instances.

To enter a symbol editing mode, double-click on the symbol or its name in the library. To denote that you are in symbol editing mode, Flash helpfully displays an additional tab next to the scene tab (refer

figure below).

The figure on the left shows that the symbol editing mode for **circlebut** button symbol is active. To go back to the movie editing mode either click on the scene tab or select **Edit - Edit Movie** from the menu.

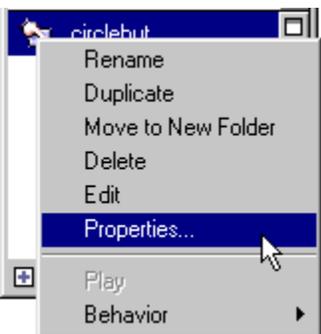
Note: When you create a new symbol from scratch (**Insert - New Symbol**), you are taken directly to the symbol editing mode.

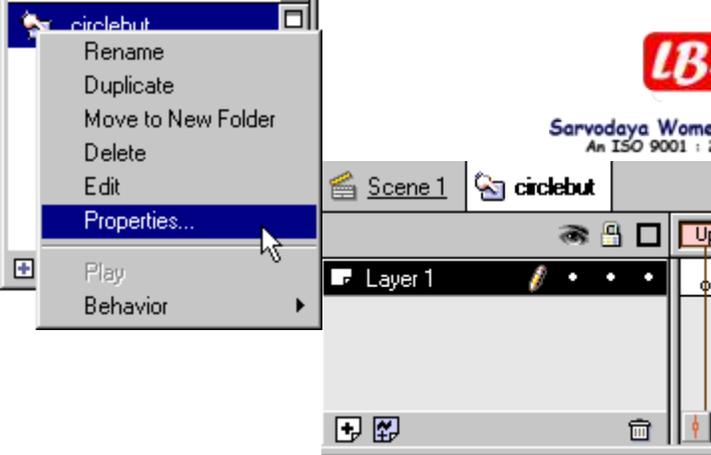
Once a symbol is created its behavior can be changed any time.

Right-click on the symbol name in the library, select Properties from the menu. The Symbol Properties window is displayed once again, you can set its behavior by selecting the appropriate radio button.

Symbols can also be renamed, deleted, duplicated etc through this menu.

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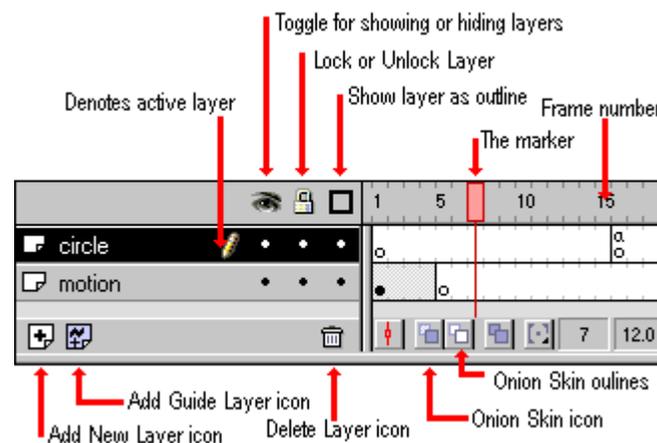
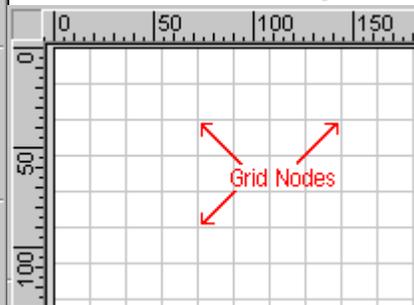
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Frames, keyframes and the time line

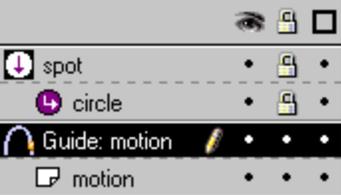
View		Insert		Modify		Control		Libraries	
Goto									
100%	Ctrl+1								
Show Frame	Ctrl+2								
Show All	Ctrl+3								
Outlines		Ctrl+Alt+Shift+O							
Fast		Ctrl+Alt+Shift+F							
✓ Antialias	Ctrl+Alt+Shift+A								
Antialias Text	Ctrl+Alt+Shift+T								
✓ Timeline	Ctrl+Alt+T								
✓ Work Area	Ctrl+Shift+W								
✓ Rulers	Ctrl+Alt+Shift+R								
✓ Grid	Ctrl+Alt+Shift+G								
✓ Snap	Ctrl+Alt+G								
Show Shape Hints		Ctrl+Alt+H							



Traditional object animation involves making a series of drawings in which the object position, orientation or shape is changed a little from the previous arrangement. Displaying these drawings one after the other to give a semblance of object animation.

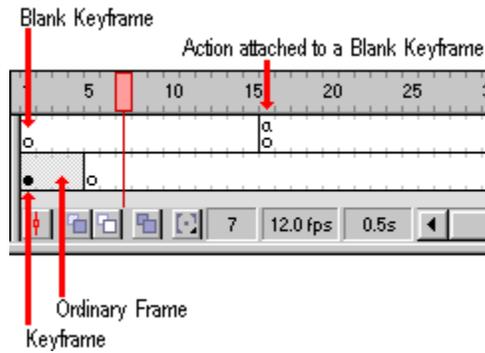
Flash utilizes a similar technique. Each frame represents a single drawing. The time line marker moves from the left to the right (there is no backward motion in Flash) displaying the frames serially. The advantage of using Flash is that once you set the starting and the ending frames, it creates the animation on its own.

An example of a simple animation is moving an object from the left side to right. For this we would have to specify the starting and the ending position of the object in the first and the last frame, respectively. We can then instruct Flash to create the intervening frames. The two frames at the ends contain important information (starting and ending position of the object, in our case) on the animation and are called **keyframes** in Flash.



- Layer containing a mask
- Masked layer
- Motion path layer
- Normal layer

Keyframes can also contain movie. Keyframes and action in the [Advanced Flash Tutorial](#).



actions that alter the flow of the are described along with examples

Normal Text Antialias Text



A view at View

The view menu determines the display of the movie as well as the workspace. You can check the options for **Time Line, Rulers, Work Area, Grid** etc. to be displayed on the screen.

Choosing **100%** option is a fast way to return to 100% view whether you are zoomed in or out.

Selecting **Show Frame**, sizes the movies so that the full frame is displayed on the screen. It is the opposite of **Show all** where the movie is displayed in its original dimensions.

The **Goto** option has a sub menu that can be used to jump from one scene to another (if your movies contain many scenes).

The figure on the left depicts a movie with its rulers and grid turned on.

Snap is a special feature in Flash and allows ease placement of objects on the screen. When you check this option Objects will 'snap' to grid nodes.

Grid spacing can be set from the movie properties window (**Modify - Movie**).

Aliasing of text is also possible in Flash movies by checking the **Antialias Text** option. Aliasing smooths the edges of the text. Note that in small size antialiasing can render the text difficult to read.

Normal Text
 Antialias Text

Inspectors

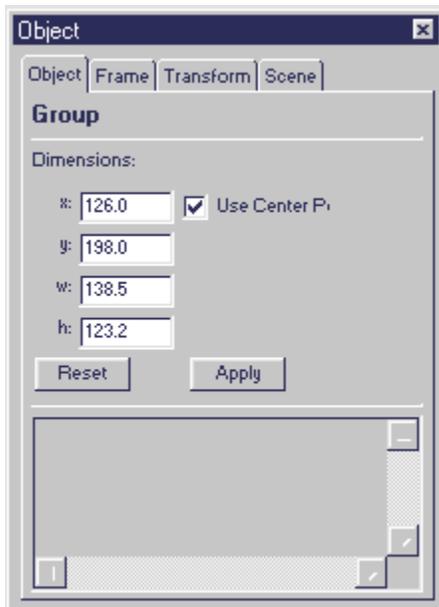
In addition to the menus and options discussed previously, Flash allows for precise control over frames, symbols, groups and objects via **Inspectors**. There are four main Inspectors:

- **Object Inspector:** provides for accurate placement and sizing of objects, symbols and groups.
- **Frame Inspector:** gives details about the frame.
- **Transform Inspector:** lets you scale and rotate objects, groups and symbols.
- **Scene Inspector:** for management of scenes in the movie.

There is also the **Generator Inspector** that allows you to 'extend Flash 4 with Macromedia Generator'!

The Object and the Transform Inspectors are very useful. Most of their options like sizing, scaling and rotation are similar to the Transform menu options discussed previously.

Accurate placement of objects via the Object Inspector is easy. You have to supply the x and y co-ordinates and click on the Apply button. Note: the **Use Center Point** option is active only for groups and symbols.



Tracing Bitmaps

Bitmaps store picture data in raster format. This means that information of each pixel is stored which results in large file size. Flash allows us to import bitmap images and convert them to vector format thus reducing the file size.

I was once a Doors fan

Here is Jim Morrison. This image is the .jpg format 4486 bytes in size.

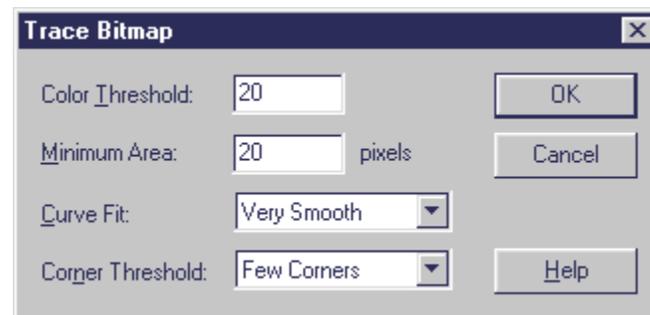


To convert this bitmap image we will use the **Trace Bitmap** feature found under the **Modify** menu. Click **File - Import** and migrate to the directory that stores the image. Select the file and click Open. The imported image will be placed at the center of the stage.

If the Symbol library is not open, display it by clicking **Window - Library**. You'll notice that Flash has already added the image to the symbol listing.

Click **Modify - Trace Bitmap**. The pop up window has a dazzling array of options. These help you to optimize the tracing.

Remember, there is always a tradeoff involved when tracing bitmaps. The key is to experiment with various values till you get the desired result.



Color Threshold

It specifies the number of colors to be used for tracing the bitmap. Lower number of colors will result in simpler bitmaps thus, lower file size. The value can range from 1 to 256.

Minimum Area

The traced bitmap will have patches of plain color. The minimum area of these patches can be supplied with this option. Note that larger values for area will lower file size however, it shall also decrease the clarity.

Curve Fit

The options in this drop down menu are **Pixel**, **Very Tight**, **Tight**, **Normal**, **Smooth** and **Very Smooth**. They set the number of curves in the drawing and the more the number of curves the larger the file size. Evidently, **Pixel** value will result in greater number of curves while **Very Smooth** results in a smaller number.

Corner Threshold

The choices are **Many Corners**, **Normal** and **Few Corners**. The lesser the number of corners, the lower the images size.

Using the following values, Morrison's image resembles:

Onion Skinning

Onion skinning enables you to view multiple frames at the same time. It is specially helpful when creating an animation consisting of a series of keyframes.

Onion Skin icons are found below the time line. The first allows you to view frames in color while the other displays the object as outlines (keyframes are however displayed in color).



Normal Onion Skin

As shown in the image on the left, the current frame is shown in full color while the other frames are dimmed progressively. This gives an impression of a series of drawings created on onion skin paper and then stacked on top of each other.

Onion Skin in outline mode

For complex animations, it's better to use Onion Skinning in the outline mode.

Flash onion skinning - What else?

Onion skinning may also be employed to manually trace a photograph using the pencil tool . Once traced, the vector drawing can be embellished using other features in Flash. Let us see how this works out with Jim Morrison's picture.



When imported into a new Flash movie (**File - Import**), the image is centered on the page. I added a Blank Keyframe on the second frame and clicked on the **Onion Skin** marker. I can now see a faded view of the original.



Still in the second frame, I choose the pencil tool with 1 pixel thick line and start tracing the image manually. The process took me about 5 minutes with extensive use of the zoom tool. The result is an outline of the photograph. I then delete the original photograph from the first frame as well as its symbol from the library.

Now come the interesting part. I fill up some areas of the outlined drawing and save it as a symbol. This is how it looks:



The symbol can then be used in Flash movies. The animation below is just 3498 bytes... Light my Fire!

Flash Controls

Once your creation is ready, you can check it using either **Control - Play** or **Control - Test Movie**.

Click **Window - Controller** to display the control buttons. These can be used when you are making a complex movie and need to test it regularly. The Controller includes Play, Stop, Rewind, Forward, Step Back and Step Forward buttons.



If your movie includes button symbols, you would need to use the **Test Movie** option in the Control menu to test their functions.

Importing

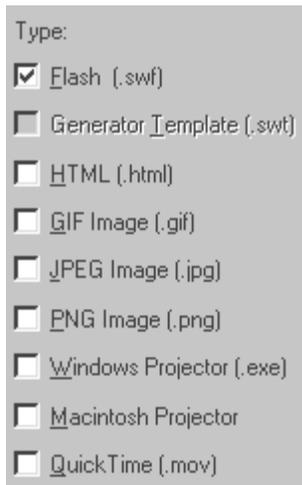
Various file formats can be imported into Flash. These include:

- **Enhanced Metafile (.emf)**
- **Windows Metafile (.wmf)**
- **Adobe Illustrator (.eps and .ai)**
- **Flash Player (.swf and .spl)**
- **AutoCAD DXF (.dxf)**
- **Bitmap (.bmp and .dib)**
- **JPEG Image (.jpg)**
- **GIF Image (.gif)**
- **PNG Image (.png)**
- **WAV Sound (.wav)**
- **QuickTime Movie (.mov)**

This list is for Windows systems and will differ from that for the Macintosh.

Sound can be included in Flash movies only once it's been imported.

We have already seen how to import jpgs and bmps. When an image is imported it is first converted into a symbol so after you have converted it into a vector (traced it manually or through the **Trace Bitmap** option), be sure to delete the symbol from the library.



Publishing and Exporting

In addition to saving your work in **.fla** format (which is used by the Flash program), you have three other options of exporting the movie.

Export Movie: Lets you export animations in various movie formats.

Export Image: Lets you save your work in different image formats such as .gif, .jpg, .png, .bmp and other software specific formats.

Publish: Assists in generating HTML documents, standalone EXE file, .swf (Shockwave Flash file) for embedding into web pages etc. It is recommend that you first set the publishing options through **File - Publish Settings** and then click on **Publish**. Published files will have the same file name (different extensions, however), as the .fla file.

The Publish options are given on the left.

Embedding Flash movies in HTML web pages

Flash movies are placed inside HTML documents using a combination of <OBJECT> and <EMBED> tags.

The reason for this is that <EMBED> was developed by Netscape and works with Netscape 2.0 or higher. Later it was adopted by Internet Explorer. For greater browser compatibility it is advisable to also use both the I.E. specific <OBJECT> tag and the <EMBED> tag.

Further, the Embed tag must be placed inside the Object tag. The complete code is as follows:

```
<OBJECT CLASSID="clsid:D27CDB6E-AE6D-11cf-96B8-444553540000"
CODEBASE="http://active.macromedia.com
    /flash2/cabs/swflash.cab#version=4,0,0,0"
WIDTH="200" HEIGHT="155">
<PARAM NAME="MOVIE" VALUE="movie_name.swf">
<PARAM NAME="QUALITY" VALUE="HIGH">
<PARAM NAME="PLAY" VALUE="TRUE">
<PARAM NAME="LOOP" VALUE="TRUE">
<PARAM NAME="BGCOLOR" VALUE="#FFFFFF">
    <EMBED SRC="movie_name.swf" QUALITY="HIGH" BGCOLOR="#FFFFFF"
```

```
WIDTH="200" HEIGHT="155"  
TYPE="application/x-shockwave-flash"  
PLUGINSPAGE="http://www.macromedia.com/shockwave/download/  
index.cgi?P1_Prod_Version=ShockwaveFlash">  
</EMBED>  
</OBJECT>
```

Though, the usage of older browsers has declined (substantially!), you should include the <NOEMBED> tag to display alternate text or image for visitors who have not cared to use new browsers. Browsers supporting the Embed tag will recognize the NOEMBED and not display its contents, however, the older browsers will ignore the tag but display its contents. It is similar to the <NOSCRIPT> tag used for adding backward compatibility for client-side scripting languages

Conclusions

As you can understand, this was just an introduction to Flash. We have not discussed how to create animations and interactivity. These two are discussed along with in the [Advanced Flash Tutorial](#).

But before proceeding ... collect your badge ...