
Introducing Macromedia Flash 5

Macromedia Flash enables professional Web designers and developers to create effective next-generation Web sites and applications, and Flash 5 comes with a host of new features.

By Dave Cook
IT Journalist

Since 1996, Macromedia Flash has played a part in the Web revolution, although it was not until the release of Flash 4 in June 1999, and more recently the release of Flash 5 (see Figure 1) in October 2000, that Web designers and developers seriously began to use Flash to get their sites noticed. So dramatic has been the success of Flash over this period that something like 92% of Web browsers can view Flash content without having to install any further plug-ins. The reason for this is clear. Flash is the perfect tool for producing high-impact Web sites. Flash can be used to create full-screen navigation interfaces, long-form animations (movies), or “tweened” animations that are capable of providing greater control over object attributes

Sound is one of the most important elements of any professional Web site. There are two types of sound in Flash: event sounds and stream sounds. An event sound must be fully downloaded before it begins to play, and then it will continue to play until stopped. Stream sounds, however, begin playing as soon as enough data for the first few frames has been downloaded. Flash also provides the option to individually set the compression level of any sounds used, and helps to reduce file size. Meanwhile, true vector-based imaging helps Flash to produce a nicely compacted output that downloads quickly and with greater efficiency than when using bitmap graphics. But, as designers are only too well aware, creating transparent objects (such as glass, for example) can be quite challenging in some vector-based applications. This task is much easier with Flash, because any range of transparency from 100% opaque to 100% transparent can be applied.

Flash recognises a variety of different file formats, and artwork can be placed into Flash either by importing or pasting. Indeed, one of the many benefits of Flash is its ability to create objects that were once typically integrated as bitmap images. Be aware, though, that while Flash preserves the transparency settings of imported bitmaps, transparency may not be preserved when bitmaps are imported by dragging and dropping.

So, with the intelligent use of motion, sound and interactivity, a well-designed Macromedia Flash site can entice users, clients and potential customers inside for a closer look. Hardly surprising, therefore, that the Flash Player has become one of the most widely distributed consumer technologies on the Web, and why high-traffic Web sites such as Disney, CNN and Coca-Cola are Flash-enabled. Such organisations capitalise on Flash because the Flash Player is readily available to hundreds of millions of consumers - via the desktop, laptops and some handheld wireless devices.

The Flash Package

The standard Flash 5 solution consists of:

- **Macromedia Flash 5.** Provides an environment for combining fast vector graphics, sound, motion and interactivity for Web content deployment. It sports a familiar user interface, allowing designers to create engaging graphics and developers to build advanced applications using scripting, forms and server-side connectivity.
- **Macromedia Flash Player.** This player is now one of the most valued and accepted Web standards for delivering distinctive sites and interfaces across multiple platforms, browsers and appliances.

Flash 5 carries a price tag of US\$399, while a Flash/FreeHand Studio bundle costs

around US\$599. Existing Flash customers can upgrade for US\$149. Alternatively, an upgrade to include the Generator 2 Developer Edition costs approximately US\$648. The Generator 2 Developer Edition is a Web server production application that dynamically combines graphics, text and sound to build rich media content. Used to automate the update production process, Generator 2 frees designers from the tedium of manually updating Flash movies each time they make changes, however small, to the content. Although Flash 5 provides Generator authoring extensions, a trial version of the Generator 2 Developer Edition is available on CD and can be installed after completing the Flash 5 installation process.

New Features

Among the key new features, Flash 5 sports a more industry-standard user interface that should lower the user's learning curve and speed up workflow. There's tighter integration with other Macromedia products including Fireworks, FreeHand, Dreamweaver and Director, as well as support for additional import formats and enhanced colour controls. These controls include a new mixer panel, fill and stroke panels, fill and stroke toolbox controls, and a swatches panel. Customisable shortcuts have also been introduced, and these can be saved as text files, so they're easily transferable. In the majority of circumstances, designers will continue to create much of their artwork elsewhere before importing it into Flash. All the same, Flash 5 tries to cater for the design needs of the traditional illustrator with the inclusion of several new Pen and Sub-Selection tools, enabling Flash to be standardised with various tools in the industry. These tools offer bezier point-to-point drawing of artwork, and bezier point manipulation, as well as multiple pen modes.

Developers will welcome the extended scripting engine and debugger, plus the built-in support for authoring Generator 2 templates. This latter feature allows developers to automatically update Flash Web sites with the minimum of fuss. Collaborative working between large teams should also be easier, because symbol libraries are now stored externally. After all, development teams working on Web sites these days often comprise 10 or more people, and these teams may share hundreds of asset files during development. With symbol libraries stored externally to the project, any changes in content of the shared symbol libraries are reflected throughout. As an aside, Microsoft Internet Explorer version 5.5 boasts comprehensive integration between the Flash Player and the Web browser. New features that should be of benefit to Macromedia Flash developers include new rendering Application Programming Interfaces (API), and ViewLink, which is part of the next generation of the Behaviours technology first introduced in Internet Explorer 5.0. ViewLinking and Behaviours help developers to implement Flash content using pre-defined eXtensible Markup Language (XML) tags to place and control rich-media content within Web pages.

The Interface

Designers used to other Macromedia products should find the Flash interface fairly easy to get to grips with. The work area is divided into several distinct areas, including the Toolbar and Modifiers, the Timeline and the Stage. The Toolbar contains drawing, painting and selection tools, all of which are used for working with objects on the stage. Modifiers, positioned at the bottom of the Toolbar, allow users to choose the way the current tool behaves when it is used. The Timeline is



Figure 1 - Flash 5 is ideal for creating high-impact Web sites.

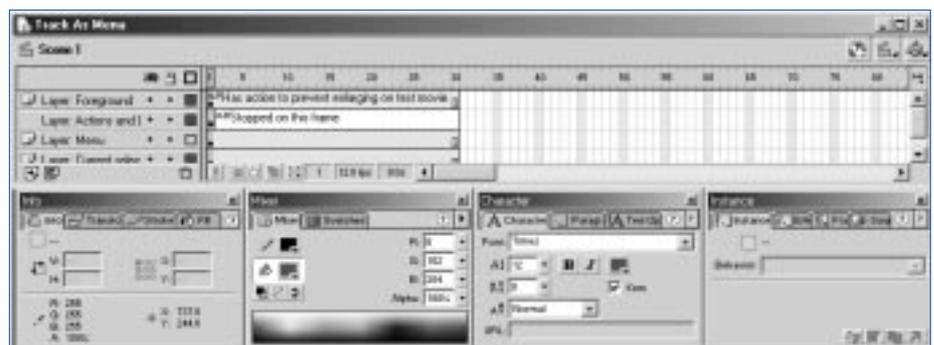


Figure 2 - The Timeline, along with various control panels.

positioned at the top of the work area, above the stage. However, along with various control panels (see Figure 2) it can be undocked and repositioned elsewhere on-screen. Alternatively, it can be hidden or displayed in its own window; the latter option is particularly useful for a dual-monitor configuration. The Timeline uses layers and frames to organise and control a movie's content over a period of time. It shows where there is animation in a movie, including frame-by-frame animation, tweened animation and paths.

All layers in a movie are listed on the left side of the Timeline, while the number of layers that can be created is limited only by the computer's memory. Various controls make it possible to hide, show, lock, unlock, or display contents as outlines. Frames contained in each layer are situated in a row to the right of the layer name. Thus, designers can move, insert or delete frames in the Timeline, or they can simply drag frames to a new location. A playhead at the top of the Timeline indicates the frame currently displayed on the stage. To move to a particular frame, users simply drag the playhead to the desired position on the Timeline, or clicking the Centre Frame button at the bottom of the Timeline centres the playhead in the middle of a movie. Information at the bottom of the Timeline indicates the current frame number, the frame rate, and the elapsed time to the current frame.

The Stage is simply the part of the work area that appears in the browser or in the Flash Player. It displays the position and the orientation of the objects currently being worked on. Media can be imported directly onto the Stage, or it can be used to arrange imported media for imported frames. In addition, floating panels allow users to view, organise and change elements in a movie. For example, the Character panel can be used to change font and paragraph attributes. Among the other panels, the Instance panel shows the instance's behaviour and settings for graphics, the loop mode and the length of the symbol in frames. It is also possible to show and hide numerous other panels including the Actions, Info, Mixer, and Movie Explorer (see Figure 3) panels, using buttons positioned in the Launcher bar at the bottom of the application window.

The Movie Explorer is particularly useful as it provides an easy way to not only view and organise the contents of a movie, but also to select various elements in a movie for modification. With its structured hierarchy of nested objects and their respective locations over time, plus easy editing and navigation to these nested objects, the Movie Explorer goes some way towards streamlining the workflow. This could be, for example, when Movie Explorer is used to search a movie for text, to replace all occurrences of a particular font with another, or print the entire document's structure map.

Disappointingly, Flash 5 contains no History panel. This is a strange omission, because the ability to roll back past project saves - as provided by other applications



Figure 3 - When creating movies, the Movie Explorer helps to streamline the workflow.

Flash Graphics: Vector And Bitmap

Computers display graphics in vector format and the more traditional bitmap format. A bitmap graphic is an image formed by a pattern of coloured dots, called pixels, arranged within a grid. They are considered inferior to vector graphics for most applications because the data describing each image is by necessity fixed to a grid. Resizing this image without introducing distortions is almost impossible.

Another problem associated with bitmap graphics is that in order to maintain high-quality image output, pixel-by-pixel image definitions still require considerable amounts of data - even when using some of the best compression techniques available which explains why, over the years, high-resolution bitmap images have been notorious for bringing Web content, computers, networks, and even printers to a slow crawl.

Meanwhile, vector graphics are resolution-independent, and the term vector describes images using lines, curves and colour. Vector graphics are composed of objects rather than pixels. Although they have high-resolution capability, they do not carry the severe overhead of bulky bitmap file sizes. Even so, smaller files are not the only bonus of vector graphics. Unlike bitmap images, a vector image can be moved, resized and reshaped without changing the quality of its appearance in any way; even its colour can be altered with no ill effect.

- can be a real time saver. While it is true that Flash 5 includes an extensive Undo cache with up to 200 levels, Undo levels require memory; the greater the number of Undo levels, the more system memory is taken up.

Symbols

Creating frame-by-frame animations can be a tedious affair, and this is where symbols come in. Symbols are a special type of Timeline. Used in movies, symbols can be buttons, fonts, graphics, movie clips and sound files. Once a symbol is created it is stored in the file's library; and when it is placed on the Stage, an instance - or reference - is created of that symbol. Symbols play an important role when creating interactivity in a movie. For example, a button could be created that changes in response to certain mouse actions, placing an instance of the symbol on the Stage. By comparison, Macromedia Director users will probably notice that Flash's symbol and Stage relationship is very similar to the relationship between Director's cast members and Stage.

Symbols are extremely useful because Flash stores the symbol in a file only once, regardless of how many instances of a symbol are created. Thus, it is possible to modify the shape, size, location and orientation of symbol instances without affecting the actual symbol data. Most importantly, shared symbols only need to be downloaded once, which can reduce download times quite dramatically. It makes sense, therefore, to use symbols for every element that appears twice or more in a movie.

ActionScript

Interactive movies are created by actions. Basically, these are sets of instructions written in ActionScript that run when a specific event occurs. Prior to version 4 of Flash, any scripting that developers deemed necessary had to be performed outside Flash. All of that changed in Flash 4, with the introduction of ActionScript. But while the interfaces for applying interactivity or actions were approachable for designers, they were strictly limiting for programmers. Although Flash 5 continues to uphold ActionScript and its familiar interface for interactivity, Macromedia has managed to expand the level of tools available for Web application development. For example, the scripting language is now exposed, with its language matching the syntax and structure of JavaScript.

The ActionScript interface can be set to consist of two windows: one with all the available commands, and the other with the script. Dragging commands from one window to the other adds them to the program and opens up an attribute dialog at the bottom of the panel. Completing the code line is then a matter of filling in the blanks. Nevertheless, in order to get the most from ActionScript it is important to understand how the language works - and to understand the concepts, elements and rules that it uses to organise information and create interactive movies.

Conclusion

When using a powerful application like Flash, it must be remembered that the vast majority of users are no longer impressed by lots of animation. In most cases users connect to a Web site looking for information, or they try to order something. Very often they will want to do both. Above all, they will want to accomplish their tasks quickly and at the same time, so placing too many animations on one screen should always be avoided. It is much better to choose a few simple animations instead, and then use those repeatedly throughout the whole movie. Not only does this help to promote consistency from page to page, it reduces the size of the movie dramatically. This in turn not only saves on the length of time it takes to create a site, but also the all-important download time at the user's end.

Further Information

Macromedia's Web site, including site of the day
www.macromedia.com

30-day trial version of Flash 5
www.macromedia.com/software/flash/trial/

Flash online forums
www.macromedia.com/support/flash/ts/documents/tn4149-flashnews.html

Development kit information for writing and playing Flash files
www.ipw.internet.com/development/software_development

More on vector-based graphics
www.shore.net/techtalk/archive/mdurwin/vector.html

One of the most popular Flash-enabled sites in the world
www.disney.com

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