

# Introducing Flash 8

**W**ith Flash 8, you can build a tremendous variety of projects — from games to commerce applications to prototypes and beyond. Regardless of the type of project, there are some common threads when building Flash applications. One of those common threads is the subject of this book — ActionScript. In this chapter, we'll look at the sorts of things you can do with ActionScript in Flash 8. We'll also discuss the new features so that you can get a sense of what topics you'll be able to learn in this book.

## Understanding the Capabilities of Flash 8

The Macromedia Flash authoring tool was originally an animation tool, but it is so much more than that today. From the early days when it was known as FutureSplash to the Flash 8 version today, Flash has always excelled as a vector-drawing and animation tool. Even though animation is still a large part of what Flash does, now it is only a fraction of the Flash toolset. Here are the broad categories available in Flash 8 authoring:

- ◆ **Vector graphics** — Vector drawings are made up of many lines and curves and fills, each defined by a set of coordinates and the paths along them. These paths — vectors — are described via mathematical functions. Because mathematical formulas are used to store and create the image, they are resolution-independent and can be resized arbitrarily smaller or larger with no loss of quality. Also, images based on calculations are generally smaller in file size than bitmap images, which is an advantage for bandwidth-limited Web delivery.
- ◆ **Bitmap graphics** — Bitmap (a.k.a. *raster*) images are made up of a grid of pixels. Every pixel's color and location in the grid must be stored individually, which usually (but not always) means larger file sizes than images made of vector calculations. Although Flash handles bitmap graphics, the program is not built for direct image manipulation on a pixel level; rather, Flash is primarily an image handler. Flash can retain JPEG compression of imported JPEG files, as well as apply lossless or custom lossy compression to imported bitmap images.

### In This Chapter

Learning about the new features in Flash 8



- ♦ **Animation**—Flash is an excellent tool for vector animation, given that the native file format is vector-based. Color and alpha effects can be applied over time by using Flash's built-in tweening, by using a series of manually modified keyframes, or by controlling symbols with ActionScript. Time-based animations can also be streamed so that playback can begin before the entire Flash movie has downloaded into the Flash Player.
- ♦ **Multimedia authoring**—Flash can import a wide range of media formats in addition to standard vector and bitmap image formats. For example, Flash is capable of importing video directly into the authoring environment. Flash can also import audio files in most common formats at author-time or dynamically stream MP3 audio at runtime. Both of these can be used to enhance your productions and animations. You can manipulate these assets with ActionScript and add interactive functionality to them.
- ♦ **Dynamic content**—Flash can incorporate dynamically loaded information into your productions. Text, images, and MP3s can be loaded into the movie at runtime, and information can also be sent from the movie to a server or database.
- ♦ **Rich Internet Applications**—Since the release of Flash MX, Macromedia has coined the term Rich Internet Applications, or RIAs, to refer to a new breed of Web applications that use Flash Player technology to access sophisticated enterprise-level server applications. Several technologies have been developed by Macromedia, including Flash Remoting and Flash Communication Server (also known as FlashCom, or FCS), to add enterprise-level features to Flash content. Flash Remoting is the fastest means of sending and receiving data from a Flash movie to server-side applications, whereas Flash Communication Server can enable simultaneous interaction among several users in real time. FlashCom can also deliver live or prerecorded audio/video to Flash movies as well.

The preceding list is only a general overview of some of the capabilities of Flash. Don't think that you have to be limited by that list. Flash can be a great tool for rapid prototyping of applications, it's often an easy way to build simple utility applications (data viewers/parsers, slideshow presentations, etc.), and you'll likely find more unusual ways to use Flash as well.

## Looking at What's New in Flash 8

Flash is a product that practically defies definition. Flash 8, the latest version of Flash, doesn't do anything to help anyone impose limits on the application. It adds new functionality, improved compile time, improved player performance. This section offers a look at some of the new features of Flash 8.

- ♦ **Improved text rendering**—One of the features of Flash Player 8 that Macromedia likes to brag about is the new Saffron text engine. Saffron is a technology that significantly improves font rendering at small point sizes. Flash Player 8 integrates the new text engine seamlessly, and you will likely notice font-rendering improvements without any extra coding. It also adds a few new properties to text fields that enable you to manage the font rendering programmatically. In Flash Player 8, you can programmatically control the font thickness and sharpness. You can also control how the text aligns to the pixel grid, which enables text to appear more legibly at smaller font sizes.
- ♦ **Programming bitmaps**—One of the neatest new features of Flash 8 is the `BitmapData` class. The `BitmapData` class lets you work with bitmaps programmatically. You can copy nearly any graphical data to a `BitmapData` object—whether from a movie clip or even from a video frame—and apply lots of effects or modify the pixels.



- ♦ **Bitmap caching**—Although one of the benefits of Flash Player is that it can render vector data (which is much more bandwidth-friendly than raster graphics), it can also have difficulty rendering complex vector data. When a vector movie clip moves, Flash Player redraws the artwork from the vector data. Even if the movie clip simply moves one pixel to the left, Flash Player has to redraw the entire movie clip. For simple vectors, that's okay. But when the vectors are complex, it can be difficult for Flash Player. The effect is that animations can playback slowly or unevenly.

Flash Player 8 introduces bitmap caching. Using bitmap caching, you can tell Flash Player to treat a movie clip like a bitmap surface rather than a vector. That means that when the movie clip moves, the bitmap surface is simply translated, and Flash Player doesn't have to redraw anything. Used judiciously, the bitmap caching feature can drastically improve playback of some animations.

- ♦ **Blend Modes**—Blend modes let you specify how an object will appear in relation to everything underneath it.
- ♦ **Filters**—Filters offer a vast new array of runtime-applied effects, from blurs and drop shadows to complex color transforms. Filters enable effects that Flash alone simply could not accomplish previously. The filters are scriptable, and you can programmatically adjust the settings at runtime in order to achieve animated effects.
- ♦ **Improved JavaScript and browser interaction**—Integrating Flash into a container was frequently dubious at best. The new `ExternalInterface` class simplifies and improves Flash Player connectivity to the container application. In many cases, that means Web browsers and JavaScript. Using `ExternalInterface`, not only can you call JavaScript functions from Flash, but you can reliably call `ActionScript` functions from JavaScript as well.
- ♦ **File uploading and downloading functionality**—Until Flash 8, HyperText Markup Language (HTML) forms had one major advantage over Flash in that they allowed the user to browse to and upload a file, while Flash did not. However, Flash 8 resolves that issue with the new `FileReference` class. Using `FileReference`, it is possible to allow a user to open a file browse dialog box and upload that file to a server from Flash. You no longer have to use pop-up HTML forms or any of the workarounds devised previously.
- ♦ **Loading PNG, GIF, and Progressive JPEG files**—Flash Player 6 and Flash Player 7 were capable of loading nonprogressive JPEG content at runtime. However, they did not load progressive JPEG, GIF, or PNG content—all of which are supported in Flash Player 8. Using the same APIs used to load standard JPEG files, you can now load any of those formats at runtime.
- ♦ **IME**—For those building applications for use with non-ASCII character sets, the IME class provides improved support for input method editors (IMEs).
- ♦ **New drawing features**—Flash Player 8 has new drawing features that translate to the `ActionScript` drawing API. Specifically, Flash Player 8 lets you manage options like whether or not to scale the thickness of lines as the container movie clips are scaled, what type of line end caps to use (round, square, or none), and how to join lines (round, bevel, or using miter joints).

New to Flash Player 8, you can also apply gradients to lines, and there are advanced controls over gradients in general. Plus, you can apply bitmap fills programmatically.

- ♦ **New video codec**—Flash Player 8 supports a new video codec—On2 VP6. The new codec not only means better-quality video, but it also supports alpha channel encoding. That means that you can playback Flash video with an encoded alpha channel, and content on layers underneath the video will be displayed through transparent sections of the video.



## Getting Started with Flash 8 ActionScript

Flash is far too complex and intricate a topic to discuss in complete detail within one book. For that reason, the *Flash 8 ActionScript Bible* focuses on ActionScript, rather than the Flash IDE and related topics such as timelines, motion and shape tweens, making symbols, and the like. I assume that if you are reading this book you are already familiar and comfortable with the basics of the Flash IDE and the associated concepts. You don't have to be a Flash expert to learn from this book. However, you do need to know what keyframes and movie clip symbols are.

**Note**

For a great general reference on Flash, see the latest edition of the *Flash Bible* series from Wiley Publishing.

Assuming that you're comfortable with the basics of Flash, the next chapter introduces you to the basics of ActionScript.

**Web Resource**

We'd like to know what you thought about this chapter. Visit [www.rightactionscript.com/asb/comments](http://www.rightactionscript.com/asb/comments) to fill out an online form with your comments.

## Summary

- ♦ Flash 8 is a powerful tool for working on a vast array of projects—from animation to rich Internet applications.
- ♦ Flash 8 has many capabilities, and understanding those can help you plan the scope of each project.
- ♦ Flash 8 has many new ActionScript features that you can learn and utilize to build new types of applications.

