

Flash 8 Essentials

Paul Barnes-Hoggett
Stephen Downs
Glen Rhodes
Craig Swann
Matt Voerman
Todd Yard



Flash 8 Essentials

Copyright © 2006 by Paul Barnes-Hoggett, Stephen Downs, Glen Rhodes, Craig Swann,
Matt Voerman, Todd Yard

All rights reserved. No part of this work may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or by any information storage or retrieval system, without the prior written permission of the copyright owner and the publisher.

ISBN (pbk): 1-59059-532-7

Printed and bound in the United States of America

9 8 7 6 5 4 3 2 1

Distributed to the book trade worldwide by Springer-Verlag New York, Inc., 233 Spring Street, 6th Floor, New York, NY 10013. Phone 1-800-SPRINGER, fax 201-348-4505, e-mail orders-ny@springer-sbm.com, or visit www.springeronline.com.

For information on translations, please contact Apress directly at 2560 Ninth Street, Suite 219, Berkeley, CA 94710. Phone 510-549-5930, fax 510-549-5939, e-mail info@apress.com, or visit www.apress.com.

The information in this book is distributed on an “as is” basis, without warranty. Although every precaution has been taken in the preparation of this work, neither the author(s) nor Apress shall have any liability to any person or entity with respect to any loss or damage caused or alleged to be caused directly or indirectly by the information contained in this work.

The source code for this book is freely available to readers at www.friendsofed.com in the Downloads section.

Credits

Additional Material	Assistant Production Director
Chris Mills	Kari Brooks-Copony

Lead Editor	Production Editor
Chris Mills	Katie Stence

Technical Reviewer	Compositors
Marco Casario	Dina Quan and Van Winkle Design Group

Editorial Board	Proofreader
Steve Anglin, Dan Appleman, Ewan Buckingham, Gary Cornell, Tony Davis, Jason Gilmore, Jonathan Hassell, Chris Mills, Dominic Shakeshaft, Jim Sumser	Elizabeth Berry
	Indexer
	Lucie Haskins

Project Manager	Artist
Kylie Johnston	April Milne

Copy Edit Manager	Interior and Cover Designer
Nicole LeClerc	Kurt Krames

Copy Editors	Manufacturing Director
Damon Larson, Julie Smith, Nicole LeClerc	Tom Debolski

Dedicated to Fitz: “Up the Revolution!”

Paul Barnes-Hoggett

To Audrey, my little upgrade essential.

Todd Yard

*To my loving and supportive family who I thank for providing me
with a positive and nurturing childhood full of encouragement
to explore and discover where my passion lies.*

Craig Swann

CONTENTS AT A GLANCE

About the Authors	xiii
About the Technical Reviewer	xv
Introduction	xvii
1 Flash 8 Overview	1
2 Blending Modes	19
3 Filters	39
4 Drawing and Graphic Improvements	93
5 Video: Alpha Channels and Other Improvements	123
6 TextField Improvements	183
7 Speed Improvements	201
8 The Wonderful World of BitmapData	215
9 Getting Creative with Filters, Masks, and Animation	289
10 External Interface	329
A Flash 8 Examples	345
Index	395

CONTENTS

About the Authors	xiii
About the Technical Reviewer	xv
Introduction	xvii
1 Flash 8 Overview	1
What's new in both versions of Flash 8	2
Bitmap caching	2
Bitmap smoothing	3
New curve algorithm	4
Gradient enhancements	4
Object Drawing model	5
Oval and Rectangle tool settings	6
Return of Normal Mode scripting	6
Improved strokes	7
TextField improvements	8
Security enhancements	8
SWF file metadata	9
Video improvements	9
Workspace enhancements	9
Exporting keyboard shortcuts as HTML	9
Library enhancements	10
Macintosh Document Tabs	10
Object-based Undo and Redo commands	11
Expanded stage pasteboard	11
XML-to-UI extensibility	11
New Flash Professional 8–specific features	11
Blend modes	11
Custom easing controls	12
Graphics effects filters	12
More TextField enhancements	13
More video improvements	14

CONTENTS

Improved video workflow	14
Alpha channel support	15
Embedded cue points	15
Stand-alone FLV encoder	16
FLV QuickTime Export plug-in	16
Advanced settings for On2 V6 video encoding	17
Flash mobile enhancements	17
Summary	18
2 Blending Modes	19
So, what, exactly, are blending modes?	20
Blending modes supported by Flash 8	21
Applying blends using the Flash 8 IDE	22
Normal mode	23
Darken mode	24
Multiply mode	24
Lighten mode	25
Screen mode	26
Overlay mode	26
Hard Light mode	27
Add mode	28
Subtract mode	28
Difference mode	29
Invert Mode	29
Applying Layer, Alpha, and Erase blending modes	30
Layer blending mode	30
Alpha mode: Creating soft masks	31
Erase mode	35
Applying blends using ActionScript	35
Summary	37
3 Filters	39
Filters available in Flash IDE	40
ActionScript filters	41
Applying filters using the Flash 8 IDE	41
Drop Shadow	42
Adding a drop shadow to dynamic text	42
Drop Shadow properties	44
Blur X and Blur Y	44
Color	44
Strength	45
Angle	45
Distance	45
Quality	46
Knockout	46
Inner Shadow	47
Hide Object	47

Blur filter	48
Glow filter	50
Bevel filter	52
Gradient Glow Filter	55
Gradient Bevel filter	57
Adjust Color filter	57
Applying filters using ActionScript	61
Applying the Blur filter with ActionScript	61
Casting dynamic Drop Shadows with ActionScript	65
Casting dynamic drop shadows with bevels	69
Displacement Map	73
The ColorMatrixFilter	80
The black and white icon rollover	82
Property reference for the ColorMatrixFilter	86
Convolution filter	86
Embossing example	88
Summary	92
4 Drawing and Graphic Improvements	93
Object drawing when drawing objects	94
Combining objects	96
Union	97
Intersect	98
Punch	98
Crop	98
Envelopes and object drawing	99
Greater image-loading support	102
Filling shapes with bitmaps	102
Enhancements to gradients	103
Color stops	103
Interpolation mode	103
Radial focal point	103
Spread modes	106
Reflect	107
Repeat	108
ActionScript with beginGradientFill()	108
Strokes of genius	110
Caps	110
Joins	111
Stroke hinting	113
Scale options	113
Changes to lineStyle()	114
Gradient strokes	115
Introducing lineGradientStyle()	119
Bitmap strokes	121
Summary	121

5 Video: Alpha Channels and Other Improvements 123

Overview of new video features	124
The new ON2 VP6 codec	124
Advanced video encoding options	124
New stand-alone video encoder	125
Video alpha channel support	125
Embedded cue points	125
New FLV component with skinning options	126
Importing video	126
Importing video using the Embed option	126
Encoding video using progressive download and adding player skin	131
Selecting a skin to be applied to your video	134
Creating customized skins	135
The stand-alone Flash 8 Video Encoder	136
Encoding video using the Flash 8 Video Encoder	137
Adding cue points in the encoding process	138
Coding the FLVPlayback component	140
The main ActionScript methods and properties	140
Loading content	140
Basic playback control	141
General information and status	146
Position and size	151
Audio functionality	153
Cue point functionality	155
ActionScript cue points	158
How Flash handles multiple video clips in one video player	159
Playing multiple video clips in one video player	160
An example including multiple videos	161
Transitioning between videos	164
Alpha in video	173
Summary	182

6 TextField Improvements 183

Saffron	184
Text anti-aliasing	186
Use device fonts	187
Bitmap text (no anti-alias)	187
Anti-aliasing for readability	187
Anti-aliasing for animation	187
Custom anti-aliasing (Flash Professional 8 only)	188
ActionScript-based anti-aliasing	188
Text object enhancements	189
TextRenderer class	189
TextFormat class	192
TextField class	194
TextField resizing	196
Text layout API	197
Summary	199

7	Speed Improvements	201
	Bitmap caching	202
	“Use your gift wisely, young Jedi”	203
	Properties and circumstances that cause bitmap regeneration	204
	Limits on bitmap caching	205
	Filters	206
	Loading external content	207
	Collision detection	208
	Cropping and scrolling with scrollRect	209
	The Rectangle class	211
	Using scrollRect to overcome size limits	212
	The Show Redraw Regions option	213
	Summary	214
8	The Wonderful World of BitmapData	215
	BitmapData: Creating images on the fly	216
	Creating a BitmapData instance	216
	Attaching an image from the library	219
	Taking a snapshot of a movie clip to use as BitmapData	221
	BitmapData: clean up after yourself	224
	BitmapData API	225
	Properties	225
	Methods	225
	loadBitmap	226
	draw	232
	getPixel	235
	getPixel32	237
	setPixel	237
	setPixel32	239
	colorTransform	239
	fillRect	242
	hitTest	243
	clone	244
	copyPixels	245
	copyChannel	247
	floodFill	249
	getColorBoundsRect	251
	scroll	252
	applyFilter	252
	generateFilterRect	253
	noise	255
	pixelDissolve	255
	Merge	255
	perlinNoise	256
	paletteMap	256
	threshold	257

CONTENTS

Using BitmapData to do some cool stuff	257
Making an image feel like a movie	257
Transitioning from one image to another	268
Changing the look of an image to suit a site style	276
Summary	287
9 Getting Creative with Filters, Masks, and Animation	289
Neon with Filters	290
Flashlights with alpha masks	294
Lightning bugs with custom easing	300
Flame with displacement maps	309
Tileable patterns with bitmap fills	319
Summary	328
10 External Interface	329
A simple example	331
The SWF	331
The HTML	334
RollOver sound example	340
The SWF	340
The HTML	342
Summary	344
A Flash 8 Examples	345
DeskTop	346
The FLA file	347
The ActionScript files	348
DynamicDropShadowMovieClip.as	349
DragEnabledDynamicDropShadowMovieClip.as	351
DeskTop.as	353
Summary	357
ColoringBook	358
The FLA file	359
The ActionScript file	361
ColoringBook.as	361
Summary	366
PixelTransition	367
The FLA file	368
The ActionScript file	369
PixelTransition.as	369
Summary	377
FileReferenceExample	377
The FLA file	379
The ActionScript file	380
FileReferenceExample.as	380
Summary	393
Index	395

ABOUT THE AUTHORS

After studying architecture for seven years, **Paul Barnes-Hoggett** changed his mind and decided to spend his time designing the “intergoogle.” He spent time as a lead developer at boxnewmedia, where he built award-winning sites for clients such as Select Model Management. (In his own words, he admits, “It’s a tough job looking at pictures of beautiful people all day, but someone has to do it.”)

He set up Eyefodder in 2003, which specializes in building rich Internet applications for the media industry, and has built solutions for clients including FHM, Adidas, Air Miles, and ITV. When not pushing pixels, Paul likes to eat, drink, and be merry. To get in contact with Paul, visit www.eyefodder.com.

Stephen Downs, aka Tink, has been a freelance Flash designer/developer for the past four years, and has a background in art, design, and photography. Based in London, England, he works on a wide range of projects, both for other companies and his own clients. The growth in his workload has recently lead to the startup of his own company, Tink Ltd. His primary focus is user interaction and interactive motion, which includes integrating design and development to any design specification using best practice methodologies. For contact info and work examples, visit www.tink.ws. For Tink’s daily thoughts, visit www.tink.ws/blog.

Glen Rhodes is the CTO of CRASH!MEDIA, located in Toronto, Canada. He’s also a Flash game developer and has authored over ten books, including *Macromedia Flash MX 2004 Game Development*, *Flash MX 2004 Games Most Wanted*, and *Flash MX Designer’s ActionScript Reference*. He’s also a regular writer for several computer magazines, including *Web Designer* and *Practical Web Projects*. Glen has developed dozens of games for many platforms, including Windows PC, PlayStation, and these days, Macromedia Flash. He has developed many Flash games, including *The Black Knight* for Arcade Town, *Domino Dementia* at www.shockwave.com, and “W.R.A.X.” at www.superdudes.net. He’s the founder of www.flashgamecoders.com, and currently runs this Flash game development community website. Glen’s website is www.glenrhodes.com.

In addition to his Flash work, Glen also writes and records music with Canadian singer-songwriter Lisa Angela (www.lisaangela.com). Together, their music has had much success, including regular air play on the Oprah Winfrey Show.

ABOUT THE AUTHORS

Craig Swann is founder of the award winning interactive agency CRASH!MEDIA (crashmedia.com). Craig has been working in the online space since 1995 and has been a core part of the Flash community since its inception. As an educator, curator, speaker and writer of new media technologies Craig has given 20 International talks on Flash, written and contributed to 7 Flash books and curated over a dozen new media events featuring some of the world's brightest Flash and interactive developers. His flash work at CRASH! has received over a dozen awards and has been featured in both print and television. Craig's interactive audio work has developed into the multi-award winning online music application Looplabs.com which has been used by such clients as Coca-Cola, Miller, Bacardi, Calvin Klein, Toyota, Sony and others. When not plugged into the matrix, Craig enjoys travelling the world and questioning everything.

Certified Macromedia master instructor, Team Macromedia member, internationally published author, and active Flash/Flex community participant, **Matt Voerman** has been using Flash since its inception as Future Splash. He has over ten years professional web and multimedia industry experience, and has worked with national digital marketing agencies, state government departments, and international finance sector clients. Based out of Perth, Australia, Matt has worked with Macromedia on a number of levels, most recently as a subject matter expert (SME), helping to develop the official Macromedia Flash Developer Certification Exam.

Todd Yard is currently a Flash developer at Brightcove in Cambridge, Massachusetts, where he moved early in 2005 in the middle of a blizzard. Previously, he was in New York City, working with EGO7 on its Flash content management system and community software. He has contributed to a number of friends of ED books, of which his favorites were *Flash MX Studio* and *Flash MX Application and Interface Design*, though he feels the most useful was *Extending Flash MX 2004: Complete Guide and Reference to JavaScript Flash*. His personal site (which he used to update all the time, he fondly remembers) is www.27Bobs.com.

ABOUT THE TECHNICAL REVIEWER

Marco Casario is currently one of the most dynamic developers in the Macromedia world. A Certified Flex Instructor and Certified Flash and Dreamweaver Professional, he collaborates with Macromedia Italy as a speaker and promoter for several events and conferences, in addition to developing challenging rich Internet applications himself.

A Flash Lite evangelist, he has also founded a Flash Lite Yahoo Group (<http://groups.yahoo.com/group/FlashLite>) and often deals with this new mobile technology on his blog pages at <http://casario.blogs.com>.

Marco recently founded Comtaste (www.comtaste.com), a company dedicated to exploring new frontiers in the rich Internet and mobile applications fields.

INTRODUCTION

Hello, and welcome to *Flash 8 Essentials*, the result of a collaboration between friends of ED and some of the most talented Flash developers in the world today. It's been a long, hard road getting here, but we've done it, and we're very proud of our creation. We designed this book to serve a number of purposes. It's an essential guide to all of the great new features available in Flash 8, it's a reference guide for you to look up all those fiddly details, and it's also a gallery of inspirational examples to help you go further in your work, allowing you to create more beautiful, breathtaking designs and more usable applications.

As you've no doubt realized if you've started to experiment with Flash 8, Flash has come a very long way since the days of Flash 3 and 4. Some of you will remember even earlier than that. (Remember what Flash was like before ActionScript? OK, let's not go there . . .)

This book is broken down into ten chapters and an appendix. Each chapter deals with a different new area of Flash 8, getting you up to speed as quickly as possible with the new features, using a combination of easy-to-follow tutorials, reference material, and inspirational examples. The appendix is a gallery of fully-functional examples—some of the stuff is touched upon in previous chapters, and some isn't. The chapters are as follows:

- In **Chapter 1**, Matt Voerman introduces you to the world of Flash 8, summarizing the new features and setting the scene nicely for the rest of the book.
- **Chapter 2** sees Craig Swann and Glen Rhodes playing with blend modes—blending movie clips together for some exciting graphical effects, the likes of which were previously only available in graphics packages like Photoshop.
- **Chapter 3** sees Craig and Glen again take the helm, looking at the all-new filter effects, another set of functionality that has been borrowed from graphics packages. Filters allow you to apply effects such as drop shadows to text or movie clips easily—what previously required a lot of hard work can now be achieved with a few clicks on the Flash interface. And there's much more to discover than that, of course.
- Todd Yard looks at Flash 8 drawing improvements in **Chapter 4**, covering Object Drawing mode, gradient enhancements, and much more.
- In **Chapter 5**, Craig and Glen are back to give you the lowdown on the exciting advances made with video in Flash 8, all thanks to the new On2 VP6 codec. Coverage includes some exciting ActionScript video manipulation, and a great game that makes use of the new video alpha channel!

- Matt returns to the scene in **Chapter 6** to explore Flash 8's `TextField` improvements, including smoother text using Saffron and text anti-aliasing using both the IDE and `ActionScript` classes.
- In **Chapter 7**, friends of ED's very own Chris Mills demonstrates the new Flash 8 performance-enhancing features, including bitmap caching and the Show Redraw Regions option.
- **Chapter 8** is the domain of Paul Barnes-Hoggett, who dives deep into the exciting new `BitmapData` API. He shows you how all the important methods work before following up with some exciting applied examples.
- **Chapter 9** sees Todd return to present some of his amazing work with the new Flash 8 features—getting creative with filters, masks, and animation. Some of the effects presented here are easier to achieve using Flash 8 than previous versions; some were nearly impossible in previous versions!
- In **Chapter 10**, as you get close to the crescendo of the book, Craig and Glen give you an introduction to the `ExternalInterface` API, which allows your SWFs to easily and effectively communicate with host applications written in Java, C#, etc., for some interesting advanced application development techniques.
- Last but certainly not least, Stephen Downs (aka Tink) presents a gallery of inspirational examples in the **Appendix**, which includes a few features not covered in the rest of the book, such as the `FileReference` object. He also revisits a plethora of examples introduced earlier, with breathtaking results.

Who this book is for

Simple—this book is for anyone with previous experience in Flash who wants to get up to speed with the new features introduced in Flash 8 as soon as possible. We won't waste time looking at timeline basics and tweens, as we think it will be insulting to your intelligence. We know how anxious you must be to further your knowledge with a minimum of time investment and get back to your work, fully harnessing the power of Flash 8. These are busy times for Flash-using professionals.

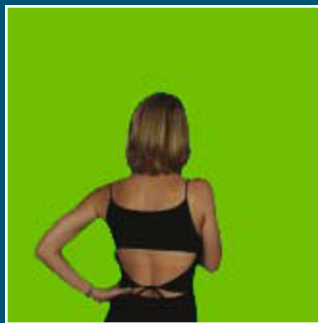
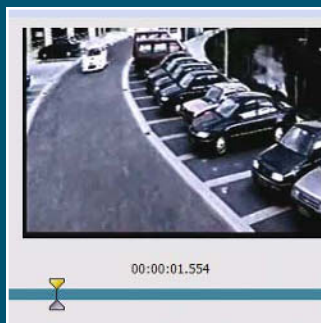
Do I need to have Flash 8?

In a word, yes. This book won't be much use to you if you haven't upgraded to Flash 8. If you want to buy this book as a guide and check out the new features of Flash 8 before you decide to make that investment, you can always download a 30-day trial version from www.macromedia.com/cfusion/tdrc/index.cfm?product=flashpro. We would also recommend going for Flash 8 Professional rather than Flash 8 Basic. While Basic is still a competent product, you'll be missing out on some of the amazing new features that are only available in Professional—video alpha channel support, the stand-alone video encoder, blend modes, and filters, to name just a few. Go to www.macromedia.com/software/flash/flashpro/productinfo/features for more information about the new features and their availability in the different versions.

Support for this book

All the necessary files for this book can be downloaded from www.friendsofed.com. If you run into a problem with any of the instructions, check the errata page for this book at www.friendsofed.com/books/1590595327, or post a question in the friends of ED forum at www.friendsofed.com/forums, and we'll try to help you as quickly as possible. If you post to the forum, please be as precise as you can about the nature of the problem. We've made our very best efforts to ensure that all of the content presented in this book is error free, but mistakes do occasionally slip through—it's just a sad fact of life. We do apologize in advance for any you find.

1 FLASH 8 OVERVIEW



by Matt Voerman

From little things, big things grow. When John Gay and Robert Tatsumi first developed their computer-illustration tool SmartSketch back in 1993, they never imagined that 12 years and eight versions later their humble application would be the tool of choice of over 1 million rich-media developers worldwide.

SmartSketch went on to be known as FutureSplash, until its parent company (FutureWave) was bought out by Macromedia in 1996. Macromedia then changed FutureSplash's name to Flash. Fast-forward to April 2005, and Adobe Systems announces its intention to purchase Macromedia in a deal valued at \$3.4 billion. Flash, and its global ubiquity, was one of the main motivators behind Adobe's acquisition of Macromedia.

Code-named 8Ball during its development phase, Macromedia Flash 8 has now evolved into the industry standard for creating (and delivering) web-based rich-media content and applications.

Flash 8 contains a plethora of new features and functionality, with a large portion of them targeted squarely toward web designers and animators, as well as video and interactive media professionals. That's not to say that rich Internet application developers have been left out in the cold. With its new lightweight, cross-platform runtime and mobile device authoring features, the Flash Platform (www.macromedia.com/platform) is still the ideal choice for the development of rich enterprise and mobile applications.

What's new in both versions of Flash 8

In 2004, Macromedia took the step of splitting Flash into two distinct versions to cater for their wide designer and developer audience. Flash 8 continues this tradition by creating a clearer distinction between the two versions with the release of Flash Basic 8 and Flash Professional 8.

Flash Basic 8 is ideal for web and new-media designers who have elementary requirements with regard to importing and manipulating various types of media. Flash Basic 8 designers still gain access to all of Flash's foundation functionality (including several new workspace enhancements), but not some of the newer power features of the latest release.

For designers and developers looking to utilize the majority of the new feature sets of Flash 8, Flash Professional 8 is the preferred option. Flash Professional 8 offers a substantial number of features not found in its sibling's version, such as graphics effect filters, alpha channel video support, and custom text anti-aliasing.

The following pages outline the new features available in both versions of Flash 8.

Bitmap caching

Just as web pages are cached in your web browser to assist with the speedy retrieval of page data, runtime bitmap caching allows you to specify movie clips or buttons that can be cached within Flash Player (at runtime) to speed up screen redraw. By declaring that these symbols be cached as bitmaps, the Flash Player doesn't have to redraw them

constantly from vector data. This provides a significant speed and performance enhancement. Chapter 7 outlines the details of Flash 8's speed improvements.

For example, let's say you've created an animation that uses a complex physics algorithm to sequentially draw a series of cubes on the screen. Rather than having to execute the algorithm on a static cube that has already been rendered to the stage, you can use runtime bitmap caching to effectively freeze these prerendered cubes. This ability to freeze a static portion of a symbol that isn't being updated reduces the number of times Flash Player has to perform a redraw operation. If a region changes onstage, vector data is used to update the bitmap cache accordingly.

Bitmap smoothing

In previous versions of Flash, there was often a marked difference in the quality of bitmap images when viewed in the authoring environment than when viewed in Flash Player. The new bitmap smoothing feature addresses this issue by allowing designers to apply anti-aliasing to imported images so that they render comparably in both environments. Figures 1-1 and 1-2 demonstrate the bitmap smoothing feature.

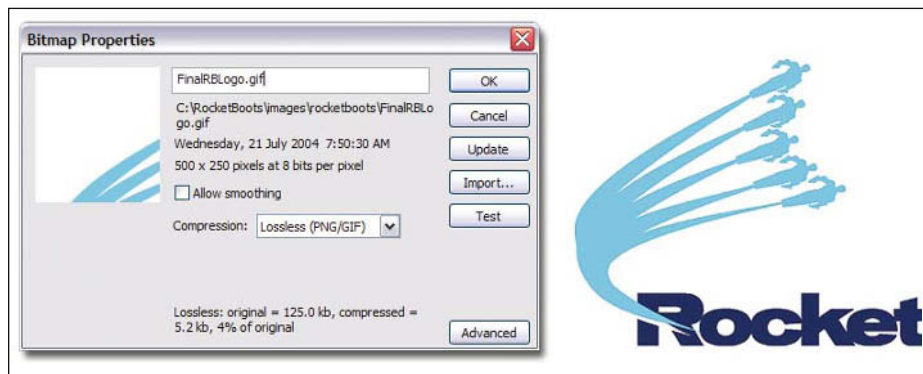


Figure 1-1. A bitmap image with smoothing not enabled

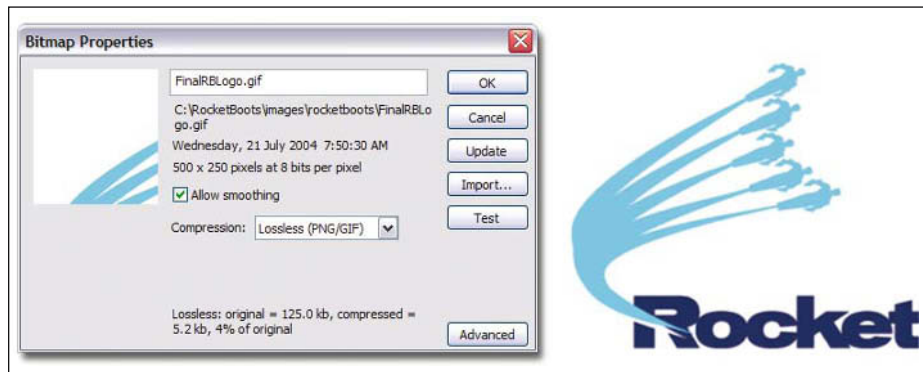


Figure 1-2. A bitmap image with smoothing enabled

New curve algorithm

The new curve algorithm feature allows designers to modify the amount of smoothing applied to curves drawn with the Brush and Pencil tools. Using the new Optimize Curves dialog box (see Figure 1-3), you can increase (or decrease) the number of points used to calculate a curve. The downside of this new feature is that using more points results in larger SWF files. You can choose to apply this feature to a shape you've drawn by selecting **Modify** ➤ **Shape** ➤ **Optimize**.

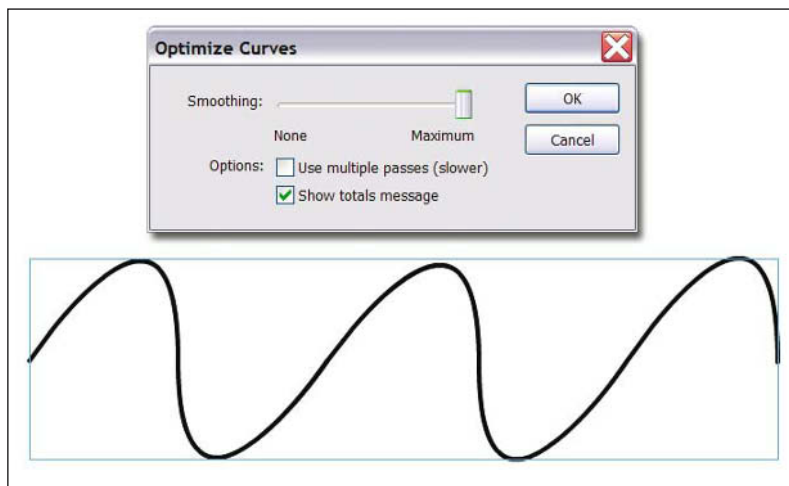


Figure 1-3. The new Optimize Curves feature

Gradient enhancements

The gradient enhancements within Flash 8 allow you to add up to 16 colors to a gradient, as well as use a bitmap as a gradient fill.

A gradient focal point feature has also been added to Flash 8 to give designers greater control over the direction and focal point of their gradients. Using the Fill Transform tool, you simply drag the focal point of the gradient from the outside of the object you're filling to manipulate how the gradient is rendered within your object.

Flash 8 also allows you to lock a bitmap or gradient fill to give the impression that the fill extends over the entire stage. New objects that are painted with the locked gradient fill appear as masks that reveal the underlying gradient or bitmap. (See Figure 1-4.)

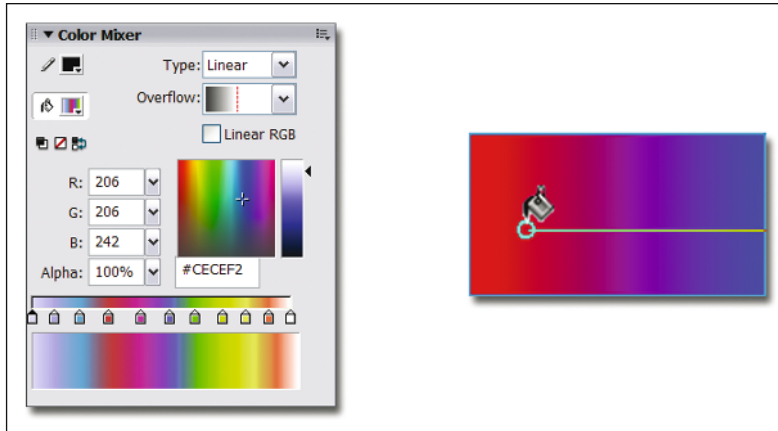


Figure 1-4. Enhanced gradients, including the new gradient focal point

Object Drawing model

In previous versions of Flash, when you used the Brush, Line, Oval, Pencil, or Rectangle tool to draw an intersecting line (or shape) across another line (or shape), the overlapping objects would be divided into segments at the point of intersection. Then, using the Selection tool, you could select, move, or manipulate each segment individually. This mode of illustration subtraction is known as the Merge Drawing model (see Figure 1-5).

Flash 8 introduces the Object Drawing model, which allows designers to create shapes and lines directly on the stage as separate objects. So, unlike the Merge Drawing model, these new shapes and lines don't interfere with other pre-existing shapes on the stage (see Figure 1-6). This allows you to safely overlay objects that are on the same layer without fear of merging or dissecting parts of other objects on the stage. Activating Object Drawing is as simple as clicking the Object Drawing button found among the options for each panel in the Tools panel.

Flash 8's drawing enhancements are covered in more detail in Chapter 4 of this book.

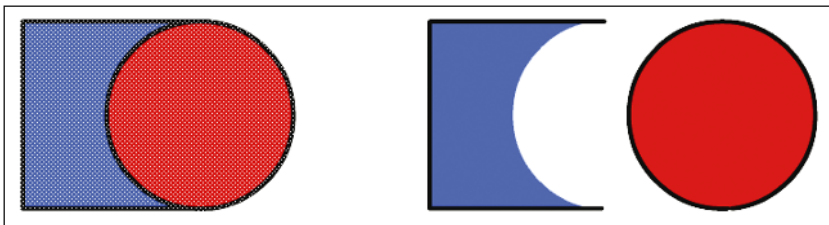


Figure 1-5. The traditional Merge Drawing model

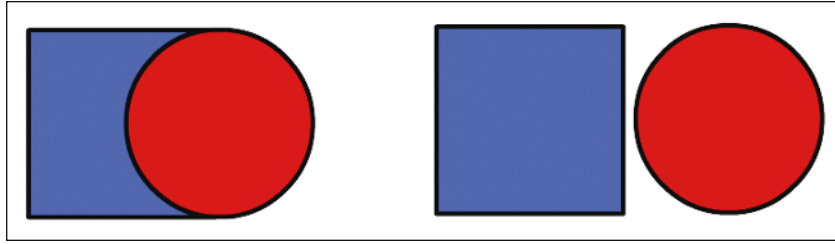


Figure 1-6. The new Object Drawing model, in which shapes maintain their forms when overlaid

Oval and Rectangle tool settings

To assist designers with common illustration tasks such as specifying the dimensions of frequently drawn objects, Macromedia has introduced a new dialog box, Rectangle Settings (see Figure 1-7), that allows designers to specify the width and height of ovals and rectangles, as well as the corner radius of rectangles.

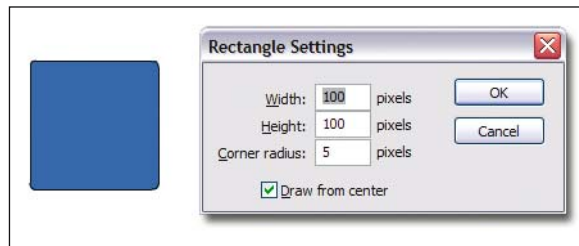


Figure 1-7. The new Oval and Rectangle tool settings

Return of Normal Mode scripting

When Macromedia removed Normal Mode scripting from Flash MX 2004, there was an outcry from the design community. Many designers who weren't familiar with ActionScript syntax relied heavily on Normal Mode scripting to add interactivity to their Flash content.

Thankfully, Macromedia believes in listening to its users, and it has returned Normal Mode scripting to Flash 8, but this time under the moniker of Script Assist.

Essentially, Script Assist is identical to Normal Mode scripting, but with a few enhancements. Script Assist allows you to search and replace text, view script line numbers, and save a script in the Script pane when you click away from the object or frame (this is known as **pinning**). You can also use the Jump menu to go to any script on any object in the current frame. You can select and deselect Script Assist by clicking the Script Assist button on the Actions panel (see Figure 1-8).

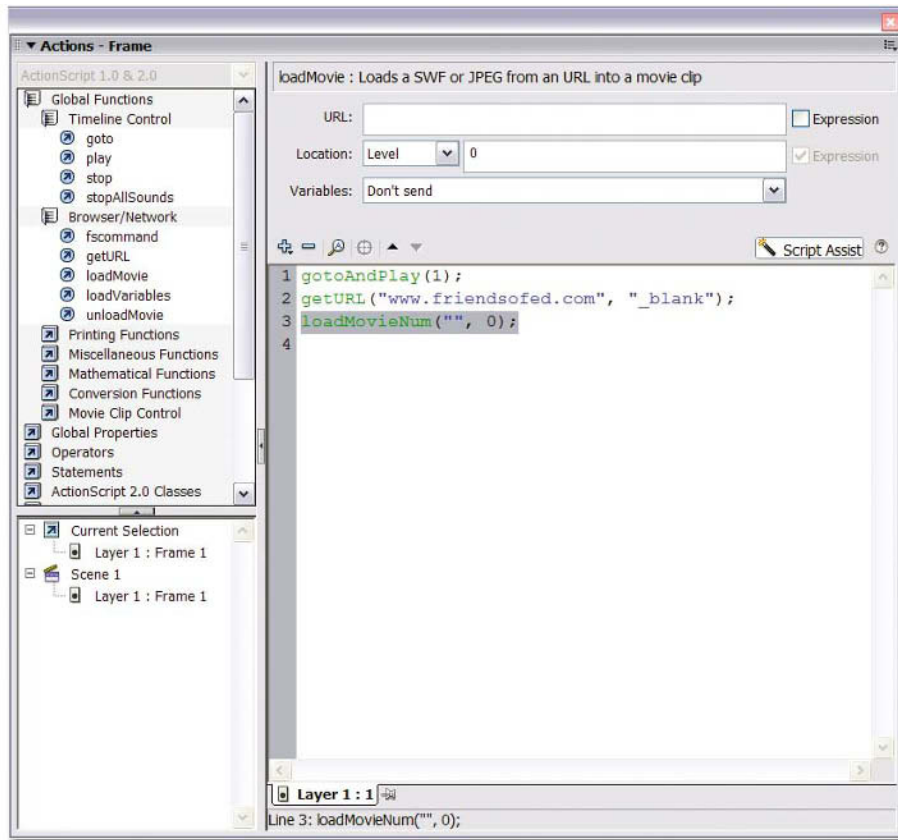


Figure 1-8. Normal Mode scripting returns under the moniker of Script Assist.

Improved strokes

Flash 8 has improved the way in which designers can work with paths and strokes. No longer are you subjected to dealing with only one type of path end (cap); you now have the option of using either rounded or square caps.

Joins (i.e., the points at which two paths meet) have also received a makeover, with designers now having the choice of using either Bevel, Miter, or Round joins (see Figure 1-9). These are chosen from the Join drop-down menu, found sitting proudly on the Property Inspector.

Strokes can now be colored using a gradient, and their maximum size has been increased from 10 to 200 pixels.

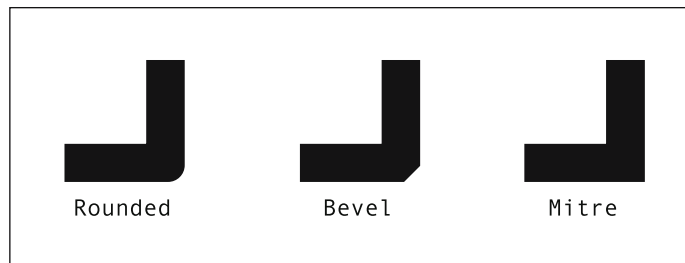


Figure 1-9. New stroke joins

TextField improvements

Macromedia has made some significant improvements to the way Flash renders text (both in the authoring environment and within Flash Player).

New Saffron text-rendering technology has been licensed from Mitsubishi Electric Research Labs and integrated into Flash Player 8. Saffron greatly improves the quality of the rendering of small font sizes.

Historically, text that was rendered within the Flash authoring environment has varied considerably from that rendered within Flash Player. Flash 8's new WYSIWYG text anti-aliasing feature ensures that what you see in the authoring environment is what you get in Flash Player.

In addition to this, Flash 8 now facilitates the anti-aliasing of text based on the specific end-viewing environment. For example, a line of animated text would have different anti-aliasing requirements than a large block of static text with a small font size. If you use the Anti-alias for animation text option, the alignment and kerning information is ignored and the text is rendered as smoothly as possible.

TextField improvements are covered in much more detail in Chapter 6 of this book.

Security enhancements

Security of Flash Player and the SWF format has always been paramount for Macromedia. This view has been further consolidated in Flash 8 with the release of a new Local or Network Security model. The new model helps prevent SWF files from being used maliciously to access local file information and transmit that information over a network.

Contained within the Publish Settings dialog box (accessed via File ► Publish Settings), developers now have the option of specifying either a local or a network security model for their SWF files. Files that have been granted network access permission won't be able to access local file data, and vice versa.

SWF file metadata

One of the major bugbears developers have had since Flash's inception was the product's inability to produce SWFs that could be indexed by search engines such as Google. This was due to their inability to include embedded metadata within the SWF.

Flash 8 has addressed this issue by adding the capability to import metadata into SWFs in XML format. This metadata is based on the RDF (Resource Description Framework; see www.w3.org/RDF) and XMP (Extensible Metadata Platform; see www.adobe.com/products/xmp/in-depth.html) specifications, and is stored within Flash in a W3C-compliant format.

Video improvements

The encoding and workflow of video within Flash 8 has been substantially enhanced via the introduction of On2's VP6 video codec. This new codec is part of the core Flash Player upgrade, and it substantially improves video playback, quality, and encoding. Unlike Flash Professional, Flash Basic allows only the encoding of embedded video via the Import Video option. Additionally, encoding to VP6 within Flash Basic is restricted to three presets, none of which can be modified.

Flash 8 video improvements are covered in greater detail in Chapter 5 of this book.

Workspace enhancements

This section covers all the workspace enhancements present in Flash 8, added in response to the reams and reams of valuable feedback given to Macromedia by all you Flash developers and designers out there. Talk about a community effort!

Exporting keyboard shortcuts as HTML

Flash keyboard shortcuts can now be exported as HTML files that can be viewed and printed using a standard web browser. This is done by opening the Keyboard Shortcuts dialog box (Edit ► Keyboard Shortcut on the PC, or Flash 8 Professional/Basic ► Keyboard Shortcuts on the Mac) and then selecting the Export As HTML button at the top-right corner.

Library enhancements

The following list describes the enhancements to the Flash Library:

- **Single library panel:** In previous versions of Flash, separate library panels were required to view the library items of multiple Flash files. Library panel enhancements in Flash 8 now allow users to view the library items of multiple Flash files simultaneously in the same single panel (see Figure 1-10).
- **Library panel state memory:** This was allegedly one of the most requested enhancements for this version of Flash, but strictly speaking, this is more a bug-fix than an enhancement. In previous versions of Flash, when you opened (or closed) library panels in a document you were working on, and then closed that document, you would expect the library panels to be in the same place/order/sequence when you reopened the document again. Alas, this was not the case. This “undocumented feature” has been addressed, and library panels now remember the state they were left in.
- **Drag-and-drop library components:** When working with components in previous versions of Flash, in order to add components to the library of a Flash file, you first had to place them onto the stage and then delete them. Flash 8 has addressed this issue, and you can now place components directly into the library without first having to place them onto the stage.

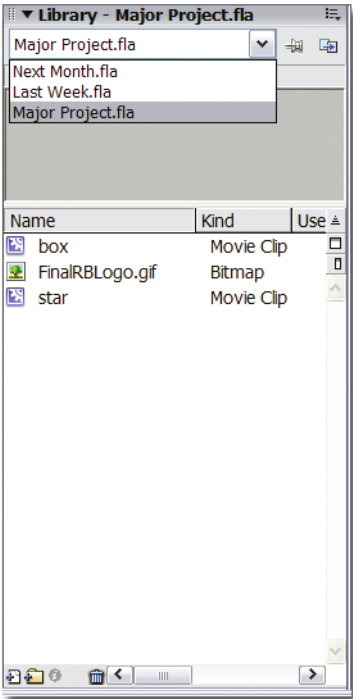


Figure 1-10.
Multiple document libraries
in a single panel

Macintosh Document Tabs

Mac users can now open and easily navigate through multiple Flash documents within the same window. This is accomplished via the new Macintosh Document Tabs feature, located at the top of the workspace (see Figure 1-11).



Figure 1-11.
The new Document Tabs feature

Object-based Undo and Redo commands

Flash 8 users now have the option of tracking changes from either a document or an object level. Using the object-based Undo/Redo command lets users undo the changes made to an object without having to undo changes to other objects (as is the case with the document-level Undo/Redo option).

Expanded stage pasteboard

The pasteboard is the gray region located around the outside boundary of the stage. Historically, designers have used this area to place graphics or components they want to include within a Flash movie, but don't necessarily want to appear onstage during playback (or want them to appear at a later point in an animation). Flash 8 has increased the size of the pasteboard, giving designers more screen real estate to work with.

XML-to-UI extensibility

Historically, customizing user interfaces (UIs) so they work across the various operating platforms, such as Windows and Macintosh, has been a developer's nightmare. To help ease some of this pain, Netscape and Mozilla teamed up to develop XUL (pronounced "zool")—XML User Interface Language.

Using a subset of XUL and some custom Flash tags, XML-to-UI extensibility allows developers to extend and automate the Flash 8 IDE to perform common and repetitive tasks/actions. These include behaviors, commands (JavaScript API), effects, and tools.

The XML-to-UI engine works with each of these extensibility features to create custom modal dialog boxes if the extension either requires or accepts parameters. These *modal* dialog boxes are required to be dismissed (either accepted or cancelled) by the user before the application can continue.

New Flash Professional 8–specific features

Flash Professional 8 contains the same feature set as Flash Basic 8, plus an abundance of new features that are specific only to the Professional edition.

Blend modes

Blend modes allow designers to apply compositing effects to objects located on the stage (see Figure 1-12). **Compositing** refers to the process of varying (or blending) the color (or transparency) of an object on one layer with an object located on a layer below it.

Designers who are familiar with other graphics applications such as Photoshop will instantly recognize some of the 14 new blend modes available in Flash Professional 8, which include Multiply, Difference, Saturation, and Hue.

Blend modes are discussed in more detail in Chapter 2 of this book.

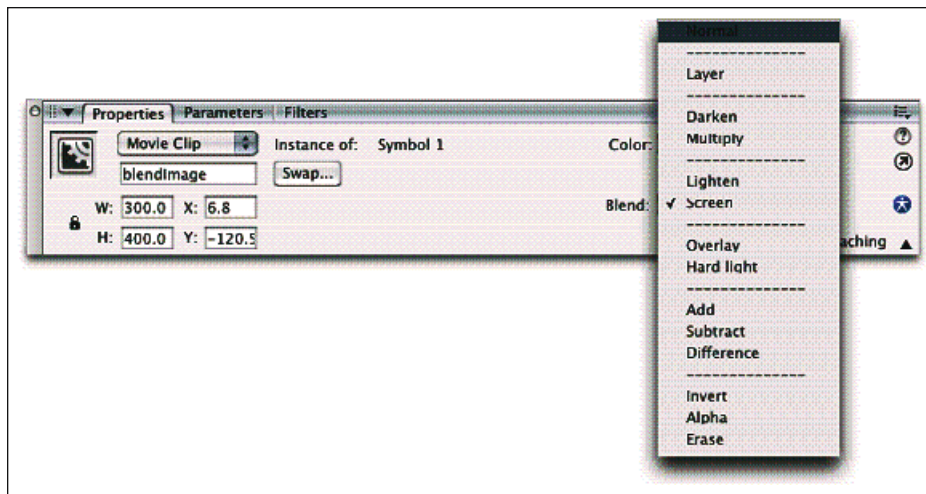


Figure 1-12. The new object blend modes

Custom easing controls

Offering a two-dimensional graph to represent the start and end points of a tweened animation, Flash Professional 8's new custom easing controls give designers the ability to precisely manipulate the speed and complexity of the rate at which their animations ease in or out. This helps create more realistic movement within animations.

The best way to get to grips with this new feature is to experiment! Try creating a simple tween animation such as a bouncing ball, and compare the old familiar easing controls with the new custom easing controls. You can access the new controls by clicking the new Edit button found next to the familiar controls, which opens up the screen shown in Figure 1-13. You'll be impressed.

Graphics effects filters

One of the most heralded new features of Flash Professional 8 allows designers to apply graphics effects filters—such as the Drop Shadow, Blur, Glow, Bevel, Gradient Bevel, and Adjust Color filters—to objects located on the stage.

The filter process is performed by passing the object's image data through a series of algorithms that filter (and subsequently render) the data in a predefined way.

Filters are covered in more detail in Chapter 3 of this book.

Filters can be applied to MovieClips, TextFields, and button symbols, and are rendered in real time by Flash Player. Filter effects can be applied either via the Filters tab located in the Properties panel or programmatically via ActionScript.

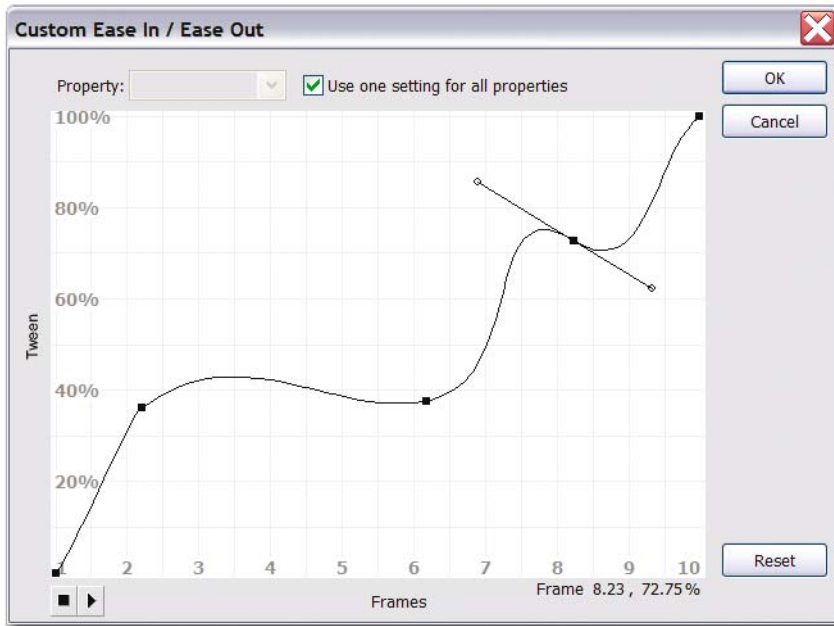


Figure 1-13. The new Custom Ease In/Ease Out controls

More TextField enhancements

Along with the new WYSIWYG Anti-alias for readability and Anti-alias for animation options contained within Flash Basic 8, Flash Professional 8 has a Custom anti-alias feature that allows you to customize the sharpness and thickness of your text (see Figure 1-14).

The Sharpness option determines the degree of smoothness between the text edges and the background, while the Thickness option allows you to tweak the degree of text edge blend with the background.

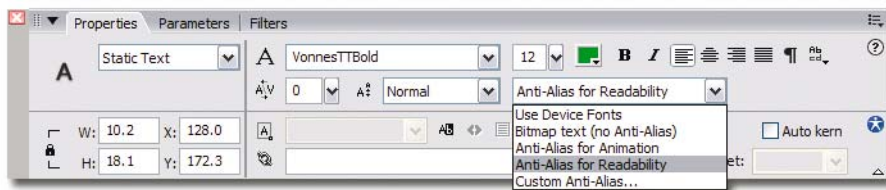


Figure 1-14. The new WYSIWYG text anti-aliasing feature

The anti-aliasing options are also covered in more detail in Chapter 6 of this book.

More video improvements

One of the major improvements in Flash 8 is the turbo-charging of its video tool set. This includes the addition of a new video codec within Flash Player for greatly optimized playback, and an improved video encoder for stream-lined workflow. The inclusion of video alpha channel support raises the bar even further, giving rich-media designers a new level of creative freedom.

These new video features are covered in greater detail in Chapter 5 of this book.

Improved video workflow

Flash Professional 8's Video Import Wizard has been improved to assist designers in importing (and exporting) video in a variety of formats (such as embedded, progressively downloaded, streamed, or linked).

The Video Import Wizard also contains an enhanced library of predesigned video player skins that can be used as playback shells for your imported videos when they're exported. These skins are exported as separate SWFs and can be customized to suit your individual requirements as a designer (see Figure 1-15).

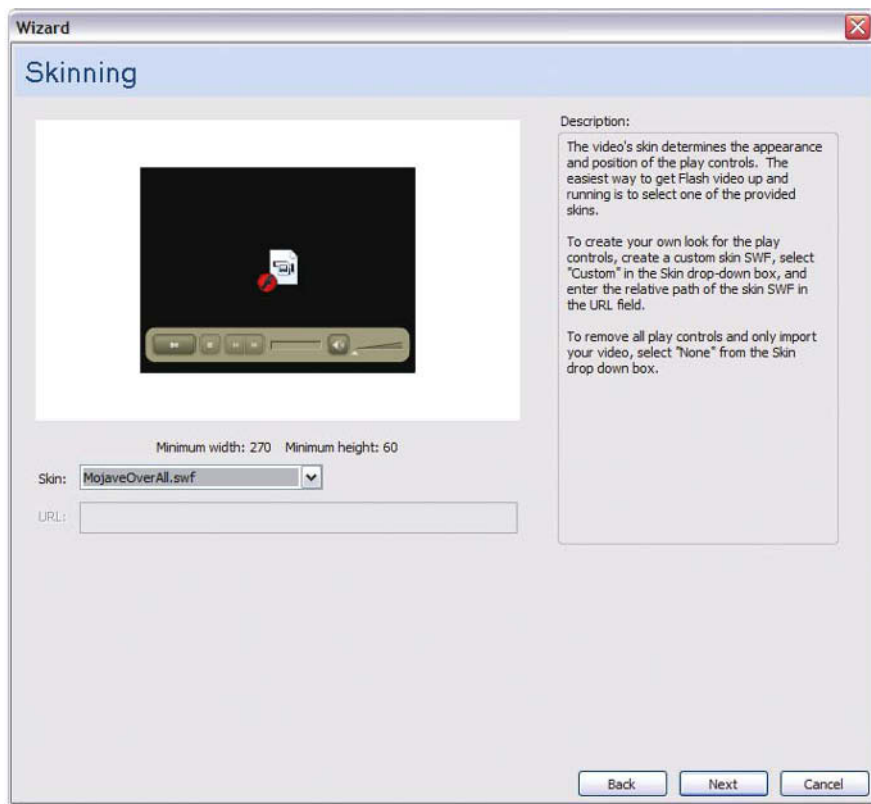


Figure 1-15. Custom skins for FLV controls