

# MX

## developer's journal

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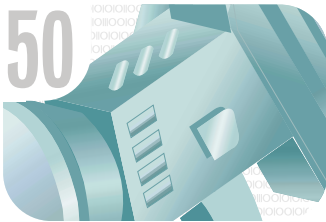
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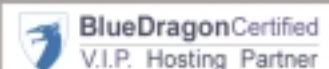
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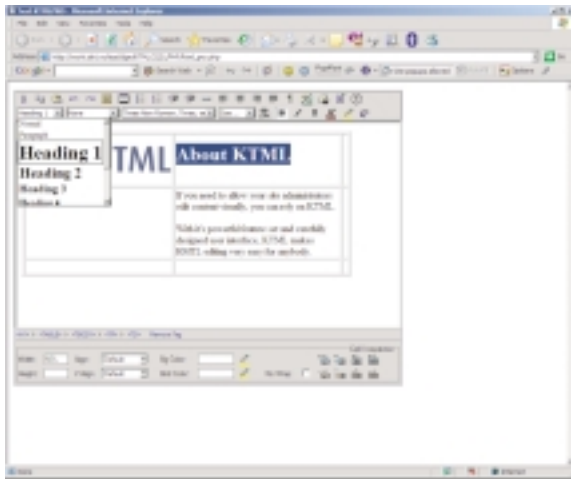
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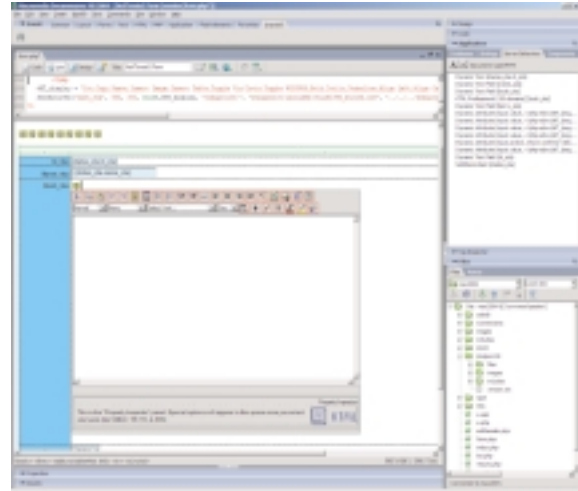
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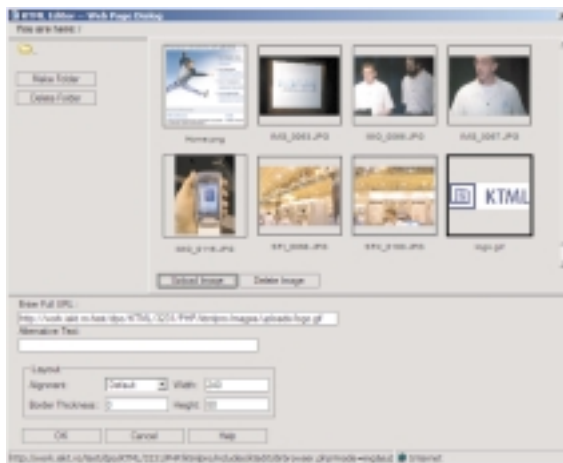
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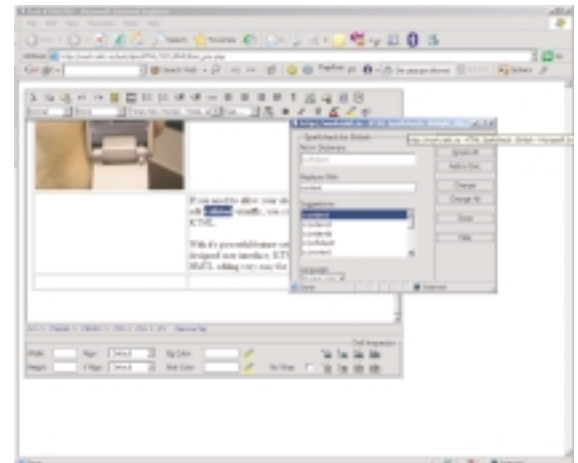
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**MX**  
developer's journal

# The Afterglow of MAX 2004

*The face of the future*  
by charles e. brown

I am writing this editorial the day after returning from the MAX 2004 Macromedia Conference in New Orleans, LA. As a veteran (or survivor) of many conferences, I can honestly say that this was one of the finest events I have ever attended.

In the October issue of this journal, I put forth the opinion that the future of this business is Flash. This conference more than supported that theory with one slight amendment: Flash inside of mobile technology.

Over the next few months, we will be reporting about the issues and products presented at this year's MAX.

The first day's General Session brought forth many interesting facts. But the big news was that over the next five years, mobile Flash development will be an \$80-billion industry. At present, more than 23 million mobile handsets are equipped with the Macromedia Flash Lite player to deliver Web services seamlessly with a rich Internet interface.

Because Macromedia is so committed to this market, a new support program was introduced at MAX called the Mobile Developer Program. It will support mobile developers by offering marketing assistance, information pooling, direct access to a support team, and access to testing servers.

For more information about this exciting program, please visit [www.macromedia.com/devnet/devices/dev\\_program](http://www.macromedia.com/devnet/devices/dev_program). Over the next year, you will be seeing more articles about this rapidly growing technology.

If the audience was not "wowed" enough with that news, Macromedia introduced Flex 1.5. What I found especially exciting about this was the introduction of Flex Builder. This gives Flex a Dreamweaver-like development interface (and then some). Further, like the other Macromedia server technologies, a free developer's edition is now available for download at [www.macromedia.com/software/flex/trial](http://www.macromedia.com/software/flex/trial).

The General Session also brought an incredible demonstration – Blackstone, the newest version of ColdFusion. November 2 was the U.S. election day. The audience was asked to deliver a text message, from their cell phones, to a designated address. The text message had to be 1 for John Kerry, 2 for George Bush, or 3 for Ralph Nader. As the audience did this, we saw Blackstone tabulate the results and deliver a moving bar chart. Ben Forta subsequently showed Blackstone's capability to, once again, work with the mobile market.

Of course, the real purpose of the conference was the workshops. While it was physically impossible to attend every event, I would like to mention several that I got to see (and please do not interpret this as my saying that others were not as good).

Ben Forta did a wonderful hands-on ColdFusion workshop. Of course, one can never say anything bad about Ben's talks and workshops.

His workshop focused on the importance of structuring code properly for reusability, efficiency, and maintenance. I sensed many members of the audience walked away with a new understanding of code development.

What I found interesting, however, was his defense of ColdFusion not becoming more object oriented. His feeling is that the purpose of ColdFusion was to combine power with simplicity; and adding OOP capability increases complexity. After seeing the demonstration at the earlier General Session, it was tough to argue the point.

A particular favorite of mine was Angela C. Buraglia's workshop called "Dreamweaver Killer Tips." Angela has always amazed me with her insights and she certainly did not disappoint here. I am an author of a couple of Dreamweaver books and a pretty seasoned user. Yet, even I walked out of her seminar with some new ideas. Happily, Angela

*Charles E. Brown is the editor-in-chief of MX Developer's Journal. He is the author of Fireworks MX From Zero to Hero and Beginning Dreamweaver MX. He also contributed to The Macromedia Studio MX Bible. Charles is a senior trainer for FMC on the MX product family.*

has agreed to contribute some articles to this journal in the future.

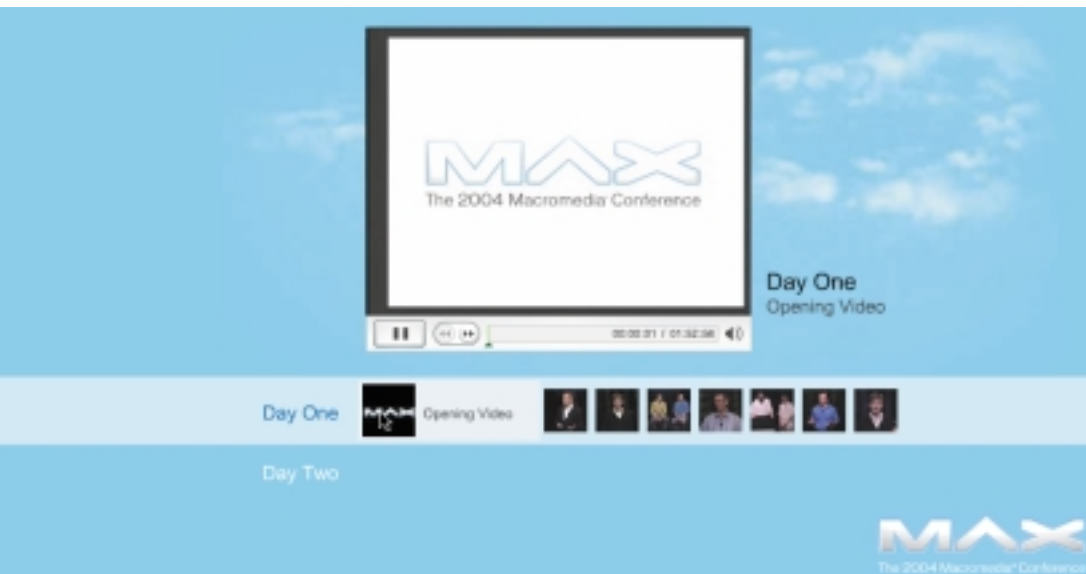
Our own Art Phillips delivered a wonderful seminar on the very topic he is writing about in these pages: rapid application development in Flash using dynamic data. Art is one of those rare individuals who can take a confusing and complex topic and reduce it to a few simple and understandable steps. Further, he does it without losing the power and possibilities behind the technology. I was quite happy to see the enthusiastic reception he received afterwards.

Here is an interesting statistic: most HTML Web sites, including Amazon.com, have less than 3% of their visitors actually completing a transaction. However, Flash sites could go as high as 8%. This

few months, we will be reviewing many of them on these pages. A very special thank you needs to be mentioned here.

If you are a regular visitor to our Web site, [www.sys-con.com/mxdj](http://www.sys-con.com/mxdj), you may have noticed that we have SYS-CON Radio. This service provides interviews with various industry professionals. I was about to record some interviews right from the exhibitor's floor when our recording equipment stopped functioning properly. Our good friends from InterAKT Online jumped to the rescue and saved the day with a portable MP3 recorder.

You will see their ads in this journal. I am a huge fan of their Dreamweaver expansion products. However, as a thank you from the community who reads this



year, we saw a lot of seminars on how to use Flash for online sales. One of the best seminars on this topic, "Single-Screen Checkout: Next Generation Solutions using Flex," was delivered by Praveen Ramanathan.

Praveen is with a company called Molecular, Inc., which has developed several commercially available RIA shopping carts. He gave a very convincing argument, using a couple of case studies, that RIA is the way to go for online commerce. By having all the information in one place, the potential customer does not need to move back and forth between screens.

The exhibitor area showed us a lot of new and exciting products. Over the next

journal, please take a look at their site at [www.interaktonline.com](http://www.interaktonline.com). I think you will be very impressed.

Finally, another special thank you to Gail Schultz and Dorothy Gil who worked long hours at the SYS-CON booth signing up new subscribers and answering questions. Thanks to them, there are several hundred new members to our community.

By the time you read this issue, the holidays will be upon us. I want to take this opportunity to wish each of our readers a joyous holiday and a healthy and happy 2005.

Next month, I'll be announcing some exciting changes coming to this journal. ∞

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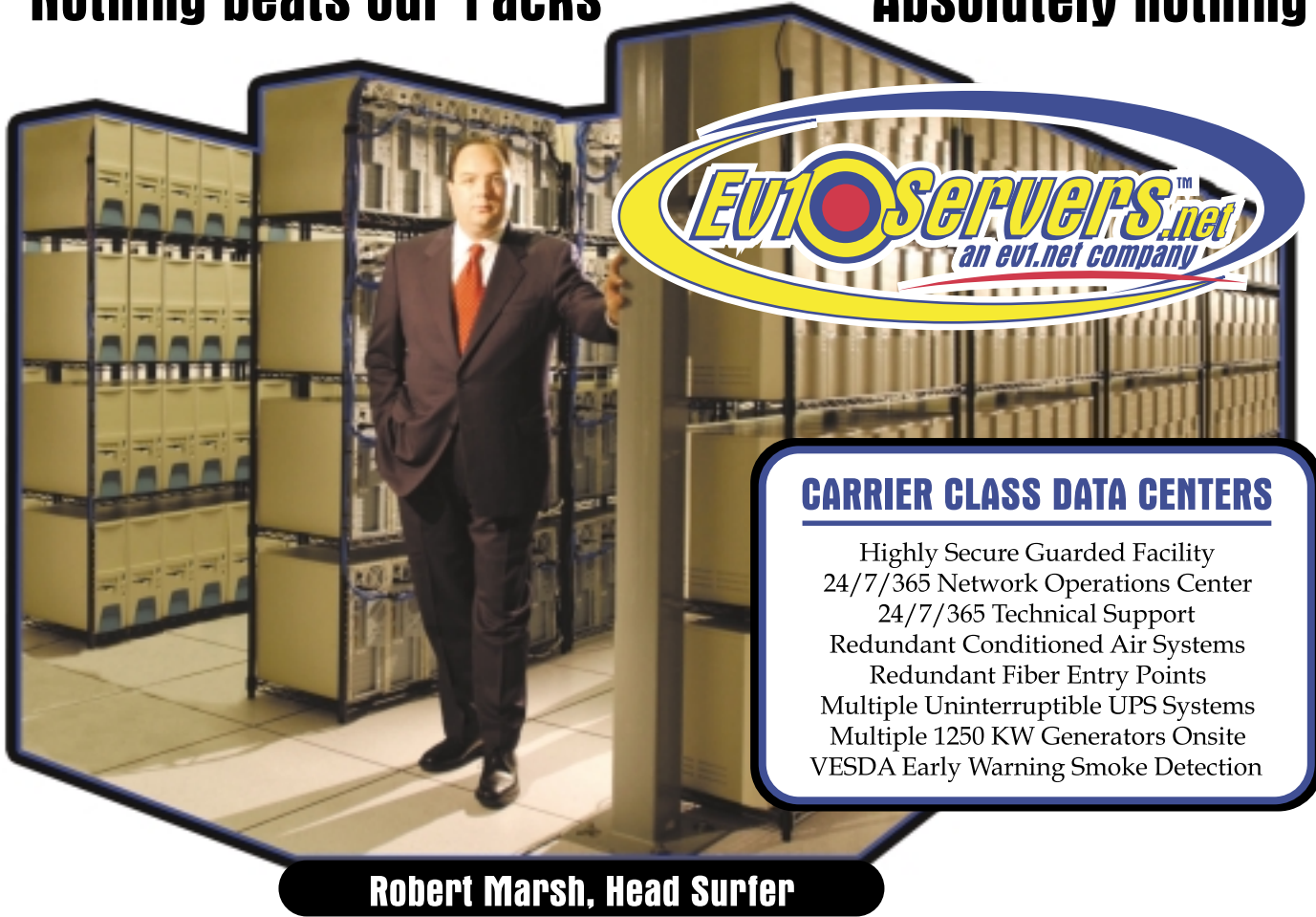
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# Macromedia Unveils New Mobile Developer Program

*Meeting a growing market*  
by david fleck

This past year, Macromedia has experienced incredibly exciting progress and growth in its mobile and devices strategy, and attendees at MAX 2004 were the first to catch a glimpse of what the future has in store for the Macromedia Flash community. On Mobile Day at MAX, developers had the exclusive chance to hear from Macromedia, wireless industry leaders, and fellow developers about how to work together to create compelling mobile content – and no one is better positioned to help drive the direction and meet the growing demand for engaging content for mobile devices than Macromedia and the Flash developer community. To help content owners and Flash developers make the most of the opportunities in this brave new mobile world, Macromedia has introduced the Mobile Developer Program ([www.macromedia.com/devnet/devices/dev\\_program](http://www.macromedia.com/devnet/devices/dev_program)).

## A Fast-Growing Market for Flash Developers

The goal of the Mobile Developer Program is to pull developers into the growing momentum of Flash in the mobile phone industry. In 2003, Japan's largest operator, NTT DoCoMo, was the first to adopt Macromedia Flash Lite. Since then, 10 more operators have adopted Flash Lite for their mobile offerings, including KDDI, T-Mobile, and 8 i-mode global operators – and the number of companies interested in incorporating Flash Lite into new phones continues to grow. With more than 23 million Flash-enabled handsets in the hands of consumers, and many millions more to ship in the coming years, there is a very strong and ever-growing market waiting for the Macromedia developer community.

The reasons why Flash Lite is quickly becoming the platform of choice for handset manufacturers and operators who want to provide rich interactive mobile content are not surprising. By supporting rich user interfaces and ren-

dering engaging content that consumers demand, Flash Lite makes it easy for original equipment manufacturers (OEMs) to build and customize user interfaces, and for operators to differentiate their content and service offerings. Also, Flash is the standard for creating rich interactive content; every major Web site uses it, and brand holders are eager to port their existing content to the mobile platform. With more than 1 million seasoned Flash developers on hand, whose experiences creating rich user interfaces, games, animation, and applications of all types are instantly applicable to the mobile phone market, OEMs and operators know that the Flash community has the bandwidth and know-how to meet the fast-growing demand for compelling mobile content.

If you're a developer or content owner, or if you're looking for opportunities to create new content or extend the revenue opportunities of existing content or entertainment brands, look no further. Unlike the Web, where users are less willing to pay for content and businesses often give content and services away for free – often as an extension of their marketing and public relations efforts and without counting upon an immediate return on their investments – the mobile space is populated by millions of users who have come to accept that they must pay for mobile content, including games and other content services. In the pay-as-you-connect mobile world, the continuing improvements in the speed and capabilities of mobile networks will bring a new brand of mobile applications to millions of wireless users and communities. Looking ahead, Don Harris, CEO of AirMedia ([www.airmedia-inc.com](http://www.airmedia-inc.com)), a developer and publisher of mobile applications for leading brand holders and a charter member of the Mobile Developer Program, anticipates "a multibillion-dollar revenue opportunity to create and deliver engaging mobile entertainment applications that will deliver a user experience unlike any other to date."

## A Program Developers Can Count On

The goal of the Mobile Developer Program is to facilitate the creation of content for mobile phones and assist developers around the world in building mobile content businesses. More specifically, the program is designed to open the fast-growing global mobile community for Flash developers, help developers around the world to market their products better, and accelerate the global deployment of Flash content for mobile devices. To that end, the program currently offers the following benefits to participants:

- **Developer services and support:** The Mobile Developer Program offers the range of technical benefits and services that developers need to create content for Flash-enabled mobile devices. Program members get access to a wealth of useful resources – including basic development tools and a large library of quick-start guides, technical information, tips, and tutorials – that build on and extend existing Macromedia Developer Center resources, as well as expert developer support, training, and development assistance.
- **Marketing assistance:** To help developers and content owners find new ways to cultivate business opportunities and potentially monetize their efforts, Macromedia will provide co-marketing support for qualified program participants. This support includes an online showcase produced by Macromedia that features new content and applications for the mobile platform. Featured products may be included in press and analyst awareness programs, and Macromedia can facilitate and coordinate the participation of featured developers in key industry events, including sponsored speaking opportunities.
- **Information sharing:** Timely knowledge of new possibilities is crucial for the development of optimal solutions. To ensure that developers are always plugged into what's happening in the

*David Fleck has over 15 years' experience managing developer relations and partnering programs. This includes the corporate and consumer sectors with hardware and software companies. Prior to joining Macromedia, David managed the developer program at Openwave. This included managing all aspects of the global community of mobile developers in the content and application space for mobile devices.*

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Author of Dreamweaver MX 2004: The Missing Manual, Dave can be relied upon to bring Dreamweaver MX to life for MXDJ readers with clarity, authority, and good humor.



## Flash Brian Eubanks

Brian Eubanks is the founder of Eu Technologies, Inc., a consulting and training firm based in Northern Virginia. Eu Technologies currently provides Java and XML consulting and training services to clients in the Mid-Atlantic region. Recent clients have included the New York Stock Exchange, government agencies, and public and private firms.



## Fireworks Joyce J. Evans

Joyce J. Evans is a training veteran with over 10 years of experience in educational teaching, tutorial development, and Web design. She has presented at conferences such as Macromedia MAX 2003 and TODCON. Joyce has authored books including Macromedia Studio MX 2004 Bible, Dreamweaver MX 2004 Complete Course, and others. Joyce is a Team Macromedia volunteer and her work is also featured in the Macromedia Design/Developer center. Her Web site is [www.JoyceJEvans.com](http://www.JoyceJEvans.com).



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## Louis F. Cuffari

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Andrew Phelps is an assistant professor in the B. Thomas Golisano College of Computing and Information Sciences at the Rochester Institute of Technology in Rochester, NY (<http://andysgi.rit.edu>/<http://andysgi.rit.edu>). He has an academic background in information technology, as well as traditional fine arts and computer animation. His work using Director has been featured at the Director-Online User's Group (DOUG) as well as the DevNet Center at Macromedia. He regularly teaches coursework in multimedia programming, game programming, and simulation/visualization.



mobile space and to facilitate an ongoing dialog between Macromedia, developers, content owners, and operators around the world, the Mobile Developer Program team will keep developers informed about upcoming events such as trade shows, conferences, seminars, contests, and more with electronic newsletters.

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As part of the new Mobile Developer Program, Macromedia has launched the program's first annual Flash Lite Content Contest ([www.macromedia.com/mobile/special/contest](http://www.macromedia.com/mobile/special/contest)). The contest provides developers with the unique opportunity to showcase their innovative work as well as a chance to be among the first participants in the program to gain recognition within the mobile community and monetize their efforts. Using the Flash Lite content development kit (CDK), program participants can submit entries in the following categories: Most Innovative Use of Flash Lite, Best Game, Best Interactive Content, Best Educational Content, Best Business Application, Best Productivity Application, Best Animation, and Best Overall Use of Flash Lite.

The grand prize winner will be rewarded with a 42-inch flat-screen TV, and first-place winners in each category will receive a 20GB Apple iPod. In addition, all winners will be showcased on [mobile.macromedia.com](http://mobile.macromedia.com). Those with the most promising content will be introduced to operators for a chance to distribute their compelling content and potentially generate revenue opportunities.


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At [mobile.macromedia.com](http://mobile.macromedia.com) you will also be able to pre-register for the much-anticipated FlashCast CDK (previewed at Mobile Day at MAX 2004), which enables developers to build push-type information services and interactive applications that are bound to revolutionize the mobile consumer space. The Mobile Developer Program team will notify you as soon as it is available.

## References

To get started with Flash Lite, check out the following links:

- *Macromedia Flash Lite 1.1 Developer Center:* [www.macromedia.com/devnet/devices/flashlite.html](http://www.macromedia.com/devnet/devices/flashlite.html)
- *Evans, Troy. "Introducing Macromedia Flash Lite 1.1":* [www.macromedia.com/devnet/logged\\_in/tevans\\_flashlite.html](http://www.macromedia.com/devnet/logged_in/tevans_flashlite.html)
- *Perry, Bill. "Best Practices for Developing Macromedia Flash Lite 1.1 Content":* [www.macromedia.com/devnet/devices/articles/flashlite\\_bestpractices.html](http://www.macromedia.com/devnet/devices/articles/flashlite_bestpractices.html) 

# Getting into the Action

*Learning ActionScript version 2.0, part 1*

by charles e. brown

Flash ActionScript has come a long way since Flash 5. However, never has the leap been as great as with the release of Flash MX 2004.

This is the first in an open-ended series of articles explaining ActionScript 2.0 right from the beginning. In this series, I will be presenting concepts and simple tutorials to help you understand this powerful new programming environment.

## What's New with ActionScript 2.0

First of all, let me begin by saying that ActionScript 1.0 will work in Flash MX 2004. However, I don't recommend this. At some point, the practices of Action-

Script 1.0 will probably no longer be recognized. As we progress through this series you will see why.

ActionScript 2.0 is a full-fledged object-oriented program, or OOP, very close to the Java programming language. This means that it does things very differently from ActionScript 1.0 and that your coding must be more precise and efficient. As anyone who has programmed in Java will tell you, it is very unforgiving. But, the end result is better running programs. The *real* benefit, however, is code that will run up to 7 times faster than code in AS 1.0.

One of the first differences you will encounter is that AS 2.0 is case sensitive. As an example, if you create a variable called:

```
firstName
```

it will be different from:

```
FirstName
```

Because of this, most OOP programmers have adopted the following naming standards:

- No spaces
- Begin with a letter and NOT a number
- Everything is in lower case except for mid-word capitalization (as in `firstName` above).

There are some exceptions that we will see as we progress through these articles. I will point them out as we go along.

A Flash statement should end with a semicolon. In programming parlance this is called the line terminator. Once again, this is in keeping with OOP standards.

## Data Typing

A data type tells a variable what it can

and cannot do. For instance, you could not take two variables of type `String` and try to total them. The variable type `String` simply does not know how to perform arithmetic operations.

AS 1.0 did not require data typing. You could do something like this:

```
myAge = 23;
```

Flash would just make assumptions and plug in what it thought was the correct data type. This often led to data mismatches and error-prone code. However, in AS 2.0 you would need to use the following syntax:

```
var myAge:Number = 23;
```

Notice that I began with the keyword `var` to indicate that I was declaring a variable. I then named the variable using the naming conventions discussed above; finally, I typed a colon and the data type (*Note*: data types begin with a capital letter. There is a reason for this, which we will learn later).

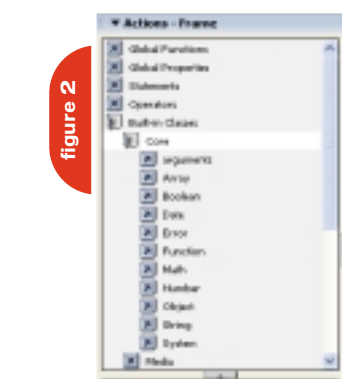
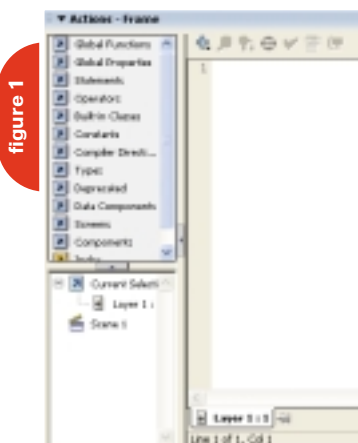
While this may sound like an added nuisance, strict data typing will give you more efficient running code with fewer possibilities for error.

## The Development Environment

Begin by opening the Actions Panel. I have sometimes also heard it referred to as the ActionScript Editor.

The upper left corner is the Action toolbox. This is a quick way to harness many of the components available to you in ActionScript. It is organized into categories to ease locating an element. We will discuss this more as we move along.

The lower left corner is the Script Navigator. This will assist you in finding where your various scripts are located. As



a result, you can get to your scripts quickly and easily.

Right above the main editing area is the Script Pane Toolbar. This contains some tools that can be used to assist you in creating and editing scripts. As we progress through these articles, you will become very familiar with this panel.

## Object-Oriented Programming Concepts

Before we begin, there are some basic concepts that need to be understood and that are common to all OOP programs.

The basic unit of programming is called the class. Basically, a class is a file that contains code that does a specialized job. In Flash, the class file has the file extension of .as (In Flash, this is created using the File > New > ActionScript File menu option).

In most cases, you do not use the class directly. You need to copy it into memory where it is called an object (thus, object-oriented programming). We call this process instantiation (we are creating an instance of the class).

Since the object is located somewhere in memory, we need a way to find and reference it. The object is referenced by using a special variable called the Instance Name (*Note:* most object-oriented programs call this the object reference).

As an example, let's say we have a class file called Date (by tradition, the name of the class file begins with a capital letter. This is why the data types are named that way). We would create an instance of it as follows:

```
var thisDate:Date = new Date( );
```

If we dissected this line, var means that we are creating a new variable. The variable name, thisDate, will be the variable or instance name.

Here is where things get a bit interesting. Earlier, I said that the data type tells the variable what it can or cannot do. Since the class file will give the instance name its marching orders (the class file we will be using, in this case Date, follows the variable name and a colon), the class file is now the data type. In OOP terms, we sometimes refer to the class as the user-defined name.

The keyword *new* instructs ActionScript to create the object. The final part, Date( ), refers to something called the constructor, which we will discuss at a future point. Place any parameters the object may need to do its job inside of the parenthesis.

As we progress through these articles, we will revisit the concept of creating objects many times.

Now we need to look at what the object contains and how it helps us.

If you examine an existing project, the objects (or the class files the objects are based upon) are the nouns of that project. As an example, suppose that you wanted to build a Flash project that would allow users to design their own cars. Some of the objects would be tires, windows, steering wheel, etc.

Each of the objects contains three basic components: properties, methods, and events.

For instance, the seat objects in the car could have the properties of color, material, etc. So we can think of the properties as the adjectives of the object. These would be the variables inside of the class file.

The process of the seats adjusting would be the methods. Again, using the parts of speech analogy, the methods would be the verbs. These are the methods in the class file.

Finally, what makes the seats adjust? In many cars it is pressing a button or moving a lever. This would be the event causing the action to happen and would be handled by an Event Listener. The Listener is a bit of code that listens for the event to happen (such as a mouse click, pressing a key, data being loaded, etc.) and then triggers the correct code to run (Event Handler).

Let's assume we created a class file called AutoSeats that had two properties: material and color. We would instantiate it as follows:

```
var mySeats:AutoSeats = new AutoSeats( leather, red );
```

We could create as many AutoSeat objects as we need.

Later on, if we needed to obtain the information from the object, we would use something that looks like this:

```
mySeats.property;
```

In OOP, we call this dot syntax. On the left side of the dot is the name of the object and on the right side of the dot is the property or method you need to call.

## Making Our Lives Simpler

How does all of this help make our lives simpler?

OOP makes our lives as programmers simpler in several ways. First of all, class files are reusable. As an example, suppose you have a class file that converts any number into currency format. This class file can be used by any project at any time. You don't need to reinvent the wheel each time you need to do something. As you progress, you will build up libraries of class files to do a variety of jobs.

Second, most object-oriented development environments come with a number of class files built in and ready to go. As an example, if you look in the Action Toolbox you will see that each category is expandable (see Figure 2).

If you expand the built-in classes category, drill down to Core, then drill down further to String, you can see the properties and methods associated with the String Class. If you look around, you will see classes in many other categories. As we progress through these articles, we will be examining many of these various classes.

Third, there are class files available from both commercial and noncommercial sources. A quick perusal of the Macromedia Developer's Exchange will give you many examples of what is available. A particular favorite of mine is [www.flashcomponents.com](http://www.flashcomponents.com).

For a fee of about \$100 a year, you have thousands of components available for download. (A component is a class file associated with the interface. We will be discussing them in greater detail in a future article.)

Flash MX 2004 goes one step further to make our lives easier. The user interface classes, or components, can be instantiated without programming by simply dragging them onto the stage and giving them a name. We can see this by returning to the stage and opening the Components Panel (Flash Professional contains additional components for han-



ding data).

For example, suppose we drag the ComboBox component onto the stage. In the property inspector, give it an Instance Name (using the naming standards discussed earlier).

New to MX 2004, the property inspector has a tab called Parameters. If you select that and double click on Labels, you will see what Figure 3 is showing. Just type in a list of some sort, pressing the + key after each entry. After clicking OK, run a test of the movie. When you click on the drop arrow for the combobox, it should open with the values you entered as shown in Figure 4.

This serves to illustrate everything we just discussed and to show how easily Flash makes things run.

The ComboBox class comes built into Flash and ready to run. If it didn't, you would have to build it from scratch. It has a property called Fields that we were able to populate (an Array) using the property inspector. The drop arrow is a button and an Event Listener triggers the method to

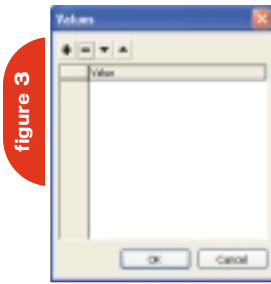


figure 3



figure 4

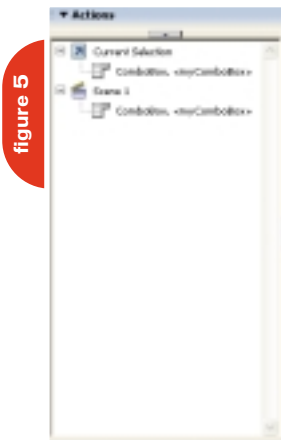


figure 5

# “ActionScript 2.0 is a full-fledged object-oriented program”

expand the box and display the labels.

If Flash did not have the built-in capabilities, you would have had to go into ActionScript and type something like this:

```
var comboList:ComboBox = new
ComboBox(blue, red, black)
```

The result is that you have now been saved from programming several thousand lines of code. This saves you an endless amount of time and allows you to turn projects around much quicker.

Let's try a very simple ActionScript that interacts with a UI component.

Open a new Flash document and create two layers called component and script.

On the component layer, drag a TextArea component to the stage and give it an Instance Name of taMessage (Note: as you go through succeeding articles, you will see that giving an Instance Name an identifying preface will have some unexpected benefits. In this case “ta” means TextArea).

It is always advisable to place scripts in their own layers or, as you will see, in their own files. Script placement can be a complicated subject and will be discussed in subsequent articles.

Go to the script layer and open the Actions panel. Type in the following line of script.

```
taMessage.text = “This is my first
ActionScript”;
```

We used dot notation to access the text property of the TextArea.

Run the movie. You should see your text in the TextArea of your movie. While this is a very simple example, I am sure you can see how it could be applied to more complex situations.

Take a look at the Script Navigator. You should see two sets of information in it as shown in Figure 5.

The upper section shows you where you are now (current selection). The bottom part shows the various locations where script is located. This makes it much easier to find code that may be in various locations.

Let's try one last simple example using the exercise we just tried. With the existing project open, select File > New > ActionScript File.

Cut the line of code from the script layer of our project and paste it into the new ActionScript file. Save the file with a name, say Test.as (ActionScript files have an extension of .as).

In the script layer where the code was originally located, type the following code:

```
#Include Test.as
```

Note that there is no colon at the end. Run the movie now. It should work in exactly the same way. We can now see that it is easy to put our programming code in separate class files and then just include them into our movies. As a result, we can use this code anywhere that we need it. While it is only one line of code, imagine if it were 100 or 1,000, lines. It is not hard to see how this could make our programming lives a lot easier.

## Summary

Next month, we'll look at programming structures such as loops and decision statements. Just as a note, we will be referring to concepts discussed in this article. ☺

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AHH...(DEEP INHALE)...THE SMELL OF THE HOLIDAYS IS IN THE AIR. I WISH I COULD WRITE ABOUT ALL OF THE WONDERFUL JOYS OF THE HOLIDAYS, BUT WE'LL STICK WITH THE WONDERFUL JOYS OF CREATING FLASH APPLICATIONS WITH OOP. AS I STATED IN MY LAST ARTICLE (MXDJ, VOL. 2, ISSUE 10), THIS ARTICLE WILL SHOW YOU HOW TO CREATE THE SAME PHOTO ALBUM, DONE WITH COLDFUSION, IN FLASH AND WITH OOP, PREFACED BY THE AUGUST 2004 ARTICLE (VOL. 2, ISSUE 8). MY PROMISE WAS TO TAKE THE SAME COLDFUSION BACK END USED FOR THE HTML ALBUM AND USE IT WITH A FLASH FRONT END. SINCE I TEND TO KEEP MY PROMISES AND I AM IN THE HOLIDAY SPIRIT I'LL PROVIDE A QUICK REVIEW FOR THOSE WHO WERE SLEEPING IN CLASS OR WERE ABSENT.

by john c. bland ii & michael hagel



## Quick Review

In the August issue I did my best to project the ease of basic OOP in Flash with my Beginning OOP in Actionscript 2.0 article. In my closing words I stated, "...you can actually turn this into a powerful tool by adding dynamic data via XML, Remoting..." which is exactly what we're going to do here. To get a full understanding of some of the concepts I will use I strongly suggest you read that article because I will not thoroughly explain things I covered then. Think of this article as Chapter 2 of a book. Sometimes you have to go back to Chapter 1 to get a full understanding.

The October article dealt with using OOP in ColdFusion in the same way I would in Flash, which was a revelation for me. One of the best learning tools I utilize is comparing one language to another. I'm very strong in Actionscript OOP but lacked ColdFusion OOP skills until I stumbled upon my scopes. I will use three of the same files for this app but offer minimal explanation.

The source files for both articles are online ([www.jdevinc.com/tutorials](http://www.jdevinc.com/tutorials)). We're done reviewing and it is time to get started.

## Data Retrieval Setup

The interesting part here is we already have our back end ready to roll. All we need to do is make a few changes to the files and we can step into Flash and get to the good stuff. On every data retrieval project I fight tooth and nail to use Remoting, especially for database interaction. We are going to take advantage of Flash/ColdFusion integration via Remoting and show how easy it is to use existing ColdFusion components with Flash.

If you recall, we had a data.cfc component. This CFC had one function, setupAlbums, which was created as an object in the Application.cfm and stored in the Application scope. We then called the setupAlbums function, which read our pics directory and created a query of albums with an embedded query of images (images on same row as parent album). This query was stored in the local variable albums. Next, in the Application.cfm we stored the local variable albums in the Session scope as Session.albumQ (short for album query). Everything after that in the Application.cfm is unnecessary since it all pertained to an HTML front end. There are a few more edits as well, and I'll spit out the lines to delete. Lines 13–18 are not needed. The <cff...> block on Line 28 (prior to previous delete) should be skimmed down to only set up the Session.albumQ variable; just delete everything after that and before the closing </cff> tag. Other than those changes, the Application.cfm (see Listing 1) is ready to roll. There is one small addition to the data.cfc component.

```
<cffunction name="getAlbums" access="remote" return-  
type="any">  
<cfreturn Session.albumQ>  
</cffunction>
```

The code snippet above is the second function in

data.cfc. We will call this function to get the album query; notice the access attribute is set to remote. This is the smallest function I have ever written for a Remoting call. All we are doing is returning the Session.albumQ variable. This variable is ready and waiting for us to retrieve it since it is created in the Application.cfm. If you remember, that file will run before the index.cfm which will hold the application.

Our back end is prepped and ready. The only other file we need to update is index.cfm. All we need to do is strip all of the contents between the <body> tags and add the <object> and <embed> tags for Flash. That's it! We're now ready to open Flash.

## A Flash'ing We Will Go

Since we are going to actually have a design on this app (unlike the August app) I asked Michael Hagel to talk design stuff since he is the designer of the ColdFusion photo album showcased in October. Michael is an interface designer, developer, and inventor. I have worked with him on several apps, including Central Stream v1, which won the coveted Site of the Day from Macromedia. Let's see what he has to say about the design aspects of this app.

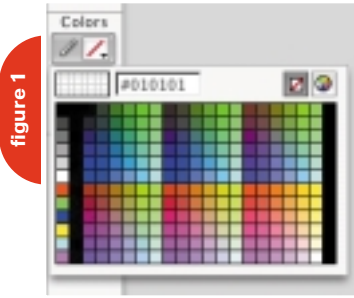
## The Design

Thanks, John! Usually when designing complex interfaces for Flash applications or Web sites I start off in an image editing application (Fireworks, Photoshop, etc.), then I import the graphics into Flash and lay them out accordingly. It may not sound like the most productive way to do things but trust me, on larger projects it will pay off, both in terms of performance and time. For smaller apps I usually just stick with Flash's built-in drawing tools to design everything. For this application we will use Flash's drawing tools to design the UI, then John will continue with the development of the app.

To start, open Flash and create a new document. Using the Properties Inspector (Window > Properties), change the stage size to 700 x 650, leave the background as white and the frame rate set to 12. We will start by drawing the main container sections, which will hold our albums, thumbnails, and large images.

Open your Tools Panel (Windows > Tools), then select Layer 1 and choose the Rectangle tool (R) from the Tools Panel. We want to remove the stroke so in the stroke color picker select the white box with the red line through it (see Figure 1).

Change the fill color to dark blue. Let's break the consistency and use rounded edge rectangles for the UI. Click on the Rounded Rectangle Radius button and enter 5 for the Corner radius setting. Draw a rectangle 165 x 550 and position it at coordinates (20, 75). This will be our outline for the album section of the app. Add a new layer (Insert > Timeline > Layer) and draw another rectangle with a fill color of white and a stroke of orange. Using the Properties Inspector, change the stroke weight to 1.5 pixels; I usually find anything lower than this – when using a rounded edge – doesn't show up enough.



To add some depth to the UI we can use some of Flash's shape effects to give it a shadow and glow. Go back to Layer 1, copy (Edit > Copy) the blue rectangle, and create a new layer. Drag the layer underneath Layer 1 and Paste in Place (Edit > Paste in Place). Hide the two layers above them and you will see the same blue rectangle was pasted directly where it was copied from – this is a great feature of Flash and one I wish a lot more graphic applications had. Now, to soften the edges on the rectangle, giving more of a shadow and glow effect, select Modify > Shape > Soften Fill Edges. Set the Distance to 15 pixels and the Number of steps to 30. Make sure Expand is selected for Direction. Turn on the other layers and you will see a slight glow behind your blue outline. To add the final touches to this effect we want to give it a slight alpha. For this we need to convert it into a MovieClip or Graphic. Because we will not be applying code to the shadow a graphic will be fine. Select this layer and choose

Modify > Convert to Symbol (F8). Give it a name, choose Graphic for Behavior, and make sure the Registration point is in the top left corner (see Figure 2).

I usually name all Graphics gpc\_name, MovieClips mc\_name, and Buttons btn\_name. This allows you to keep the library much more organized. Once it is a Graphic we can adjust the alpha value. Select the graphic then select Alpha from the Color property in the Properties Inspector. You can play with the alpha but I chose 75%.

Now let's convert everything we have done to this point into a graphic named gpc\_albumBack. This will put everything we have done on one frame and give us a neater main timeline. It also allows us to position the entire section without worrying about selecting multiple frames.

Using the same method listed above, make another UI element that will hold your thumbnails and large images. Once you have done this move both UI elements to the same layer and name it UI.

Since we are going to place both the thumbnails and the large images in the same container we need to add something to make a clear division between the content. To do this, make a new layer above the UI layer. Select the Line Tool (N), change your stroke color to orange, and in the Properties Inspector set a 1.5 pixel dotted stroke. Draw three lines, one in the

albums section – to separate the title from the album title, and the other two in the main section, to separate the pics title from the thumbnails and the thumbnails from the large image.

Using the Text Tool (T), change the property to Dynamic Text and create a textfield at the top of the album section, and two on top of the main section. The first main section textfield should read "Pics ::" while the second is empty, awaiting text. We chose Dynamic Text to embed the font we want to use for the album instead of using a system default font. To embed fonts, select the textfield and in the Properties Inspector choose Character. Then you can specify the ranges you wish to embed or type the individual characters you would like to include (see Figure 3).

We need to set up the ScrollPanes needed to house the thumbnails and the large image. Open the components panel (Windows > Development Panels > Components) and select the ScrollPane from the UI Components set. Drag two instances of the component to the Stage; you can add them to the same layer as the text and lines. Resize one component to fit within the thumbnail area (438x50) and name it thumbs\_sp. Resize the other to fit into the large image area (438x430) and name it large\_sp.

figure 2

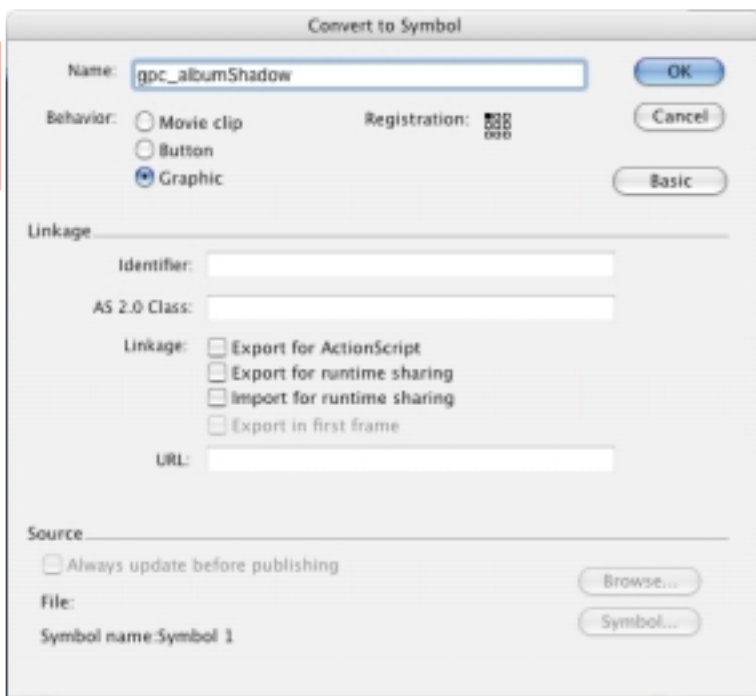
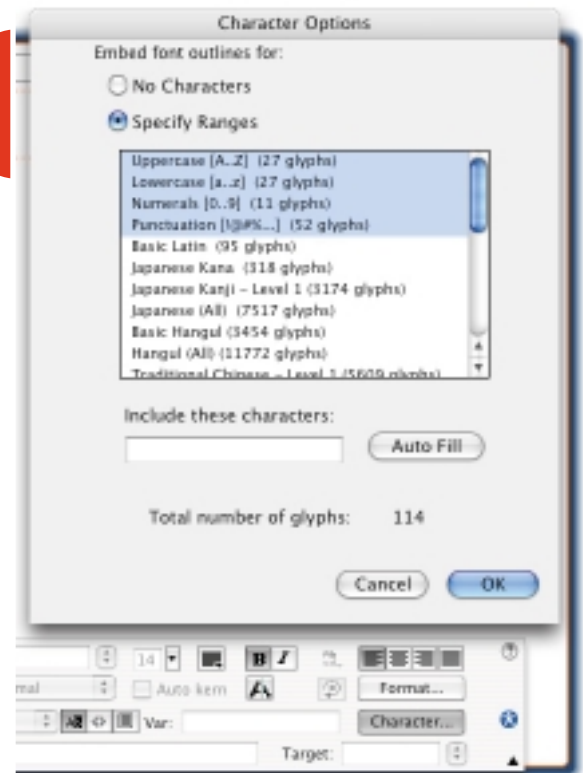


figure 3



After setting up the ScrollPanels we need to create our Thumbnail and Album MovieClips. These clips are attached to the stage at runtime. To make the Album MovieClip, select the Text Tool and draw a textfield roughly 138x54. Select Dynamic Text, give it an instance name of name\_txt, set the font to \_sans with a font size of 10, and a color of #003366. Make the textfield multiline as well. John will touch on why we use multiline later. Now we need to Modify > Convert to Symbol (F8), give it a name of Album, and make the registration point the top left corner; don't worry about the linkage. Delete the MovieClip from the stage.

For the Thumbnail MovieClip we need to do a little bit more. First, select the Rectangle Tool and draw a rectangle 40x40 on the stage. Copy and Paste in Place the rectangle you just drew. Select the top rectangle only and Modify > Convert to Symbol. Give it a name of Mask, click OK, and give it an instance name of mask. In the source file you will see I changed the tint of this MovieClip so you could tell the difference between the two but this isn't mandatory. Select both the Mask MovieClip and the other rectangle you drew then Modify > Convert to Symbol giving it a name of Thumbnail. What we just did was create a background and a mask for our thumbnail. Now we need to do two more things. Double click the Thumbnail MovieClip to enter its timeline, if you are not already there. Highlight both items and Modify > Timeline > Distribute to Layers. Now you have two layers. Make sure the Mask MovieClip is on the top layer and rename this layer Mask, if it isn't already. If you have an empty layer simply delete it. Double click the Mask layer's icon and select Mask from the radio buttons. Do the same for the other layer but select Masked. That's it. Return to your main timeline, delete the MovieClip from the stage, and prepare to put the finishing touches on the design.

The last thing to do concerning the design is to import our header image. Select File > Import > Import To Stage and choose the image you wish to insert as your header graphic. Name this layer UI Elements and you are done. The stage should now look like Figure 4.

Now the app is looking good so we

can turn it over to John to show you how to make it work. Take it away John.

### Return of the Sleepy Eye

Huh...what?!?!?! I was just resting my eyes but I was listening the whole time. If I ever get to design something in Flash I'll be sure to try your techniques, although I'd probably just have you do it as usual.

Next month we are going to pick up where we left off and I'll show you how to bring this together. This is actually a very useful application that can bring a lot of mileage to a client or to you. While you are waiting please contact me via e-mail, mxdj@jdevinc.com, with any requests about this article in particular that you would like to see clarified in the following article(s). I hope you enjoyed Mike's information on setting up the Flash Interface. If you have any questions about the design feel free to email Mike at info@michaelhagel.com. Get ready for Round 2!

### Acknowledgements

John: Most of all I want to acknowledge God for Deut. 8:18, my family (Tia, Adreana, and soon to be John C. Bland III), my parents, and my brothers for continued support. T, thank you for allowing me time to write! Mad Love! I want to send big thanks to Sarge (sargeway.com/sarge), Robert Hoekman (widgetmaker.net), the Flash and Multimedia Users Group of Arizona (newly moved to gotoandstop.org http://azflash.org/), and the Phoenix ColdFusion Usergroup (www.azcfug.com). I also have to give mad props to Michael Hagel (michaelhagel.com, www.michaelhagel.com) for banging out the site graphics for this app and for writing the design segment. Keep up the sweet work! Oh, and I REALLY listened...for real! :-)

Mike: LOL. Thanks again John for allowing me to contribute to another of your great articles. I would also like to thank my family, friends, and God, cause without them I wouldn't be where I am today. ☺

*John C. Bland II is CEO and chief developer for JDEV Inc. (www.jdevinc.com), a Phoenix-based New Media Firm currently providing Internet consulting and development services for many compa-*



nies nationwide. John's strong suit is application functionality and he loves utilizing a combination of Flash, Flash Remoting, and ColdFusion to build Rich Internet Applications, Central applications, and Web products. He accredits a lot of his growing knowledge to the continued fellowship, support, and communication within the Flash and Multimedia Users Group of Arizona and the Phoenix ColdFusion UserGroup. Look for new applications coming out around the first of the year from John and JDEV Inc. mxdj@jdevinc.com

Michael Hagel is an interface designer living and working in Atlanta, GA. During the day he works as a lead interactive designer at Deardorff Communications, working on Rich Internet Applications and Web sites for various Apart from work he freelances, consults, speaks, teaches, and writes on Web design/development, Rich Internet Applications, and mobile applications. His personal blog can be found at http://www.michaelhagel.com/blog and his portfolio at http://www.michaelhagel.com. info@michaelhagel.com

### listing 1

```
<cfsilent>
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    applicationtimeout="#CreateTimeSpan(1,0,0,0)#">

<cfif isDefined("URL.blue42")>
<cfoutput>
    <cfset StructClear(Session)>
    <cfset StructClear(Application)>
</cfoutput>
</cfif>

<cfparam name="Application.title"
type="string" default="Photo Album">
<cfparam name="Application.path"
type="string" default="assets/pics">

<cfif NOT isDefined("Application.data_cfc")>
    <cfset Application.data_cfc = CreateObject("component", "assets.cfcs.data")>
    <cfset Application.data_cfc.setupAlbums()>
</cfif>

<cfif NOT isDefined("Session.albumQ")>
    <cfset Session.albumQ =
Application.data_cfc.albums>
</cfif>
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```

# Xcelsius from Infommersion

*A must-have for making your presentation exciting and interactive*  
by Charles E. Brown

One thing was abundantly clear at the 2004 MAX conference in New Orleans: the third-party Flash market is growing rapidly. This is due to Macromedia's decision to provide APIs and open standards. The result of this decision is that the Flash developer will now have a virtual cornucopia of exciting new tools that will increase productivity and flexibility.

One of the most interesting of these new tools is put out by a California com-

pany called Infommersion and is called Xcelsius. This tool will allow you to connect a Microsoft Excel spreadsheet into a self-contained Flash file that can be displayed on the web or even exported into a PowerPoint presentation. Once inside the Flash file, you can use powerful Flash components to create "what-if" scenarios. If all that isn't enough, you can then save the "what-if" results back to the original spreadsheet.

Let's look at an example.

When we first open Xcelsius you see a screen similar to Figure 1.

Xcelsius has 42 built-in components and 9 chart formats to assist you in putting together a dynamic presentation. One could easily assume that as this product grows, even more components will be available. However, even if that does not happen, what is available now will more than handle most needs.

We begin by selecting the type of component or chart you want to use. In this example, I will use the Bar Chart and then place that chart where I want it.

Figure 2 shows some unique additional components that are available. While we don't have space to show all of them, there are components featuring U.S. and European maps, backgrounds, prebuilt buttons, tables, and grids.

For this example, I select the Horizontal Slider and place it right below the Bar Chart. The components can be moved and resized easily. Our screen now looks something like Figure 3.

One tool I found handy is an Object Browser. While our example has only two objects in it, you could easily build more complex graphics. The browser is shown in Figure 4. Here we can select, hide, and rename components.

The next step is to link our components to a Microsoft Excel worksheet. This is just a simple matter of clicking on an icon and browsing to the file you want. However, this also brings me to my one real quibble with this program.

Xcelsius is not just linked to the Excel

worksheet, but to Microsoft Excel version 2003. This is because it uses XML as the connecting technology. For most users, this might not cause a problem.

However, if you are an OpenOffice user, as I am, Xcelsius appears to be unusable. To do this review, I had to install Excel on my computer. With more and more users switching technology, I hope Infommersion addresses this issue with future updates.

After the linkage is created, the rest is simple. If you know how to create a chart in Excel you can easily use Xcelsius. You simply go to the chart, right-click, and select Properties. From here on, the style of the menus and dialogue boxes is very much like you would find in Excel. You can assign cell ranges for the X and Y axes, define chart properties, and even enter chart titles.

You have to repeat the same process for the slider (or whatever variable component you may be using). In my test, I bound the slider to a cell in the worksheet, which will vary for "what-if" scenarios. If there were to be more than one variable, I could easily handle that by placing multiple control components and binding them to the appropriate cells. Once again, all of it was extraordinarily easy to do.

The last step is to export the finished file to the format you would like. In most instances you will want to do this as a Flash .swf file. To do this, I simply selected the File > Export option. As a handy feature, I could have previewed the export first.

When I ran the Flash movie, I was able to move the slider and see the chart respond to the variable the slider was changing. Of course, in the background XML had the .swf file bound to the worksheet, and the slider was also varying the cell it was bound to. The results were truly impressive.

Among the export options were the aforementioned .swf file, a Powerpoint slide, HTML, and a Flash file attached to an Outlook e-mail. What more could you want?

figure 1

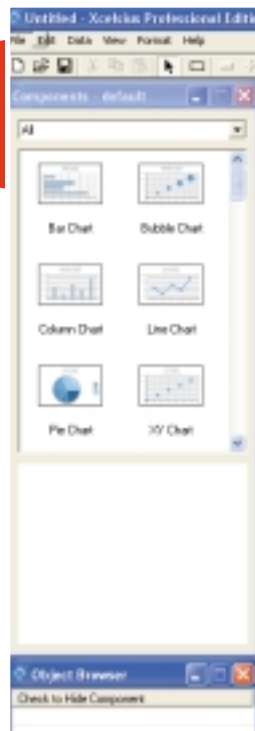
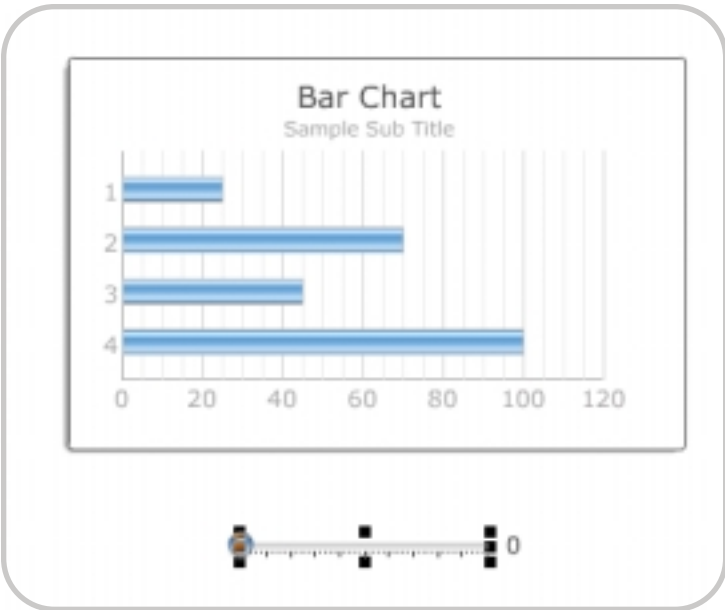


figure 2



figure 3



the functionality I showed in this review. This sells for \$195.

The Professional edition gives you the ability to save the results back to Excel as well as some additional connectivity options. Also, you can trigger the XML for updates using JavaScript as the event trigger. This edition goes for \$495.

The Enterprise edition is for network licensing situations and you would need to contact Infommersion for pricing.

**Summary**

Once you try it, I'm sure you will agree that it is rare to see such incredible power in such a simple to use package. If you want to make your presentations exciting and interactive, Xcelsius is a must.

Some of the other components can quickly and easily give you spectacular results. For example, you can use the Map component (U.S. or Europe) and tie each state into cells of the worksheet (see Figure 5).

Unfortunately, using static print (as you see here) does not do this product justice. To truly experience it, you

should go to their Web site at [www.infommersion.com](http://www.infommersion.com). There you can test drive some of the features and really see them in action. You can also download an evaluation copy of the program.

As of this printing, Xcelsius is available in three versions. The Standard edition has all 42 components as well as most of

figure 4

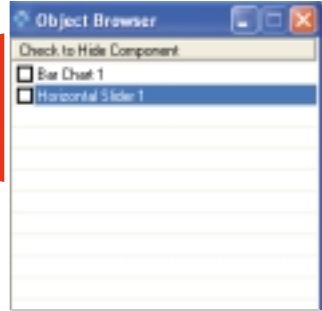
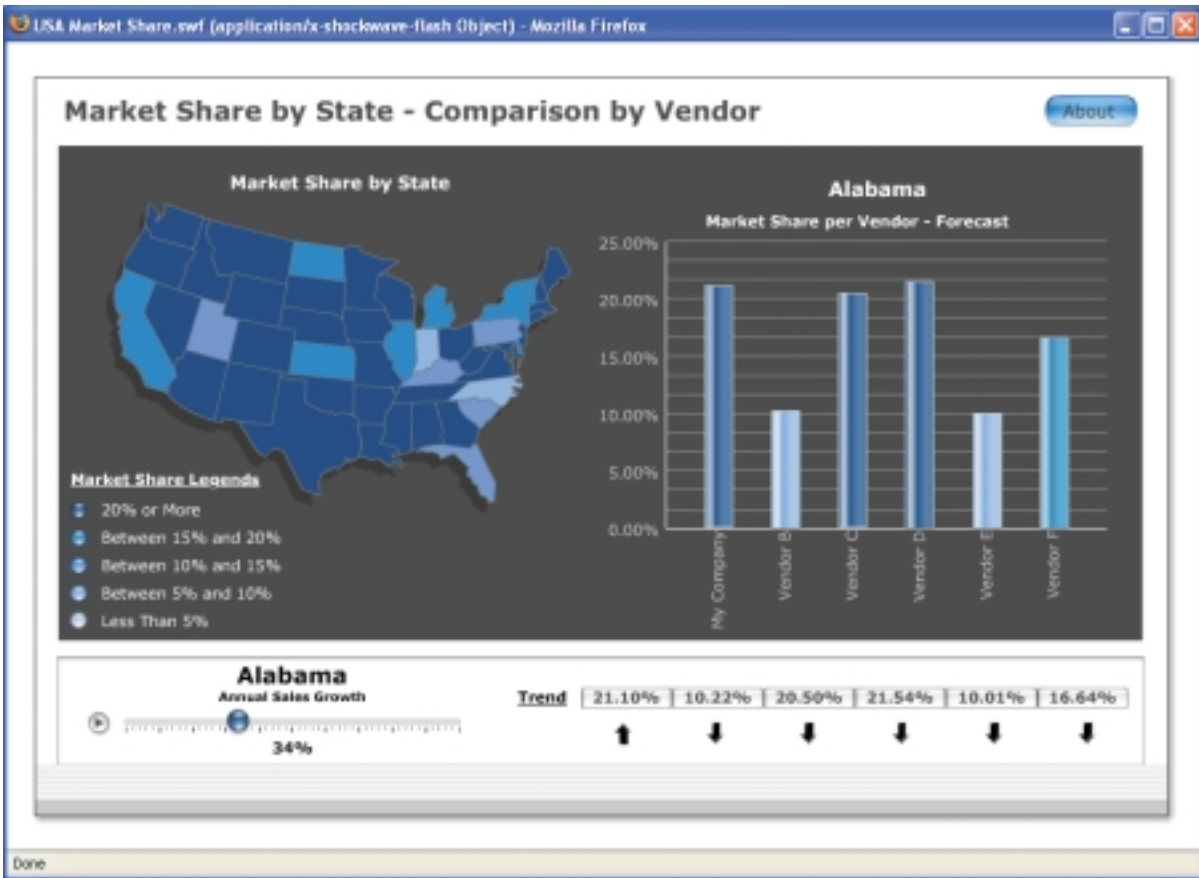


figure 5



Charles E. Brown is the editor-in-chief of MX Developer's Journal. He is the author of Fireworks MX From Zero to Hero and Beginning Dreamweaver MX. He also contributed to The Macromedia Studio MX Bible. Charles is a senior trainer for FMC on the MX product family. charles@sys-con.com



d  
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w  
h  
f  
d

All the ingredients to build a frozen friend

# Let It Snow, Man!

by jim babbage

# W

ell, there's a chill in the air: The leaves have fallen, the wind is brisker, and sometimes, even in early November, there's that "scent of snow" in the air. In the lead-up to the holiday season, I have created a two-part series that uses both Fireworks and Dreamweaver. The end result will be a fun little "build your own" snowman Web page. In Fireworks we will create all the essential ingredients for our frozen friend. Then, in Dreamweaver, we'll use the Drag Layer behavior to create a Web page where we can move all the snowman pieces together and build our own snowman online. This is a great opportunity for our friends to the south who don't even get snow to have a little winter fun.

We will also make use of a different export option in FW: Export as CSS Layers. This is a little known – or little-used – feature, and comes in quite handy for jumpstarting our Web page.

This concept could have many different uses: visual quizzing, jigsaw puzzles, or other holidays, just to name a few.

### Setting the Scene

1. To begin, create a new Fireworks document that is 760 pixels wide x 420 pixels high. In the long run we won't need all of this space, but I find it useful to set up dimensions based on actual view port sizes. Everything we create in FW will be vector based, so it will be no problem to scale objects larger or smaller.
2. Use the Rectangle tool and draw a box identical in dimensions to your canvas. The shape will act as our backdrop for our winter scene. With the rectangle still selected, go to the Properties inspector and change the Fill Category from solid to Gradient>Linear (see Figure 1).
3. We'll customize the gradient from its default settings so that it changes from light blue (#00CCFF) to white (#FFFFFF), and then change the direction of the gradient so that it travels from top to bottom, rather than left to right.
4. When you are happy with the gradient, name the layer "bkg" and then lock the layer by clicking on the lock/edit box in the Layers panel (see Figure 2). This will ensure we don't select or use this layer accidentally.

Now let's build our snowman!

### Yo, Frosty!

First we will create the giant snowballs needed for the body.

1. Select the Ellipse tool from the Vector shapes in the Tools panel.
2. Set the Fill Category to Gradient>Ellipse (see Figure 3). The gradient colors need to be a very light grey (#DBDBDB) for the starting color and white (#FFFFFF) for the end color. This will help add some dimension to the snowballs so they don't look so flat.
3. Set your Stroke settings to the following:

- Color: #CCCCCC
- Tip Size: 15
- Category: Charcoal>Soft
- Edge: 50
- Texture: Grain at 30%

4. Holding down the Shift key, drag an ellipse that is about 160 pixels in diameter. This will be our template for the body. Once drawn, the gradient will not be in the correct position. Select the Pointer tool and drag the gradient by its axis point to a position similar to that of Figure 4. Adjust the gradient control arms so they are similar to Figure 4 as well.

*Notice that because our bottom layer is locked, FW automatically creates a new layer for the ellipse to reside in. Name this layer "snowman."*

5. Press F8 to turn this shape into a symbol.
6. Give the symbol a name, like "snowball" for instance, and choose Graphic as the Symbol Type.
7. Click OK. We'll use instances of this symbol for the tummy and head of the snowman (see Figure 5).

*What are symbols and instances? A symbol is a master copy of an object in Fireworks. It could be a vector shape or a bitmap element. Symbols are saved in the Library tab of the Assets panel, and can be reused over and over again. The benefit of using symbols is saving time. You are saved from having to redraw or copy/paste an object on your canvas, should you need additional versions of that object.*

*An instance is a copy of the symbol and is created when you drag the symbol from the Library tab to the canvas. If you edit a symbol, all the instances of that symbol will change to match the symbol. You can also make some custom changes to the instances in terms of scaling, Live Effects, Opacity, and Blend Mode. These customizations are only applied to the selected instance.*

8. Open the Library tab of the Assets panel and you should see your symbol sitting there. To bring an instance of it to the canvas, click and drag the symbol icon to the canvas. When you let

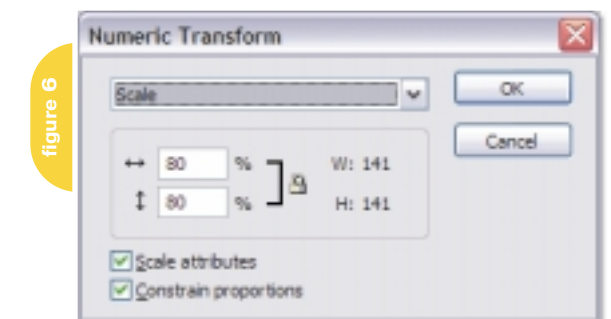
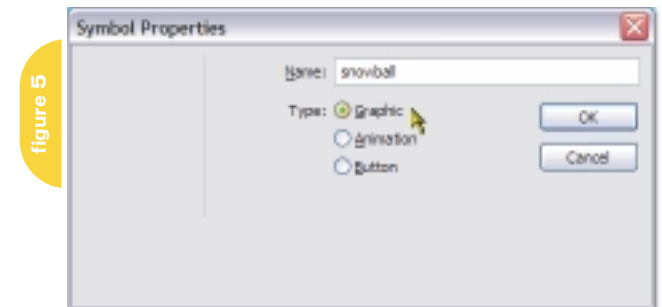
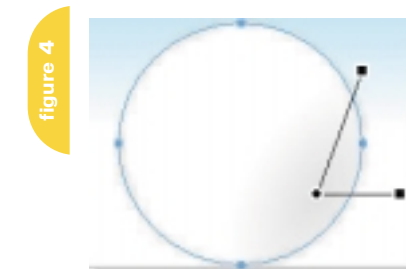
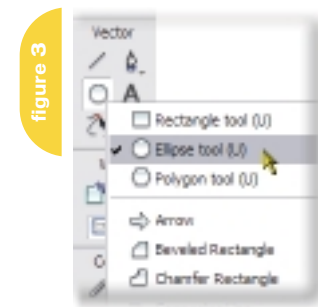
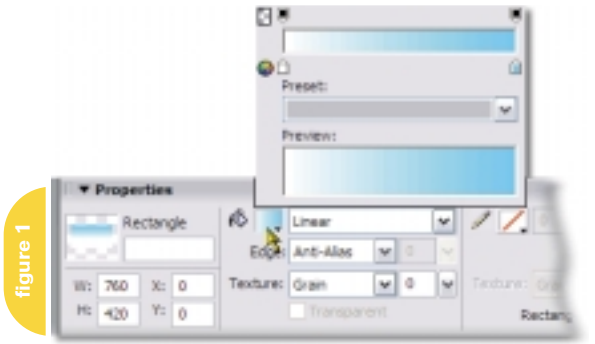




figure 7

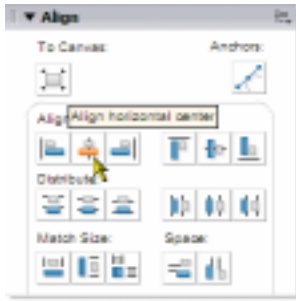


figure 8

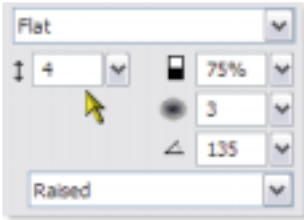
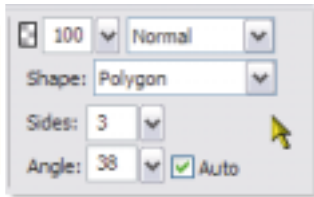


figure 9



figure 10



go of the mouse a new instance will appear. This is the tummy (or torso) of the snowman. It needs to be smaller than the base, so we will scale it numerically.

9. Go to Modify>Transform>Numeric Transform (Ctrl/Cmd+Shift+T). Set the Scale Values to 80%, as seen in Figure 6.
10. Hold down the Alt/Option key and using the Pointer tool, click and drag the tummy section upwards. This is another way to create an Instance (or a copy of anything, really) on the canvas. You'll see that we now have two identically sized ellipses and one larger one.
11. With the top ellipse selected, press Ctrl/Cmd+Shift+T to bring up the

Numeric Transform dialog once again. The previous settings of 80% should still be in place. Press OK.

12. Position the three ellipses so that they overlap to your liking.
13. Shift+click each ellipse so that you select all three shapes.

*You can also Shift+click in the Layers Panel, or use the Pointer tool to drag over all three shapes.*

14. Go to the Align panel. Make sure that the icons for To Canvas and To Anchors are both deselected (they will look orange if selected).
15. Choose the Align Horizontal Centers icon (see Figure 7) to line up all three snowballs.
16. Rename each object in the Layers panel by double-clicking on the default name. Keep the names short, with no spaces.

### And Two Eyes Made Out of Coal . . .

The next thing we need is a lump of coal. This single graphic will serve multiple purposes: eyes, mouth, and buttons. We just need to create one, then turn it into a symbol.

1. Use the Ellipse tool once again to draw an oval, approximately 14 px wide by 18 px high. Fill it with solid black. Set the Stroke Properties to:
  - Color: #000000
  - Tip Size: 1
  - Category: 1-Pixel Soft
  - Edge: 0
  - Texture: Grain at 50%

2. Apply an Inner Bevel Live Effect. Go to the Effects area of the Properties inspector and click on the + sign. Choose Bevel And Emboss>Inner Bevel. Match your settings to those in Figure 8.
3. Convert this shape to a symbol by pressing F8. Name it "coal."
4. Drag eight more of these instances onto the canvas, for a total of nine lumps of coal. Place them accordingly. Leave a bit of a gap between two of the "mouth" coal pieces. Figure 9 shows my positioning.
5. When done, name each object via the Layers panel. Oh, and save your work if you haven't already.

### Carrot Sticks, Anyone?

Okay, the real Frosty had a button nose, but I like the carrot method.

1. To create our carrot nose, select the Polygon tool. Set the Polygon Properties to match Figure 10.
2. Drag and create an equilateral triangle, with a flat, horizontal base. Set the fill color to orange (#FF9900) and the Stroke Properties as seen below:
  - Color: #000000
  - Tip Size: 1
  - Category: 1-Pixel Soft
  - Edge: 0
  - Texture: Grain at 0%
3. With the triangle selected, choose the Scale tool. We want the carrot to be long and skinny. Do this by dragging any of the center control handles.
4. We also want the flat end to be a little rounded. Choose the Pen tool, click in the middle of the bottom line of our shape, and drag the tool so that you pull out the Bezier Curve control arms. Drag until your cursor is resting over the bottom right anchor point for the triangle.
5. Choose the Subselection tool and pull the newly created anchor point down a few pixels, until the base of the triangle is curved (see Figure 11).
6. Go to Modify>Transform>Rotate 90 CCW to point our "nose" in the correct direction.
7. Let's add a few curved strokes to make the carrot nose look more rounded.
8. Zoom in to at least 400% so that the

figure 11



figure 12





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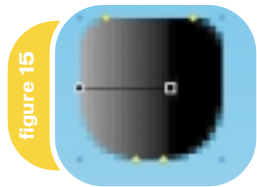
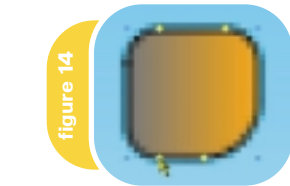
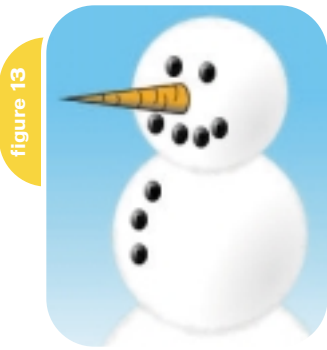
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nose fills the canvas fairly well. Choose the Pen tool again. Click it about 2/3 of the way up the nose (Okay, that sounds gross. Kids, don't try this at home) to set an anchor point.

9. Move your mouse down to the bottom of the nose and then click and drag to create a curved line.
10. Double-click on the end anchor to disengage the Pen tool.
11. Select the Subselection tool, adjust the curve as needed, and position the curve so that it rests on the nose's black stroke.
12. Create a few of these by duplicating the one just drawn. Position them randomly, attached to the top and bottom strokes of the triangle. You can use the Subselection tool to alter the curve and the height of the line. Figure 12 shows my completed nose.
13. When you have all the curves positioned as you like, use the Pointer tool to select each object (including the carrot nose itself).
14. Press Ctrl/Cmd+G to group all the carrot objects together. Make sure you don't select any other objects by accident. Hold down the Shift key to make multiple selections. You can

also do this in the Layers panel, rather than the canvas area if you find that easier to do.

15. Use the Pointer tool to position the nose on the snowman's face. If the nose is too big or too small, you can use the Scale tool to adjust it.
16. One last change. To give the carrot some dimension, we'll change the fill from solid orange to a linear gradient. We can do this even after several objects have been grouped together.
17. Zoom in on the nose again. Use the Subselection tool to select just the triangle shape of the carrot.
18. Go to the Fill Category drop-down menu and choose Linear. The default gradient will appear, moving from black to orange. Immediately switch to the Pointer tool. The gradient control arm will appear on the nose.
19. Adjust the gradient's direction so that it runs from top to bottom, rather than left to right, with orange on top.
20. Move the gradient control arms closer to the wider end of the carrot. Shorten the length of the gradient so that most of the carrot is orange, and finally, adjust the gradient colors so that the black becomes a medium grey. As you can see from Figure 13, our snowman is taking shape nicely.

### Put That in Your Pipe and Smoke it!

Yes, I am the king of the cheesy sub-headings, in case you were wondering. Our next mandatory snowman element – even in this day and age of the non-smoking bylaw – is the pipe. Again, vector tools to the rescue.

1. Choose the Rounded Rectangle tool and draw a small square.
2. Zoom in on the shape so you can see it better. Don't worry about fill colors at the moment.
3. Because the rounded rectangle is an auto shape in Fireworks 2004, it will be easy to create the bowl of the pipe. Notice all those yellow diamonds? Those are control points for the auto shape. Hold down the Alt/Option key, and drag one of the two bottom control points toward the middle of the shape.

4. Do the same with the other bottom control point. This gives us our rounded bottom to the bowl of the pipe.

*The Alt/Option key lets you control the radius and shape of each individual corner. If you click the control point without dragging, you change the shape of the corner (see Figure 14).*

5. Change the fill to a linear gradient, if that isn't already in place.
6. Customize the fill colors so that the left side of the pipe is a medium-dark grey, and the right side is black.
7. Remove the stroke – if any – by clicking on the stroke color and choosing none. (This is identified in the swatch box by that universal “no” sign: a red strike-through.) Set the length of the gradient so that it ends 2/3 of the way across the pipe bowl (see Figure 15).
8. Create the pipe stem by drawing a long, thin, rounded rectangle that is solid black.
9. Move the two objects closer so that the pipe stem seems to merge with the pipe bowl.
10. Shift+Click to select both objects, and then group them together by pressing Ctrl/Cmd+G.
11. Choose the Transform tool to rotate the pipe to a jaunty angle. If you wish, you can add some smoke by choosing the Vector Path tool and setting the Stroke Properties to the settings below:
  - Color: #CCCCCC
  - Tip Size: 10
  - Category: Unnatural > Viscous Alien Paint
  - Edge: 30
  - Texture: 0%
15. Then simply draw a vertical squiggly line. Instant pipe smoke! If you do add the smoke, be sure to group it with the other parts of the pipe.



# Extension of the Month

## DWStats

**Extension Developer:** DWUser.com  
**Developer Web Site:** www.dwuser.com  
**Price:** \$17.99  
**Supported Server Models:** ASP, PHP, ColdFusion

Unless you run your own Web analytics package, the Web statistics you get from your ISP aren't always that easy to follow.

The amount of data presented in your standard Web report can be overwhelming and often poorly organized. Even worse, you usually don't get any information about your visitors' screen size or whether they have JavaScript enabled (two things that may affect how you develop your site).

Fortunately, Dreamweaver users can turn to a simple and inexpensive server-side solution from DWUser.com. DWStats is a Dreamweaver Extension that lets you track user data on your site. A password-protected page provides information about how many unique visitors have come to a page, where they came from (for example another page on your site or via a search

engine), what browser they used, whether JavaScript is enabled, what country the visitor is from, what operating system they used, and the screen resolution and color depth.

The extension works with either ASP, PHP, or ColdFusion sites, but you can track visitors on non-dynamic pages – i.e. plain HTML files – as well. It installs a new option on the Insert Bar – DWStats. Using it you can insert tracking code on any Web page on your site. In addition, the extension installs some server-side code that controls the display and access to these Web statistics. It's fast and easy.

Not that the extension doesn't have a few drawbacks. Statistics can only be viewed on a page-by-page basis – in other words, there isn't a summary page that shows total visitors to all



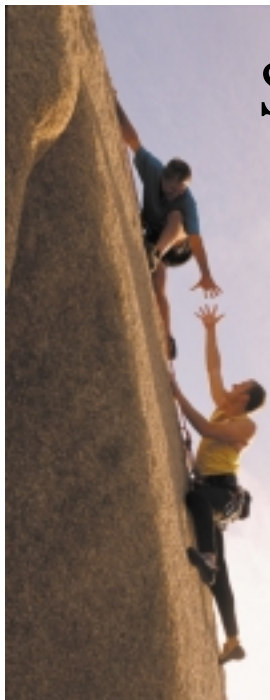
pages you're tracking.

But all in all DWStats provides a quick way to capture important user data – including data like screen resolution that isn't captured in normal Web logs.

...

Have a favorite extension? Is there an extension you just couldn't live with out? We're always on the lookout for awesome extensions, so drop us a line at: DaveMcFarland@sys-con.com

*Dave McFarland is the Dreamweaver editor of MX Developer's Journal and author of Dreamweaver MX 2004: The Missing Manual. Find out about his latest projects at [www.saw-mac.com](http://www.saw-mac.com) DaveMcFarland@sys-con.com*



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The Vector Path tool creates a path from whatever you draw with the mouse. Each time you change direction, a new vector control point gets added. You won't see those points until you stop drawing and let go of the mouse.

### Give That Guy a Hand . . . or Two

Your snowman needs a way to wave at passers-by, so next on the list are the arms. You can create these in a couple of different ways:

- The Pen tool
- The Vector Path tool

We've had a lot of practice with the Pen tool, so I will make my snowman's arms with the Vector Path tool. Because the path is created by how you draw, the resulting twig arms should look a little more natural. The stroke settings are as follows:

- *Color:* #9D4F00
- *Tip Size:* 3
- *Category:* Pencil > Graphite
- *Edge:* 0
- *Texture:* Grain at 30%

1. Draw the arm as a diagonal line.
2. Then draw a "V" shape for the hand. Because of the nature of the Vector Path tool (and the shakiness of your drawing hand), you will probably see a lot of control points.
3. We can remove a lot of these unnecessary points, thus simplifying the path, by going to **Modify>Alter Path>Simplify**.

figure 17



4. Set a value of 10 and press OK. You should see many of the extra points disappear.

**Productivity Tip:** You can replay the above step by selecting your next object and pressing **Ctrl/Cmd+Y**, or going to **Edit>Repeat Simplify Paths**.

5. Move the two objects together and then group them.
6. Draw your other arm in the same manner, or use the Pen tool if you like.
7. Position the arms on either side of the body. To add to our sense of depth, change the stacking order of the left arm so that it appears to be underneath the tummy object. You can do this by either dragging the arm layer lower in the Layers panel, or by selecting the object and pressing **Ctrl/Cmd+Down-arrow** key. Keep pressing this key combo until the arm moves behind the tummy.

### He's One Cool Fashion Victim

Our last two elements are fashion accessories. No self-respecting snowman would be caught in public without a hat and scarf of some sort.

1. For the scarf, use the Pen tool to draw a shape that has a bit of an "S" curve to the top and bottom. Make sure to close off the path by clicking on the starting control point, as we have done previously in this tutorial. As always, you can use the Subselection tool to tweak the shape. For my scarf, I created a duplicate of the first shape and rotated it a bit.
2. For a fill, choose **Pattern>Cloth-purple** from the Fill Category drop-down menu in the Properties inspector. Select both objects and group them. Remember to give the grouped object a name in the Layers panel.
3. Our snazzy, yet well-loved top hat is created with two vector shapes: an ellipse for the brim and a rectangle for the crown.
4. Draw your oval shape for the brim using the Ellipse tool.
5. On top of that draw a rectangle for the crown with the Rectangle tool.
6. We want to make the top and bottom of the rectangle a little rounded and in order to do that, we need to un-group

the shape. A standard vector rectangle is a grouped shape by default. Press **Ctrl/Cmd+Shift+G** to un-group the shape.

7. Much like we did with the carrot, add a control point to the top and bottom of the rectangle shape.
8. Use the Pen tool to drag out the Bezier control arms, and the Subselection tool to drag the control point to create a subtle curve to both the top and the bottom of the crown.
9. Add a few more control points to the sides of the crown, but do not drag out the curve handles. Instead, once the points have been added, use the Subselection tool to drag some of these points inwards and outwards. This will give our top hat a bit more of an aged, worn look.
10. Figure 16 shows the control points for my hat.
11. Select both objects and group them together.
12. Use the Transform tool to rotate the hat.
13. Move the hat into place on our snowman's head.
14. Go through the Layers panel and make sure each object is named, then save the file.

TA DAAAA! Our snowman is complete (see Figure 17). Now let's get him into Dreamweaver.

### Exporting the Snowman to Dreamweaver

There are at least two ways to approach this:

1. Hide the background layer, move all the objects apart so they do not overlap, create a custom slice for each object, and export all slices. The advantage here is that you can set custom optimization settings for each slice. You can also add Alt text in the Properties inspector for each image. The downside to this method is that you will have to completely rebuild your snowman in DW, before you can even begin to set up the Drag Layer behaviors. You will have to export the background separately so that it doesn't show up as the background in each of your snowman image slices.
2. Distribute all of your objects to separate layers while in Fireworks and

export your snowman – in place – to Dreamweaver as positioned, CSS layers. The advantage here is that your initial Web page will look exactly like your FW creation. The disadvantages are that you cannot create custom optimization settings for each element, and Alt text will have to be added manually in DW. You will have to decide on a single file format and optimization setting for everything. As a result, some of your files may not be as small in file size as you may

like, or may not look as perfect as you wish. In my case, there really is not much of a decision factor; I want transparent backgrounds around each image so that they just look like the original shapes, not like shapes inside of boxes. This means that a JPEG is out of the question. Plus, it's a lot easier to finish the page when half the positioning work is done.

We will, however, temporarily create and use one slice for our background gradient.

1. Click the Eyeball icon that is to the left of the snowman layer. This will hide our creation from view.
2. Unlock the bkg layer by clicking on the lock symbol.
3. Select the gradient background, and then Right/Ctrl+Click to bring up the Context menu.
4. Choose Insert Slice from the menu. Your background will be covered in a slice indicated by the light green tinge.
5. In the Optimize panel, set the format from GIF to JPEG, and set the Quality to a value of 70.
6. Set the Smoothing to a value of 1, to minimize any JPEG artifacts. Because there is no real detail in this background, smoothing the image won't hurt the quality or sharpness of the background (see Figure 18).

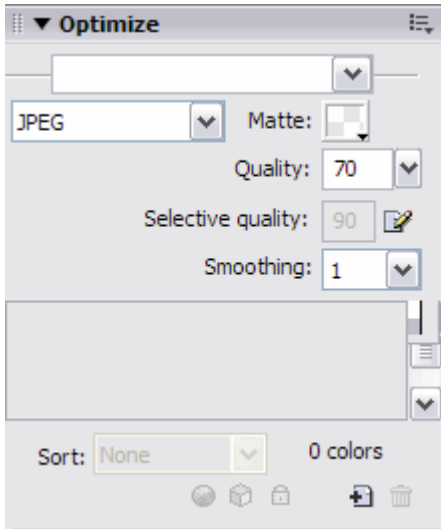


figure 18

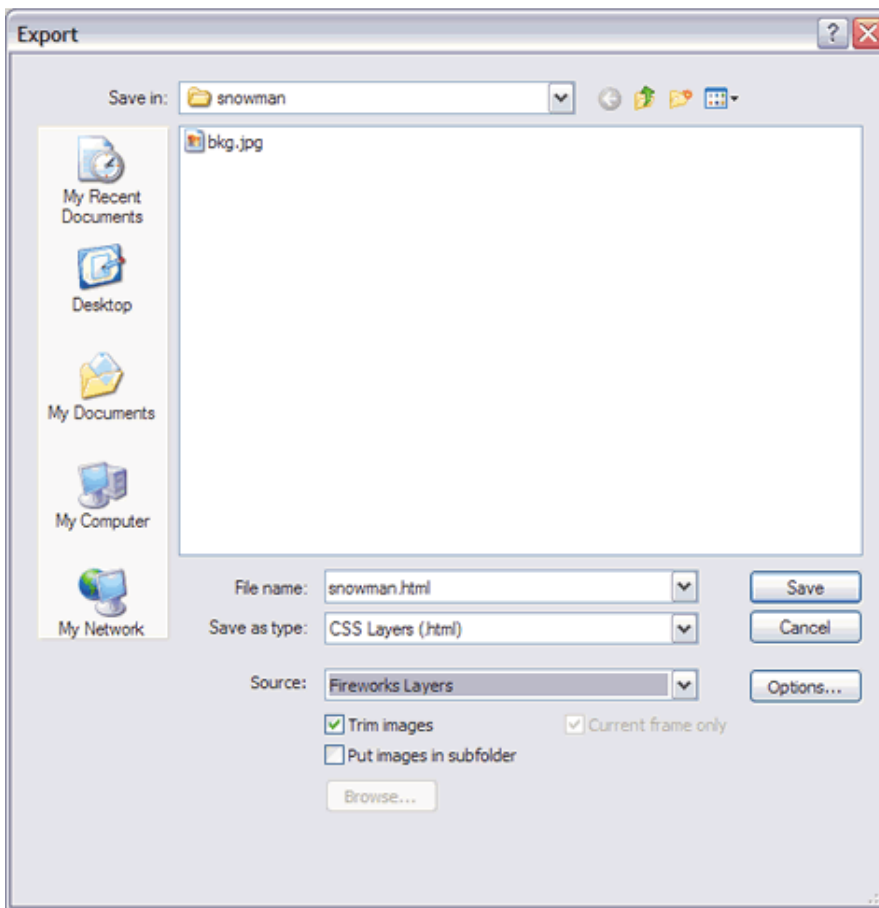
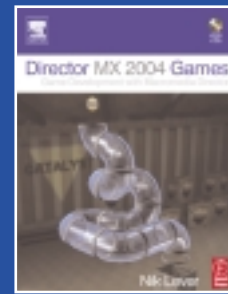


figure 19



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*Jim Babbage (contributor from CommunityMX) comes from the photographic world, and has spent many years as a professional studio photographer. His involvement with the Web began in the mid-'90s when the company he worked for had just gotten online. Born and raised in Toronto, Jim teaches imaging, Web design, and photography at Centennial College's Centre for Creative Communications ([www.thecentre.centennialcollege.ca](http://www.thecentre.centennialcollege.ca)). He is a partner in Newmedia Services ([www.nms123.ca](http://www.nms123.ca)), a small communications company, specializing in the things he teaches. He is a regular contributing partner to Community MX ([www.communitymx.com](http://www.communitymx.com)), where he's written many articles and tutorials for Fireworks, Dreamweaver, and other general Web topics. He has been a guest speaker at TODCON for several years.*

7. Right/Ctrl+Click the slice itself to bring up the Context menu and choose Export Selected Slice.
8. When the Export dialog appears, browse for the directory where you will place your snowman Web page and graphics. At this point, it doesn't matter if you have a DW site set up or not. Ideally, though, you should export all these elements into their own, unique folder on your hard drive. Make a note of the folder.
9. Hide the slice by clicking on the Hide/Show Slices and Hotspots icon on the toolbar.
10. Hide the Background layer and make the snowman layer visible again.

By exporting as CSS Layers, the snowman will look just like he does in Fireworks, but each object will be a separate graphic.

How, you ask, will we do this? If an image isn't sliced, then the obvious result is one large graphic. If we use a standard export setting and do not prep our file accordingly, you are exactly right. But we're smarter than that, aren't we?

Here's how:

1. Take one more look at your Layers panel. Make sure that each object has a name.
2. Click once on the layer's name in the Layers panel. This will select all of the objects quickly.
3. Here's the cool part. Go to **Commands>Document>Distribute to Layers**. Instantly, each object is put in its very own layer! Cool, huh? Take a few minutes and name each layer based on the object name.

Make sure that you do **not** use any spaces or special characters in the layer names as these will become the file names for each graphic.

4. Save your work.

5. Reset your Optimize panel as below:

- *Format:* GIF
- *Palette:* Web Adaptive
- *Colors:* 256
- *Transparency:* Alpha

6. Cool Part #2 - Go to **File>Export**. When the dialog box opens, set the file name to an appropriate name. If you leave it, FW will use the file name of your PNG file, which may be fine as well.

7. In the Save as Type combo box, choose CSS Layers (HTML).
8. In the Source combo box, set your option to Fireworks Layers. To keep the final files as compact as possible, check off the Trim Images option. You can also elect to put the images in a subfolder, but since we did not do this with the background image, I will leave this option unchecked. Figure 19 shows my settings.

9. Press the Save button and FW will export your layers as image files, and insert them into DW as CSS positioned layers inside the HTML page. When you are returned to Fireworks, save your file one last time.

10. As a last step, open a Web browser and locate your snowman.html Web page. Open it to view your page. Your snowman appears just as it was created! The background won't be there, but that's fine; we'll drop that in (and do lots more) when we move into Dreamweaver next month for part 2.

Congratulations on building your first snowman without even getting your hands cold!

We did quite a few different things here:

- Lots of Pen tool practice
- Creating custom vector shapes
- Editing vector shapes
- Working with strokes
- Working with custom gradients
- Working with FW layers
- Exporting using the CSS method, rather than traditional export options

Give yourself a pat on the back for this one. Next month in part 2 we will open the FW-generated Web page in Dreamweaver, add our background layer, tweak the HTML, and add Drag Layer commands to each layer. ☺

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# Stretching the Curve

*Moving from Fireworks to Dreamweaver*  
by joyce j. evans

As a writer and a trainer, I am frequently asked how to make the popular curved navigation graphic. You know the one, top banner area, side bar with an inside curve (see Figure 1). Using Fireworks you'll be amazed at how simple this can be. You'll learn how to make the curve in two different ways. One way is automated and the other is not. By learning how to do it yourself, you'll learn a technique that will allow you to make any shape, not just the inverted L.

Once you learn how to make the graphic, then what? What do you do with it? Export it from Fireworks and use it as a Web page? You could, but please don't even think of doing that. Although Fireworks can generate HTML code, it is not what Fireworks does best. Fireworks is a graphics editor, so let's use it to its full potential. Once you learn how to slice, optimize, and export the graphic, you'll then learn how to put it together in Dreamweaver.

## Curved Navigation Graphic

1. Choose File>New. In the New in Document dialog box, type 700 in to the width field. In the Height field, type in 400. For the Canvas Color, click on the radio button next to White to select it. Click OK.
2. In the Tools panel select the Rectangle tool. Click on the canvas and drag on the rectangle tool to draw a rectangle, don't worry about the size.
3. In the Property inspector (below the canvas area), change the width to 700 and the height to 120. Click in the Fill color box (which has a paint bucket) and use the dropper tool to select the color you'd like. You can even select a color from a graphic on your page which is a great way to get colors that are complementary to your design images.
4. Draw another rectangle and in the

- Property inspector, change its Width to 120 and Height to 400. I'm using green so you can better see what I'm doing.
5. Place the rectangles together to form an upside down L shape (see Figure 2).

*Note: I am using two different colors so you can identify the objects more easily.*

6. Shift+select both rectangles.
7. Choose Modify>Combine Paths>Union. The shape is now one shape instead of two (see Figure 3).

*Note: The shape on the bottom will become the color of the new combined shape.*

You've just learned how you can combine any shapes together using the Union command. With this technique you are not limited to the same size for the top and the side. You are also not limited to rectangles. The easy way to make a basic L shape with sides and top of the same thickness is to use a Smart Shape.

## Smart Shape

As an alternative, you can make the basic L shape using one of the smart shapes that ships with Fireworks.

*Note: In the flyout menu of the Rectangle tool, you'll see the L-Shape tool. Select it and drag it onto your canvas. Notice the yellow diamonds. If you drag on the one on the top end or the bottom center, it will make the side or top longer. To increase the width of the top and side, drag on the yellow diamond on the bottom right side of the left bar.*

*You can use either method of producing your navigation shape before proceeding to the next step.*

## Cookie Cutter

1. Select the Rectangle tool and drag a rectangle on the canvas.
2. In the Property inspector locate Roundness and type in or select a setting of 50. Set the Width to 650 and the Height to 400.

*Note: I made my rounded rectangle gold so you could see it more easily; any color will work and will have no effect at all on your graphic. This graphic will be used as a cookie cutter.*

3. Position the rounded rectangle into the corner of the L shape. Place it so that what you see beyond the rounded rectangle is what you want. Whatever is below this "cookie cutter" will be removed (see Figure 4).

*Note: Be sure that the curve of the rounded rectangle clears the end of the top of the shape and the bottom of the side shape. Otherwise you won't get a nice straight edge. If it doesn't, make your rounded rectangle larger.*

4. Shift+select the L shape and the rounded rectangle; it doesn't matter which object you select first.
5. Choose Modify>Combine Paths>Punch. You now have an L shape with a curved inside corner (see Figure 5).
6. In the Property inspector, click the plus sign next to the word Effects and select Shadow and Glow>Drop Shadow. Change the Distance to 10 and the Opacity to 50%.
7. Press Enter (Return) to activate the change.
8. Save your file. You are now ready to slice, optimize, and export the graphic for use in a Web page.

## Slice, Optimize, and Export

1. Select the Slice tool and draw a slice



over the top left corner. Be sure you get the entire curve (see Figure 6). You'll see a light green overlay.

*Note: In the Layers panel there is a layer called Web Layer. You can see any of your slices here. This is a permanent layer and can't be removed.*

- Using the Slice tool, draw another thin slice for the top bar, making sure you get all of the shadow. Draw another thin slice across the side bar as seen in Figure 6.
- Select the large corner slice and click the Preview tab (see Figure 7).
- Open the Optimize panel and use these settings: Export File Format: GIF; the Index Palette: Adaptive; Colors: 16 and No Transparency (see Figure 8).

*Note: For a more in-depth explanation of optimization, see my article in the October issue (MXDJ, Vol 2, issue 10).*

You are using the GIF format because the image has a lot of flat color. JPEG is best for photos, GIF is best for flat colors. You don't need any transparency for this image. If you did need transparency then GIF wouldn't be the best option because of the drop shadow.

- In the Property inspector, highlight the default slice name and rename it something useful (see Figure 9).
- Select the top thin slice and change the optimization to 16 colors; give the slice a name as you did in step 5.
- Repeat steps 3–5 for the side slice.
- Shift+select all three slices (see Figure 10).
- Right-click (Control-click) on the slice and select "Export Selected Slice." Navigate to the folder you want to export your images into. It should be a folder within your root folder for the site you are building. Don't worry about the name of the file, it won't affect the slice names you gave the slices. Notice that the Selected Slices Only option is checked.

*Note: You can also access the Export dialog by choosing File>Export. I prefer the right-click method to export specific slices because the "Selected Slices Only" dialog is prechecked. Otherwise it isn't and I often forget to check it and end up with a ton of other images I didn't want.*

*Any part of your document that isn't sliced will be exported anyway (as defined by the red lines you see after adding a slice) if you don't select "Selected Slices Only."*

- Click Save to save your file.

You are now ready to use these three images to make a stretchy or fluid table in Dreamweaver.

### Stretchy Table Design

A stretchy table design allows your graphic to expand with a browser but it's not actually an image that is expanding. I get letters all the time asking me how to stretch a banner image to fit the browser window. The answer is, you don't. What stretches is either a tiled background image or a background color. Let's get started with adding your graphics to a Dreamweaver layout.

- Open Dreamweaver and define a site for your new design. If you need help doing this then select Help>Using Dreamweaver, click on Search, and type in "Defining a local folder."
- In the Insert panel, the Common area, click the Insert Table Icon. You can also access this by selecting Insert>Table (see Figure 11).
- In the Table dialog box enter 2 Rows, 2 Columns, and a Table Width of 100%. Be sure to type zeros into the Cell Padding and Cell Spacing fields. Blank does not mean zero (see Figure 12).
- Click inside the first cell on the left side of the top row.
- In the Common panel, click the Insert Image icon (Insert>Image) and navigate to where you have the images you've saved (see Figure 13).
- Select the Lft\_banner.gif and click Open. Notice the width of the image; it's 164 pixels wide. You can see the width in the Property inspector.
- Press the right arrow key on your keyboard to place the cursor in the cell, and off the image.
- In the Property inspector change the Width (W) to 164 and press Enter (Return). This sets the width of the cell not the image. In this case the cell will be the same size as the image. Also click on the Vert drop down and select Top (see Figure 14).

Notice, however that the column



(dotted lines) has collapsed against the image. This cell is now a fixed width, it won't get any larger. But if you add an image in the cell below it that is larger than 164, the column will stretch to fit the content no matter what size you set it to be. If you place a larger image in another

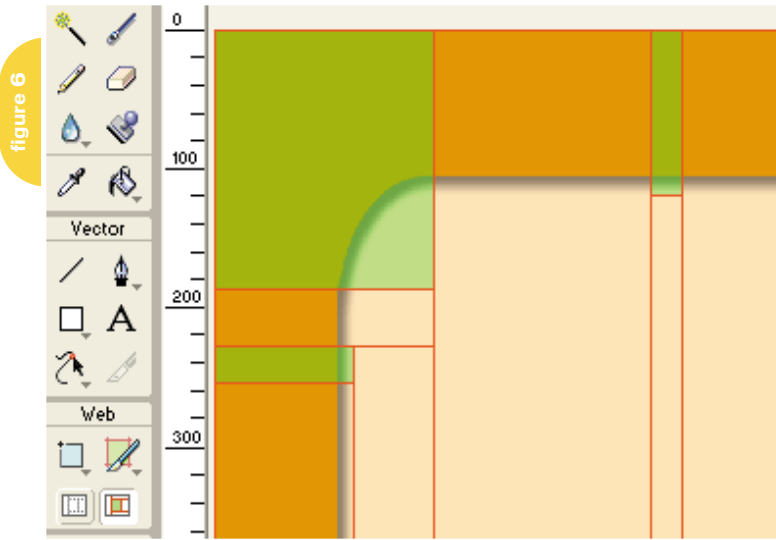


figure 6

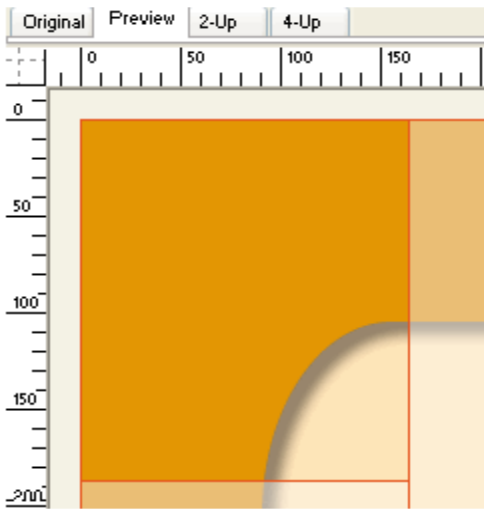


figure 7

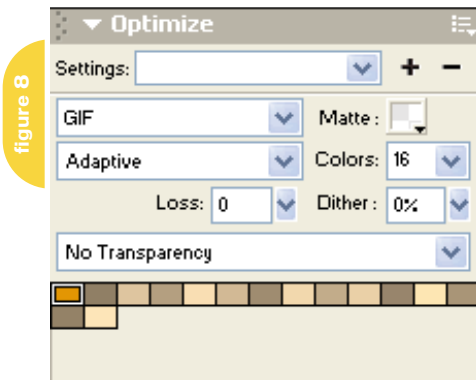


figure 8

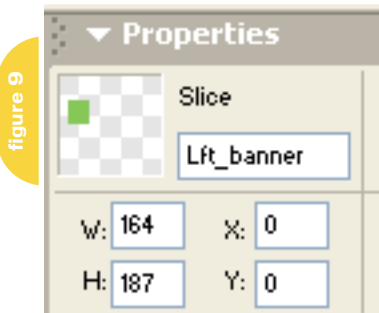


figure 9

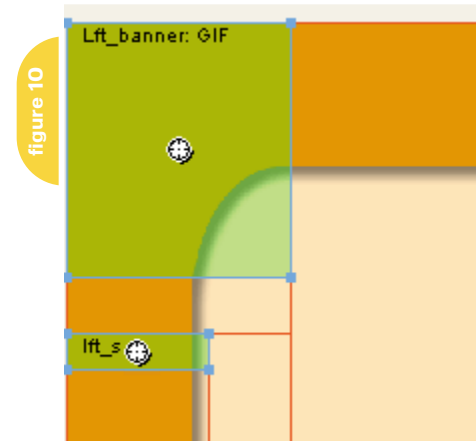


figure 10

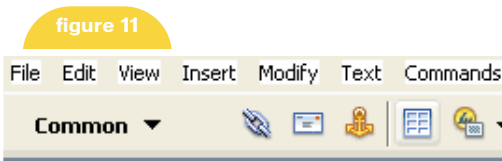


figure 11

cell below the image then you will get a gap in the top row. It's important to note that the Width setting does not force the cell to remain at that size.

10. Click inside the right top cell and in

the Property inspector, in the width field (W) type in 100% (use the percent sign). This cell will stretch to fill up 100% of the available space. As the browser window expands or contracts, so will this column.(see Figure 15).

*Note: If you had a third column you could set it to a fixed width; the center would still expand to fill the browser window.*

11. Open the CSS Styles panel in the Design panel group. Select the + sign at the bottom of the panel (New CSS Style).
12. Select a Selector Type of "Class." Type .topbanner for the name. Click on "This Document Only". Click OK (see Figure 16).
13. Select the Background category to open it's options. Click in the Background Color well. Click the little right pointing arrow and be sure that Snap to Web Save is not checked, then sample the peach color from the document (see Figure 17).
14. Click the Browse button and navigate to the folder you have your images in and select Top\_banner.gif (see Figure 18).
15. Choose repeat-x for the Repeat field and click on OK.
16. Place your cursor in the 100% cell. In the Tag Selector (bottom of your document) the <td> tag should be highlighted. Right-click and select Set Class and click on the topbanner name to apply the style. Another way to set the style is to click on the <td> tag and in the Property inspector there is a Style drop down menu. Click it and select the desired style.
17. Place your cursor in the left cell of the second row.
18. Add another new style but this time name it .sideback. Use the Lft\_side.gif file as the background image and set the repeat to repeat-y. (repeat steps 11–15).
19. Apply the style as you did in step 16.
20. The background images in the top right cell and the left cell of the second row now contain only background images. This is not considered content. You can type text and/or add images to each area. If you add nothing to either area, you'll need to add a small spacer image so that Netscape 4 browsers can see the background color.
21. You can now add a header or banner image if you'd like. Remember, the image won't stretch but the background color will fill the available space, so be sure it compliments your image. You can align a graphic in the cell to the right, left, or center by selecting each option from the

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Horz drop down menu in the Property inspector.

- Save your file and preview it in a browser (F12). Make the browser window smaller and larger and see how your design expands.

*Note:* When you know your design needs to fill a browser window, then design an area that can stretch and still look good. A good example of this is at [www.primefocus.com](http://www.primefocus.com). The header on this page has a texture over the graphic. It's almost impossible to match an uneven texture to an image if the browser expands. The texture would have to tile. Click on any of the site's links to go to an inside page. The solution is to remove the texture, add a gray background, and feather the left edge of the graphic to fade into the background and align the image to the right. This way when the browser expands, the image always remains to the right.

Joyce J. Evans is a training veteran with over 10 years of experience in educational teaching, tutorial development, and Web design. She has presented at conferences such as Macromedia MAX 2003 and TODCON. Joyce has authored books including Macromedia Studio MX 2004 Bible, Dreamweaver MX 2004 Complete Course, and others. She is a Team Macromedia volunteer and her work is also featured in the Macromedia Design/Developer center. Her Web site is [www.JoyceJEvans.com](http://www.JoyceJEvans.com). [joyce@joycejevans.com](mailto:joyce@joycejevans.com)

figure 12

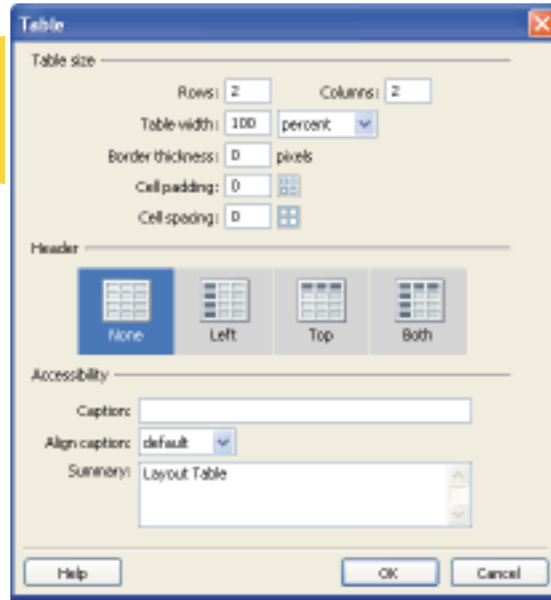


figure 13

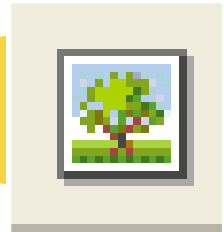


figure 14



figure 15

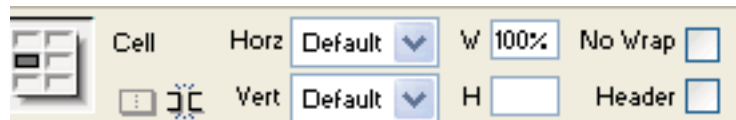


figure 16

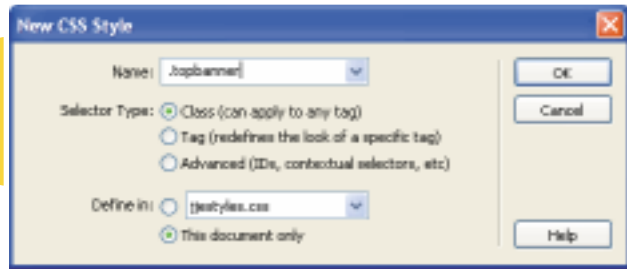


figure 17

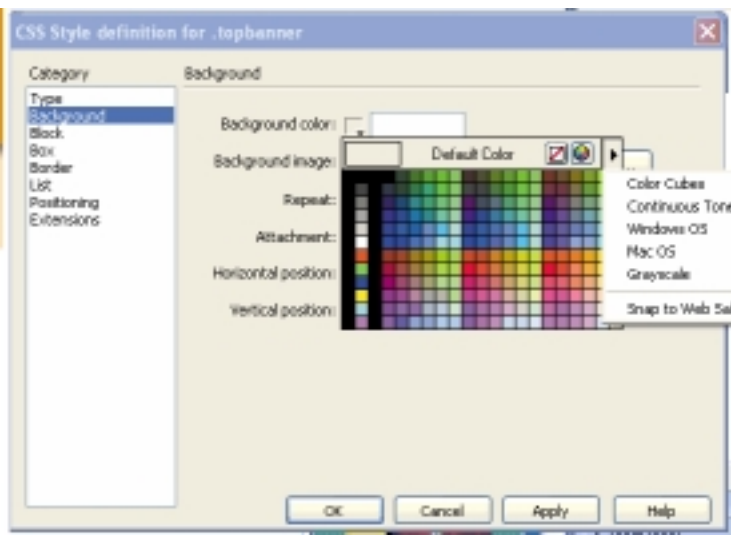


figure 18

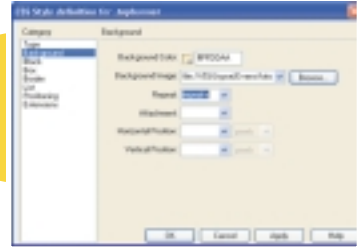
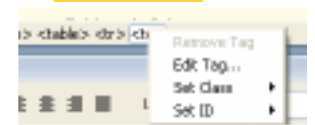


figure 19



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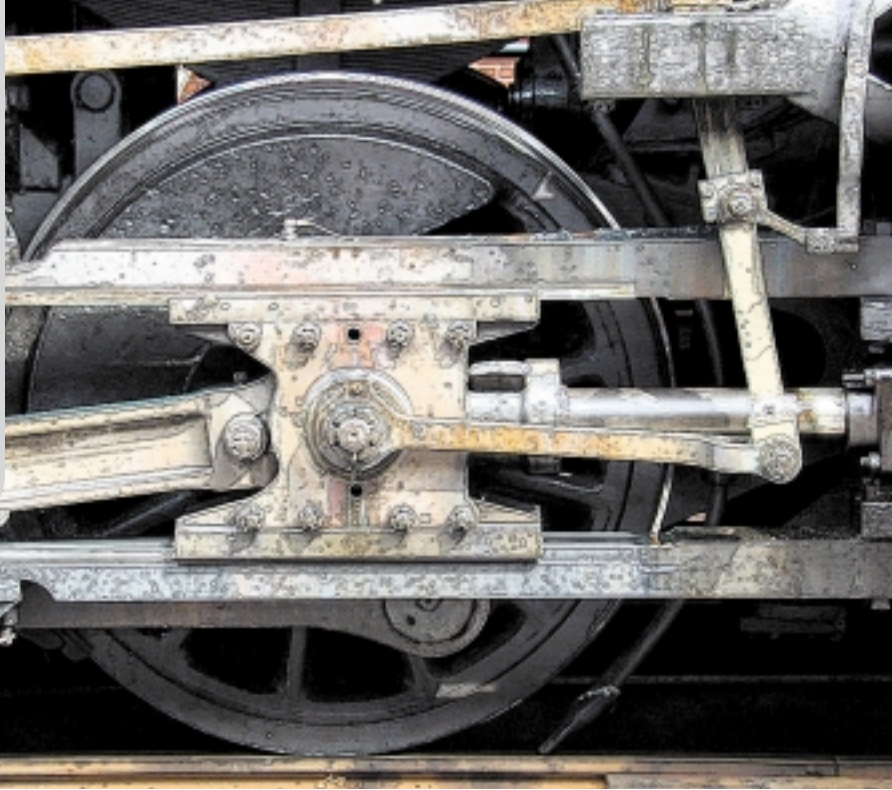
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# POSTER ART

“Posterization”  
made easy



by ron rockwell

**T**hey just don't make posters as they used to. There was a time when posters were designed to use as few colors as possible to keep costs down. Screen printing techniques allowed for an economical print run, and artists learned to see and draw people and places in terms of basic shapes and masses of color. All that simplification became known as “posterization.”

Today you can get your favorite photo printed in full color within a few days, and you don't have to worry about stylizing your artwork to keep costs down. But there are times when you want to try something different, and we'll explore how easy it is to create a posterized look in FreeHand. Always on the lookout for a means to crash either our computer or the printer, we'll go on to add special effects and add life to the poster.

I'm using a photo I took of a 1916 steam locomotive in Cumberland, Maryland a couple years ago. If you've never seen one of these old trains up close, you have missed quite an experience. They're big, loud, and totally awesome. I converted my photo to grayscale in Adobe Photoshop, and imported the

TIFF document into FreeHand. You can download the image from [www.brain-stormer.org/loco.jpg](http://www.brain-stormer.org/loco.jpg), or use any black and white image you have handy. The more contrast you have, the more powerful the image will be.

Once in FreeHand, select the image and search the Object Panel for the Image Adjust icon. The pointer is on Image Adjust in Figure 1. Image Adjust allows you to change the lightness (brightness) and contrast in a black and white (grayscale) image. The changes you make only apply to the image as it is used in this particular FreeHand document; the original image will remain unaltered. If you reselect the image and open Image Adjust at a later time, the adjustments you've made will show in the window so

you can make minor adjustments or return the image to normal.

When the panel opens, click the contrast arrows to increase the image's contrast, or you can click one of the presets at the top of the window. You can also select individual bars and move them up or down. Each bar represents 16 steps in the 256 levels of gray an image can have. Obviously you have much more control in Photoshop's Levels or Curves controls, but when you are manipulating an image such as we are in this instance, Image Adjust works very well. Figure 2 shows the adjustment I made in the locomotive's contrast. The reason I'm compressing the image is to attempt to make it more powerful and dramatic by burying some of the details.

Since the image is grayscale, we have one other change we can make to it – its color. Since I plan to print this image, I'm using CMYK colors. If the image were intended for the Web, I'd use RGB colors instead. In the Mixer panel, I created a dark blue (100C, 100M, 0Y, 26K) and added it to the swatches panel by clicking the Add to Swatches panel. I left the color's name at its CMYK breakdown. Then I selected the image and double-clicked the new color in the Swatches panel as shown in Figure 3.

I want the train to be coming out of the darkness of night, so there are more alterations to make. I started by tracing the image in a four-color breakdown to emphasize the posterization. Double-clicking the Trace tool brings up the Trace Tool dialog box; you can see the settings I used in Figure 4.

To keep everything in its proper position, I immediately group the tracing. For the record, I save after just about every step or two because you never know when something bad is going to happen to your computer.

Now the fun starts. Start by going to the Xtras menu and dragging down to Colors>Name All Colors. That places all four colors in the traced posterization into the Swatches panel. Here is where your color modes come into play. If you've chosen an RGB color to begin with, you will get a set of RGB colors in the Swatches panel. If you create your color from CMYK values, then the Name All Colors will provide CMYK breakdowns for the colors. But if you've chosen to use a PANTONE color or any other spot ink color, the break-

down will be to CMYK, not percentages of the spot color. At that point, you'd have a five-color job instead of a one-color job. If you want to have tints of spot colors, proceed as above, but then drag a swatch of the solid color onto the Tints panel. At that point you simply move the slider until you match the various RGB colors that are in the Swatches panel. When you get a match, drag the color from the color well onto the Swatches panel – it will be named something like "43% PANTONE 488," and all the tints of the spot color will separate onto a single negative for the specific spot color.

Now, go to Edit>Find & Replace>Graphics, choose Colors as the attribute, and select the darkest blue from the dropdown menu on the From side of the box. Select Black in the To menu, and click the Change button (see Figure 5). Change the next lighter blue to the darkest blue, and the lightest blue to the next darker blue. This greatly intensifies the image, but the white areas are too stark. To get the most bang for our buck, we'll use the opposite color of the medium blue. To achieve this, drag a swatch of the medium blue to the Mixer panel, and click on the HLS color mode button. The color wheel will appear with a black circle indicating where your color is in the world of HLS. Click your cursor exactly opposite that black circle – use an imaginary line going through the center of the color wheel, and click the same distance from the center. This will give you the complimentary color. Add it to your Swatches panel by clicking the Add to Swatches button or dragging a swatch to the Swatches panel.

The white areas we want to change are the background of the page. We don't want the entire page to be a different color, and trying to find each and every white area would be time consuming. So, go back to the Find & Replace window and click the Select tab. Choose Color, and select the color that surrounds most of the image. In this case, it happens to be the lighter of the blues. If you have a tough time distinguishing the different colors, just use the Eyedropper tool and drag a swatch onto the Find & Replace window. Click the Find button, then choose Modify>Combine>Union to solidify the area and absorb the white areas. Apply the complimentary color you just created, and send the object to the back.

figure 1

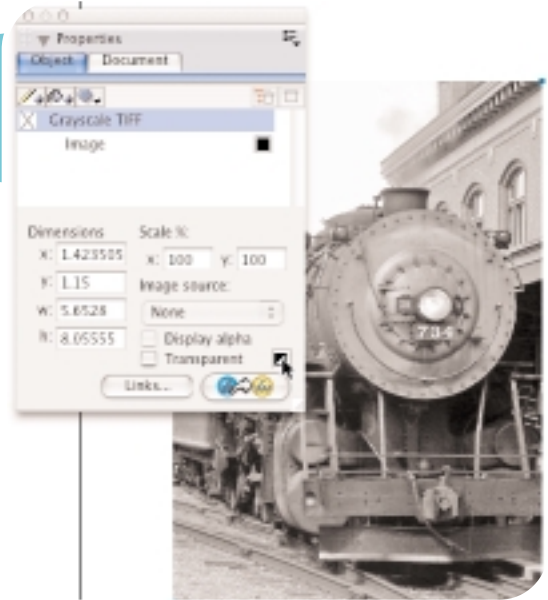


figure 2

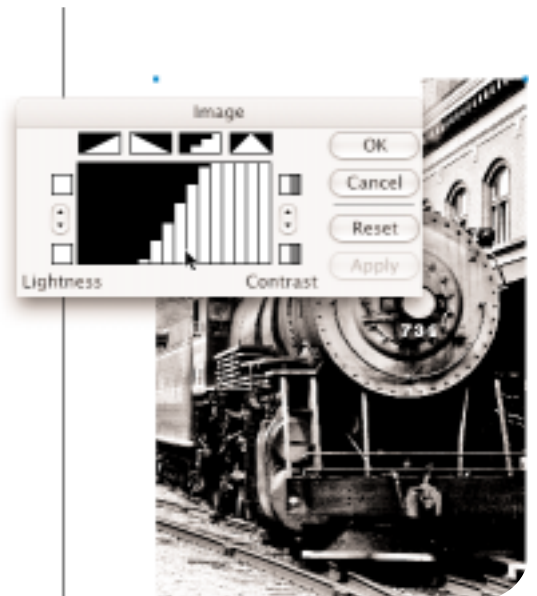


figure 3





In our case, the window reflections and highlights on the train and its headlight turn yellow/gold as seen in Figure 6.

Night skies are usually dark, so now we'll create a dark gradient from black to the darkest blue. Use the Rectangle tool to drag a box that fills the sky area, and choose Add Fill in the Object panel if your rectangle doesn't have a fill. Send the rectangle to the back. Change the fill type to Gradient and put black on one end of the ramp and the dark blue on the other end. Depending on how you want to light your sky, you can place the blue end close to the ground, indicating dawn, or you can make it look like a bright moon by placing the blue color at the top – that's the route I took in Figure 7.

Okay, the mood is set, but the engine is just sitting there. To crank up the action a bit, we'll add some smoke and steam. Start by choosing the Calligraphic Pen tool (hiding under the Pencil tool) and double-clicking it. In the dialog box, fine-

# “There are times when you want to try something different”

tune your tool by setting the minimum and maximum widths to something obscene – I used 1p0 for minimum, and 12p0. I'm fortunate enough to have one of the new Wacom Intuos 3 tablets, so drawing puffy smoke is a pretty easy task with the pressure-sensitive pen. If you don't use a graphic tablet, then you can change the width of the stroke by pressing the left and right Keyboard Arrows as

you draw. The results are the same, only with the pen you can drink coffee at the same time. At any rate, draw clouds of smoke and steam as shown in Figure 8. Give them a stroke of none and a fill of the lightest blue in your Swatches panel.

I find it convenient to group objects like this to keep things simple in case I want to modify them later. If you do choose to group them, then you have to

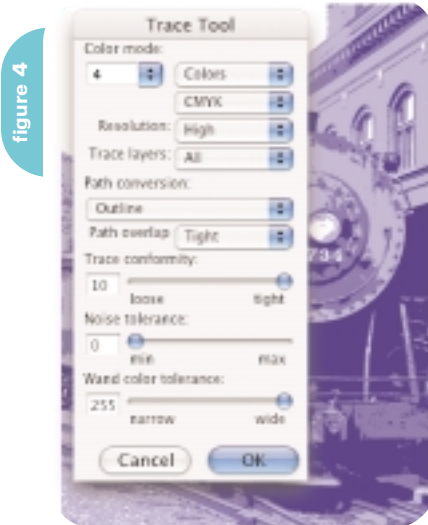


figure 4



figure 5



figure 6



figure 7



figure 8



figure 9



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figure 10

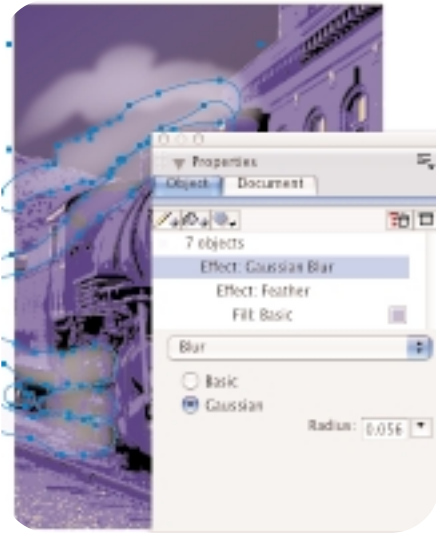


figure 11



figure 12

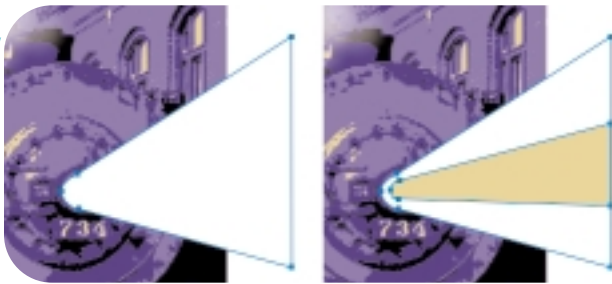


figure 13



figure 14



figure 15



figure 16



Subselect them (Edit>Select>Subselect) to make the wispy modifications you need. Click on the Add Effects button and choose Feather as shown in Figure 9. Adjust the radius and softness to your taste, and don't worry too much about hard edges at this point.

Now you can deal with the hard edges by going back to Add Effects and choosing Blur>Gaussian Blur as shown in Figure 10. It's difficult to see your true results because the paths are selected. If you deselect them to check out your progress, then you have to go back and select all those loose objects again. That's one of the main reasons to group them. One click and you're set!

To add more volume to the wisps, lower the settings in the Calligraphic Pen tool window and draw more wisps inside the first ones. Since these shapes will add more depth and detail to the smoke clouds, choose Add Effects once more and apply Roughen. Now go through the process of adding feathering and blurring as you did earlier.

The headlight needs some pop, so draw a cone shape centering on the lamp, as shown on the left side of Figure 11. Then clone that shape and shift points inward as shown on the right side of Figure 12. Since we will be modifying the results with raster effects, be sure to extend the headlight glow outside the borders of the drawing.

Blend the two shapes, and while the blend is selected, choose Add Effects and add a Gaussian blur. Add another effect, this time Basic Transparency with an opacity that looks realistic – 80% worked on the example in Figure 13.

This pretty much sums up the drawing itself. To add a semi-fancy border, start with a pair of rectangles (see Figure 14), and use the Subselect tool to create rounded corners. I made some concave corners at the bottom to suggest a train tunnel (I like subliminal messages). The corners were modified by deselecting the Uniform box in the Object panel. Once the two main shapes were designed, they were cloned and the entire drawing cut and pasted inside. To make the drawing faster to work with, the compound path containing the drawing was

placed on a layer and the layer hidden.

Then select all the paths and use the Expand Path Xtra with a width of about 6 points. The larger two paths must be joined, filled and stroked. Use a clone of the border shape and use the Inset Path Xtra with an inset of 2 points and rounded end caps. Select points in appropriate places and choose Modify>Split. Discard the unwanted paths, but give the remaining strokes a heavy weight with a highlight (or shadow) color as shown in the detail in Figure 15.

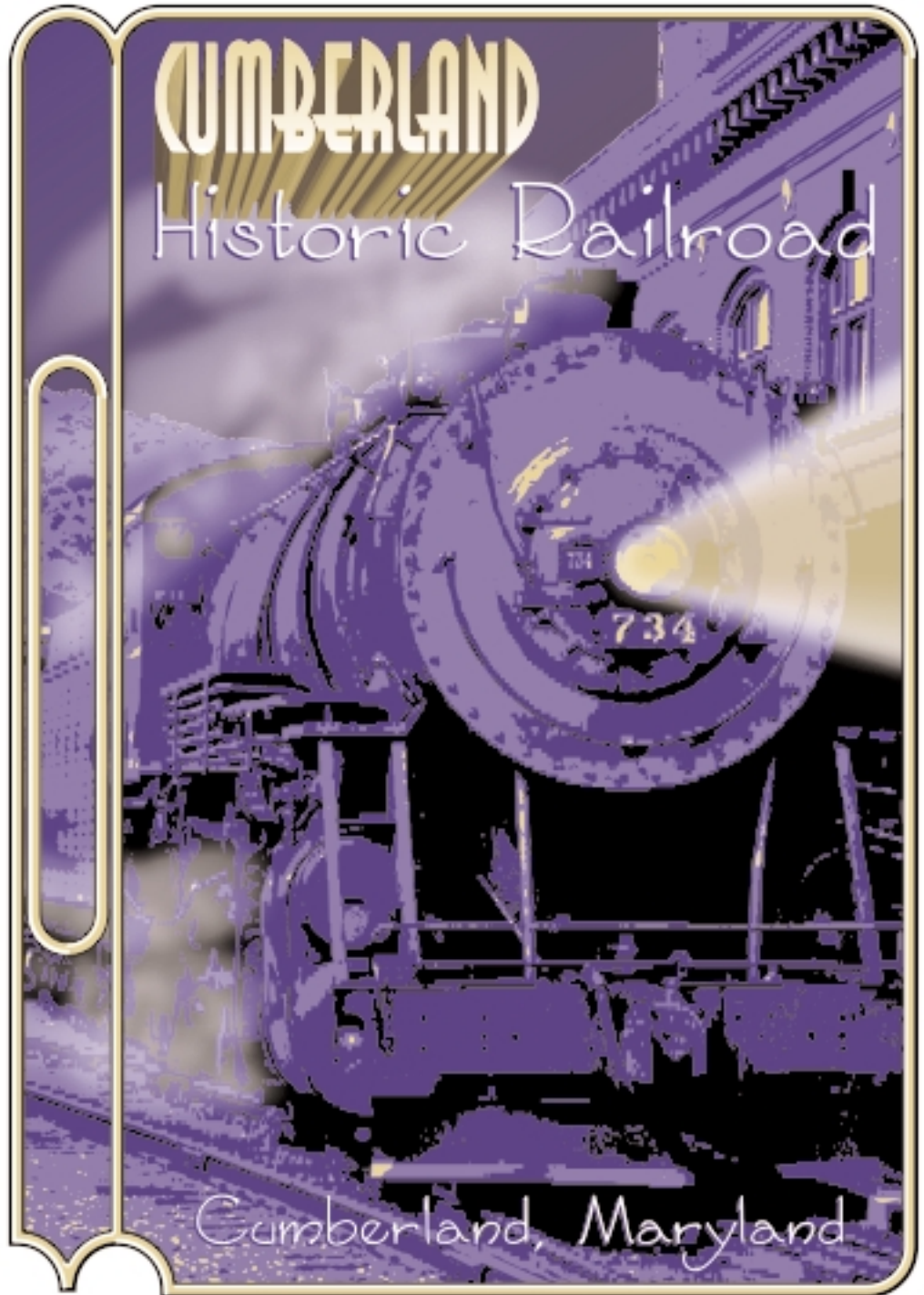
Make the drawing layer visible again, and set the text for the poster's title. Astrid Short was used for "Cumberland" in this example. Change the text color to match the gold color from the highlights in the poster, create a clone, and hide it (View>Hide Selection). Use the Extrude tool to extrude the visible text, aligning the left edge vertically, and matching the perspective of the building's roof. Set the lighting for the first light to center, and the second light source to Bottom Right.

Choose View>Show All to bring back the text clone. Choose Modify>Join, and change the fill type to Gradient. You can change the angle of the gradient by typing 270 degrees in the Object panel, and readjusting the location of the gradient fill control handle, or you can just move the control handle and spin it to the location you want. Change the fill colors in the gradient to a range of gold to white, with white at the bottom to indicate that it's being lit from below. The finished effect is shown in Figure 16, along with more text set in Sycamore Sans. This line of text was simply cloned, sent behind the original, and shifted to leave a dark solid drop shadow beneath white letters.

Add a line of text at the bottom of the poster. At this point, you would probably think everything is done, but you could be half-right or totally wrong. If you want to use the drawing on the Web, then you're half-right. To be 100% right, choose File>Export, and select JPG, or PNG from the list of file types. You can import the resulting file into Fireworks for any type of slicing or special effects you want to use.

On the other hand, if you're going to print the drawing, you MUST change the Document Settings>Raster Effects Settings to 300ppi. Also, check the Optimal CMYK printing box. If you don't, you'll see hard edges around the smoke

figure 17



and headlight beam.

Just a reminder: this drawing was posterized, but CMYK colors were used to allow for the various raster effects that were going to be used. Be alert for problems if you attempt a project like this with spot colors by printing separations of small areas of your drawing before you go full-steam ahead with an illustration.

*I*  
Illustrator, designer, author, and Team  
Macromedia volunteer Ron Rockwell

*lives and works with his wife, Yvonne, in the Pocono Mountains of Pennsylvania. He is the author of FreeHand 10 f/x & Design, and co-authored the Studio MX Bible. He has just introduced a "Casual FreeHand" course available at [www.brainstormer.org](http://www.brainstormer.org). Many thanks to John Nosal, Peter Moody, Bob Sander-Cederlof and other engineers at Macromedia for the technical editing and support they provide. [guru@brainstormer.org](mailto:guru@brainstormer.org)*



# THE LINE RIA DATA SOURCE

IN THE FIRST ARTICLE IN THIS SERIES (MXDJ, VOL. 2, ISSUE 10) I MADE THE CASE FOR THE RICH INTERNET APPLICATION (RIA) AND DISCUSSED THE ADVANTAGES OF THE FLASH CLIENT. LAST MONTH WE EXAMINED THE CONSTRUCTION OF AN XML-DRIVEN RIA BUILT USING FLASH'S DATA AND UI COMPONENTS. THIS MONTH WE LOOK AT HOW COLDFUSION PROVIDES A SIMPLE BUT POWERFUL WAY TO MAKE DATA AVAILABLE AS BOTH A WEB SERVICE AND A FLASH REMOTING DATA SOURCE.

by art phillips

Data can be made available via Web services using several technologies, including ColdFusion. Data exposed through a Web service can be used by both Flash and non-Flash clients. If your Web service represents data using standard data types such as arrays and objects (or structures in ColdFusion), the data can be used in other technologies such as ASP.NET, PHP, or Java. Web services obtain this flexibility by using a standardized method of describing and exchanging data and commands. The exchange is formatted using an XML schema called SOAP, the Simple Object

Access Protocol. This flexibility is gained at the expense of some efficiency. An exchange of data and commands between a specific server technology and a specific client can be optimized for that specific client/server technology. This is the benefit of Flash Remoting.

Flash Remoting data sources, such as Web services, can be produced by several technologies, including ASP.NET, PHP, Java, and our favorite server application technology, ColdFusion. Flash Remoting exchanges commands and data with the Flash client using a binary format called AMF, the Action Message Format. This

binary exchange is more efficient than the text-based XML structure of SOAP. Flash Remoting data sources provide the most efficient means of communication between the Flash client and the server.

There is an important issue regarding data types that developers should make note of. The results of a ColdFusion query in their native form may not be usable in other frameworks. Also, the results from queries in other technologies such as ASP.NET may not be usable in Flash.

We conceptualize and work with data from a query as an array of objects in Flash. Each record is an object and the

record's fields become the object's properties. The records/objects are then stored in an array.

However, in its native format data returned by a query may not be usable across different frameworks. The exact structure of the data returned by a query will be specific to the server technology that created it. It will not be a simple array of objects. This may prevent the data from being used in other technologies.

To achieve interoperability across server technologies, developers should parse database results into a generic array of objects (or in ColdFusion, an array of structures.) This data structure will then be able to be used by clients built in other frameworks.

The good news is, when you work with a ColdFusion data source and a Flash client, the results of a database query may easily be passed directly from the server to Flash. While clients written in other technologies may not be able to use this data source, it will work fine with the Flash client. This represents both the easiest and most efficient way of passing database information from ColdFusion to Flash via both Web services and remoting.

The focus of this article is on a ColdFusion data source for a Flash client. The ColdFusion data source that we will examine here will be designed to pass the results of a ColdFusion query directly to a Flash client. Readers who wish to use a ColdFusion data source for other clients should be prepared to parse the CF query into a generic array of objects.

ColdFusion Components (CFCs) represent ColdFusion's entry into object-oriented programming. CFCs provide the power of object-oriented development while maintaining the classic friendliness of ColdFusion. CFCs provide a familiar tag-based development model that leverages the power of the JRun J2EE engine that lies at the heart of the ColdFusion MX server.

CFCs are a collection of one or more ColdFusion functions. The CFC itself can have values associated with it. Those of you reading this who are familiar with object-oriented programming (OOP) may recognize what we have here – a Class.

A Class is a collection of methods (functions) and properties (values). A CFC

“in its native format data returned by a query may not be usable across different frameworks”

is a collection of functions and values. CFCs are Class files they are ColdFusion's object-oriented building blocks. CFCs become Java classes on the server offering the power of Java and the ease of ColdFusion.

Dreamweaver is the current development tool for ColdFusion applications, and does a real fine job. (I hear the groans and sneers from you ColdFusion Studio users. <grin />) Anyway, Dreamweaver is the development tool we'll be using here. It will provide us with a starter file we can modify to create our data source.

From Dreamweaver's new file dialogue choose ColdFusion Component from the Dynamic Pages Category (see Figure 1). Dreamweaver creates a new document with a generic skeleton of the key elements of a CFC.

For this example, the file will be saved as `flashDataSource.cfc` into a directory called `myCFC` in the web root of the server. Note the `.cfc` extension instead of the traditional `.cfm`. Now let's examine the

`flashDataSource.cfc`.

The outer `<cfcomponent></cfcomponent>` declares the ColdFusion component. It is comparable to the class declaration in Java and ActionScript 2.0. A `cfcomponent` tag contains one or more user defined functions (UDFs), or what most developers would just call functions. Dreamweaver has provided an example of a UDF in our CFC.

While they work the same as functions developers may be familiar with from other languages, ColdFusion's UDFs are constructed very differently. UDFs follow ColdFusion's tag-based syntax. This can easily be seen in the opening `cffunction` tag in line 2 of Figure 2.

The name of the function is declared in the name attribute of the `cffunction` tag. The data type of the return from the function is also an attribute; `returntype`. A bit strange compared to other languages, but not difficult to understand.

The most interesting attribute of the `cffunction` tag is the access attribute. This is the magic key to creating a Web service

figure 1

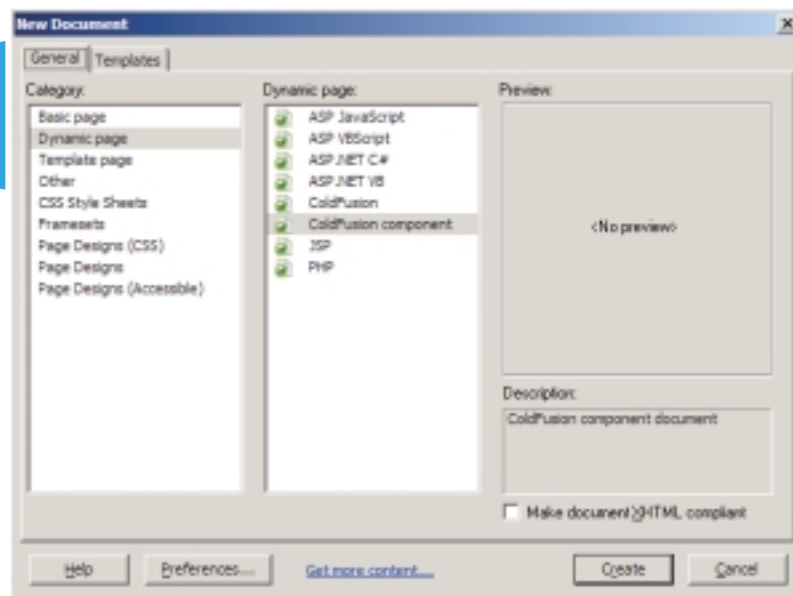




figure 2

```

1 <cfcomponent>
2   <cffunction name="myFunction" access="public" returnType="string"
3     <cfargument name="myArgument" type="string" required="true">
4     <cfset myResult="foo">
5     <cfreturn myResult>
6   </cffunction>
7 </cfcomponent>

```

and Flash Remoting datasource from a CFC.

The access attribute accepts four values: private, package, public, and remote. These values determine from where and how the function may be accessed.

An access value of private is the most restrictive. It allows only other functions in the same CFC to use the function.

An access value of package allows any other CFC in the same directory to use the function. Here the Java underneath the CFC shows itself. A directory of Classes is called a package in Java.

A public access value means that any CFC anywhere on our server can use it.

An access value of remote means that clients outside of our server can use our function as either a Web service or a Flash Remoting data source. The ColdFusion server takes care of the translation of all requests and results to and from the appropriate format: SOAP or AMF. The ColdFusion server can even produce the metadata that clients need to help consume our Web service, the WSDL file (Web Service Description Language). More on WSDLs later.

After the opening cffunction tag we encounter a cfargument tag in line 3. While a traditional function would pass its arguments as a list in the function declaration's parenthesis, ColdFusion uses separate cfargument tags to pass values

to the cffunction.

Notice the attributes for the argument name as well as for data typing and making the argument required. Unlike typical ColdFusion, which is loosely typed, CFCs provide strong data typing similar to ActionScript 2.0 and Java.

Line 4 shows us how to set a variable in the function and line 5 shows us how to return it from the function.

There is more code here than we need for our data source. We won't need any variables in our function and we will not need any arguments, so we can delete lines 3 and 4. Now we will start modifying the cffunction.

The function should have a descriptive name. Since our data source will provide the client with product data we will name our cffunction getAllProducts.

The most important attribute for our data source is the access attribute. Setting the access attribute to remote makes this function available as both a Web service and Flash Remoting data source.

The returnType of the function is set to query. We are going to pass the result of our database query straight to Flash. We still need to modify the return statement but that can wait until we add the query to our function.

Our data source is called productsDSN. The result of the cfquery will be

called qProducts, and the query will pull all information from a table called Products. The cfquery will look like Figure 3.

The cfreturn line can now be modified to return our query: qProducts.

The final CFC will have only eight lines of code (see Figure 4).

We now have the data source we will use in future articles. For those of you who can't wait and want to start using our data source, be aware of one important issue. The ColdFusion server installs with Flash access to Web services and remoting turned off. The FlashGateway must be enabled for our CFC to work as a Flash data source. How the FlashGateway is turned on varies with the version of ColdFusion you are running. See Macromedia's ColdFusion TechNote #18608 for details.

That's it for this month. Next month we use our data source to feed data to Flash as a Web service and from there we move on to remoting. See you then! ☺

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figure 3

```

<cfquery name="qProducts" datasource="productsDSN">
  SELECT * FROM Products
</cfquery>

```

figure 4

```

1 <cfcomponent>
2   <cffunction name="getAllProducts" access="remote" returnType="query">
3     <cfquery name="qProducts" datasource="productsDSN">
4       SELECT * FROM Products
5     </cfquery>
6     <cfreturn qProducts>
7   </cffunction>
8 </cfcomponent>

```

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# Greetings, Faith, Reviews, and Seafood

*A new editor gets direction from MAX*  
by andy phelps

hello! I wanted to wait and formally greet you from the Macromedia MAX Conference in New Orleans. Some of you might know me from my writing at Director-Online, or from the Macromedia DevNet Center. Others are probably reading this and saying to themselves “Hey... wait a minute... where’s James...” In any event, I wanted to report on the conference, give you a taste of what happened in case you weren’t there, and finish up by talking a little about what I’d like to see as the new editor of this section.

The MAX crowd this year was a split crew: there were a lot of Flash developers, a surprising number of Director developers, and several folks from the educational community working with Dreamweaver and Fireworks. Then there was the ColdFusion server crew, and they bring with them a slightly different set of issues that many client-side developers just don’t have to consider. So the entire conference struck me as a little bit polar, although the crossovers between these groups were interesting.

I spent most of the conference hanging around with Tom Higgins, technical product manager for Director; and Emmy Huang, product manager for Shockwave. In addition, Mark Jonkman, Richard Ross, Brian Robbins (of [www.cow-boysandengines.com](http://www.cow-boysandengines.com) fame), Darrel Plant (of Director-Online), Kristen Banham from IntegrationNewMedia ([www.integrationnewmedia.com](http://www.integrationnewmedia.com)) and a whole slew of well-known Director developers was there and we all went out and had a night on the town. INM and Macromedia even threw a Director user’s party on Tuesday night.

So with all that going on, the question I had to respond to over and over again was the infamous, “Is Director dead?” I’m not sure where this comes from; I’ve been

hearing of Director’s demise since version 7. Nonetheless, let me be the first to say, “No, it’s not dead.” Some feedback I got on Charles’ editorial in the November issue (Vol. 2, issue 11) showed me that a lot of people saw his love of Flash and assumed we wouldn’t be covering Director anymore. Nothing could be further from the truth. Others kept asking me if Macromedia is actively developing a new version: without getting myself in trouble, I can safely say that “Yes, there is active development on a next version of Director, with significant feature addition and/or modification.” Some folks were offended by the fact that Director wasn’t mentioned in the keynote for the conference: well, there were actually a lot of products not mentioned in the keynote. The major event of the conference seemed to be the new ColdFusion (Blackstone) and its integration with the new Flex 1.5, so most of the big public speeches revolved around that. I was excited to see Tom and Emmy taking the conference very seriously, talking to their developers, making sure they know the customers. That’s our old friend Macromedia!

The sessions were excellent this year. Brian Robbins gave a talk on developing 3D game engines in Director, and if you haven’t seen his stuff you really should. He talked about several techniques for “light mapping” a scene to pre-generate shadows (something we will be covering in future articles here), doing some collision detection based on facing surface normals, and about his experiences with the art team on Cowboys & Engines. Mark Jonkman taught us all about using Flash inside of Director, several reasons why this approach has some appeal (like exceeding Director’s 1,000-sprite limit), and several ways for Director and Flash to communicate. Tom Higgins gave us a talk

on using JS syntax in Director, including how to use some object-oriented programming techniques. He then went on to describe some of the pitfalls of this feature in its current implementation (which are, in his mind, “version 1 growing pains”). He hinted that Macromedia is at least considering an ECMAScript 4 style implementation, which would be very similar to ActionScript 2.0 in Flash. I certainly hope it’s more than a hint! I unfortunately didn’t get to attend Richard Ross’ seminar on creating enhanced DVD content, but I heard good things about it.

In spite of the sessions, MAX was not without its letdowns. The biggest of these was the “Sneaks” session, in which we were supposed to get sneak previews of what’s coming. Well, that sort of happened. There were no sneaks of Director this time. There were a few sneaks of Flash, which were neat to see. Most of the time, however, was spent on looking at Flex 1.5, which was released during the conference. If it is released, then it is hardly an alpha; clearly it has been refined and polished. It didn’t do justice to the “sneaks” that Macromedia usually hands out. Kudos to the ColdFusion Development Team, which tried to show us something really new but wound up with a Blue Screen of Death. I respect that more than canned, prefabricated demos in a session that is supposed to be beyond the cutting edge.

To summarize MAX, the food was excellent, the beer was pretty good, and I had a wonderful time talking to Macromedia about all things Director, and talking to Director developers from all over the world. In talking with all these folks, I got some great feedback on *MXDJ* and some ideas for the section. In a nutshell, here is where I would like to see us go:



- *Higher-end content.* This is not to say we won't focus on the beginning stuff anymore, we will, but there are also a lot of developers out there clamoring for more in-depth coverage of various issues, and I want to provide resources to them as well. I want to provide a true balance of coverage for beginners through experts.
- *Games and 3D coverage.* It seems a lot of Shockwave developers are making their living doing games or interactive simulations, and resources in this area are particularly scarce.
- *JavaScript syntax.* This hasn't gotten a lot of press anywhere yet because most developers still aren't using it. But there are a couple of reasons to start using it in conjunction with Lingo, rather than a replacement. Under the old programmer's motto of "use the right tool for the job," we'll be exploring the JS syntax as a tool for specific tasks. If Macromedia is really looking at an ECMAScript 4 implementation, this could be very powerful for potential new users of Director as well.
- *Integration.* More and more developers are using Director in conjunction

with other products in application construction. From Flash to Photoshop to Xtra building, integration is always an issue, and sometimes the edges are a little sharp. Timely focus on working with content and tools that relate to Director is as important as Director itself, and it is an area that is not covered well in any of the documentation.

- *Case Studies.* Has your company just finished a really cool project using Director (or Director and a slew of other products)? Would the community learn something by looking at the way you did it, or the concept of what you designed? These aren't advertising pieces for self-promotion, but a good case study can teach the community a lot about what other folks are doing and what development practices are in place that you might want to adopt. I'd like to see a handful of good case studies each year, I think it could prove an invaluable asset.

In addition to the above, this column will continue to offer timely information for Director users at all levels, as well as information on integrating Director with other products and solutions. If there is a

particular topic on which you want to see coverage, if you think you would like to write an article, or if you think the thing you just shipped would make the perfect case study, then let me know! Charles had one thing exactly right in his editorial last month: this is your magazine, and by extension this is your section. It exists to serve you, the Director user. I'd like to thank SYS-CON for inviting me aboard, and to say how wonderful it was to meet all of you at MAX. To contact me at any time, just send me an e-mail at [amp@it.rit.edu](mailto:amp@it.rit.edu).

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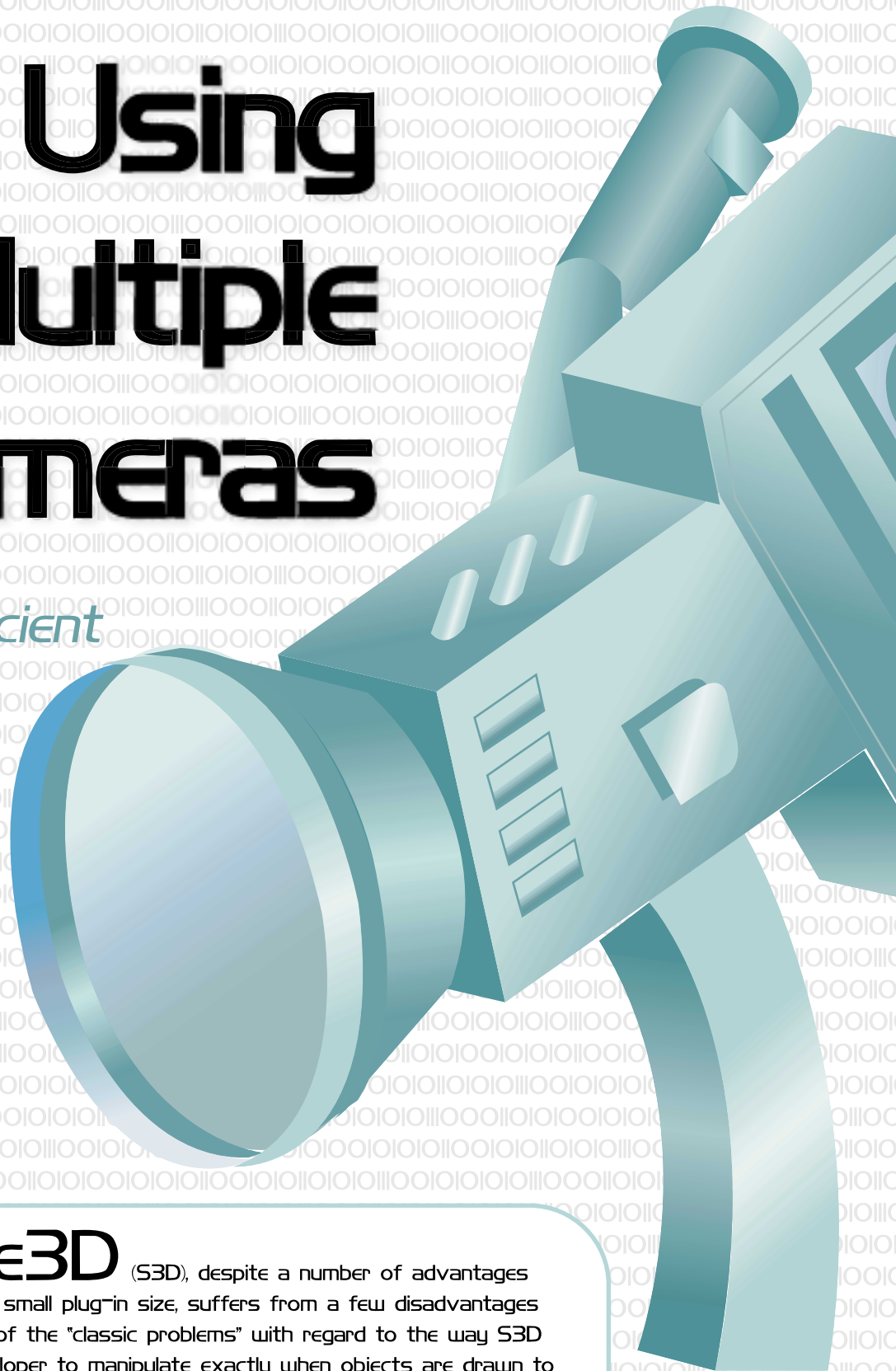
					
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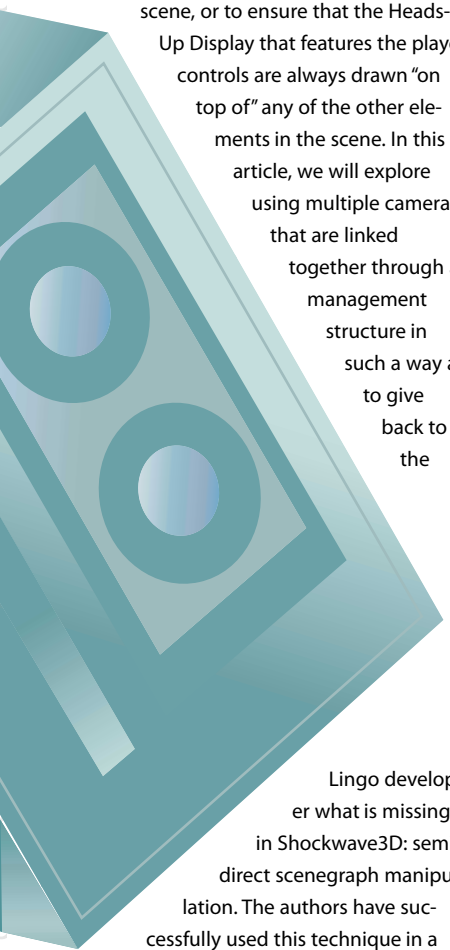
# Using Multiple Cameras

*Creating efficient overlays and scenegraph control*



**Shockwave3D** (S3D), despite a number of advantages such as delivery on the Web and small plug-in size, suffers from a few disadvantages in terms of its architecture. One of the "classic problems" with regard to the way S3D is built is the inability of the developer to manipulate exactly when objects are drawn to the screen, or more correctly the order in which they are drawn to the screen. This is in contrast to almost any traditional C or C++ graphics engine on the market today, and since they are written directly against DirectX or OpenGL, they can simply order the calls to the various draw commands to make sure that certain objects are drawn before or after others.

by andrew phelps & aaron cloutier



This technique is commonly used, for example, to make sure that skyboxes draw before any other objects in the scene, or to ensure that the Heads-Up Display that features the player controls are always drawn "on top of" any of the other elements in the scene. In this article, we will explore using multiple cameras that are linked together through a management structure in such a way as to give back to the

Lingo developer what is missing in Shockwave3D: semi-direct scenegraph manipulation. The authors have successfully used this technique in a game development project entitled "Broadsword," and all demo code is taken from that source tree. The technique, however, is extractable to any Shockwave3D environment, and can be used regardless of subject matter. For example, Brian Robbins presented on this technique and its use in his own work at Macromedia MAX.

To begin, it is often a good idea to review what we know about how the computer renders a 3D scene. Objects are made up of triangles, which are rendered onto a two-dimensional image plane by projection from the viewer (i.e. the camera in the scene). As triangles are rendered on to the plane, two pieces of information are stored per pixel. First, the color of the pixel is stored, based on several calculations in 3D space such as texture, material, lighting, etc. Second, a depth value is stored per-pixel, which represents the depth of that pixel from the viewer. The collection of all of the depth-values for the 2D image that the

scene is projected onto is called the depth buffer, which is simply a memory area in which the depth value for each pixel is stored. When a second triangle is drawn to the scene, as it renders its pixels onto the plane it looks at the depth information of the pixels it would be writing to. If the pixel that would be written is closer to the viewer than the pixel already stored, then the new pixel is written. If it isn't, then no change is made. This is how 3D determines that one triangle is "behind" or "in front of" another triangle. After all of the triangles in the viewable scene area (read: "inside the camera frustum") have been drawn to the image, the image is flipped onto the screen.

But imagine that you could, whenever desirable, clear the depth buffer, and by that we mean to reset all the values in it to a default value. The next time something was drawn to the screen, it would have no existing depth information, and so it would be either completely behind or completely in front of the existing information. In a true game-like environment, this is how skyboxes and overlays are drawn. Unfortunately, in S3D we don't have a way of clearing the depth buffer directly (this is not entirely true, there are some workarounds using the unsupported #frontNoDepth flag.

There is, however, a solution. Each camera in the scene, because it projects any objects that are its children independently of other cameras in the scene, does not share its depth information with any other camera. Thus, if there are two cameras, camera A and camera B, and A draws before B, when B renders triangles onto the buffer it cannot read from the depth buffer of A. The benefit of this is that any object projected through camera B will draw on top of any objects projected through camera A, regardless of their actual positions in 3D space. And with that, we can now explore a system that allows us to assign order to specific sets of objects, based on which camera they are seen through.

For ease of use, we term each set of objects grouped with its own camera as a "render group," because it is drawn separately from its peers. Render groups are drawn in the order they are initially created, but objects can be added or deleted from a specific group at any time. To begin, we create the initial camera for the

entire scene by calling `ghCameraStartup` (see Listing 1), and create an initial set of render groups by calling `ghSetupRenderGroups` (see Listing 2).

In Listing 2 we identify five render groups – Ground, Weapons, Objects, Explosions, and Windows –which are always drawn in that order, back to front. Thus, the ground is always behind all objects in the scene, and any Windows, which we use instead of Lingo overlays, are always on top).

The `ghSetupRenderGroups` handler is really just a call to establish a render group manager (see Listing 3), which in turn is merely a collection of actual render group objects. Our manager is simply a glorified property list, and developers should feel free to use a base property list if that is their preference. The only caveat is that you cannot sort the list to determine draw order: the reason the render group created first renders before the render group that is created second is because the first camera is before the second in the list of cameras in the 3D cast member. That is the order that determines which camera draws when, not the property list of Lingo objects.

The real "meat" of a render group is in the render group object, which is an object that creates a new camera, parents itself directly to the main scene camera that is set up in the script in Listing 4, and then provides mechanisms for any object, light, or group in the scene to be added or removed from that render group. The entire script of the render group object is presented in Listing 4, with comments immediately afterward.

Clearly, a good 90% of that script is repetitive structure for adding and removing (or more formally "parenting and un-parenting") lights, models, and groups. There are some interesting issues to be noted in the new handler, however, where actual setup takes place. First, we create a new camera by cloning the exiting scene camera. However, once we parent a first render group to the main camera, we cannot clone it a second time, or we would not only copy the original camera, but also the child. Thus we always copy the last camera created, or the lowest child on the tree.

Second, because more than one camera will be rendering, we turn off their `clearColorBuffer` property, ensuring that



no single render group can clear any of the others. The only camera in the entire scene that should be clearing the color buffer is the main scene camera. Finally, we create a group to hold all of the lights and objects for this render group.

**NOTE:** When we began using this technique, we were surprised that all of our objects rendered solid black. This is because each camera needs its own lights. This was originally thought of as a drawback to the system; however, we have since used this to great effect, having lights in the scene that affect some objects and not others, and have come to rely on this technique in several of our Shockwave3D worlds.

With all of that setup work in place, objects are created as per any other 3D world, through primitive shapes such as #sphere and #box, imported from 3dsMAX or a similar program, or built from scratch with the newMesh() call. Regardless of how an object is built, the final step in adding it to the world now looks like Listing 5.

This technique has been invaluable. It has allowed us to construct our own overlays by texturing two camera-oriented triangles. It has allowed us to control draw order regardless of 3D position, and to effectively layer different elements in a scene. Finally, it has been a useful tool in “sky-boxing” several worlds and ensuring that the size of the skybox has nothing to do with the size of the world.

**NOTE:** By setting a camera for a specific group to orthographic projection mode (#ortho) and positioning its rect to the rect of the 3D sprite, there is a 1:1 relationship between screen-space and world-space along the x/z plane. (Also note that in fact these coordinates are off by exactly 0.5 pixels when using the DirectX renderer, because of a bug in the underlying library).

As a final example, Figure 1 shows two examples of Broadsword running in tech-demo mode, with notations about camera groups and render order. We believe that this technique should prove useful in a wide variety of situations commonly encountered in Shockwave3D, and encourage developers to build for them-

selves their own grouping systems to take more complete control of the scenegraph.

## References

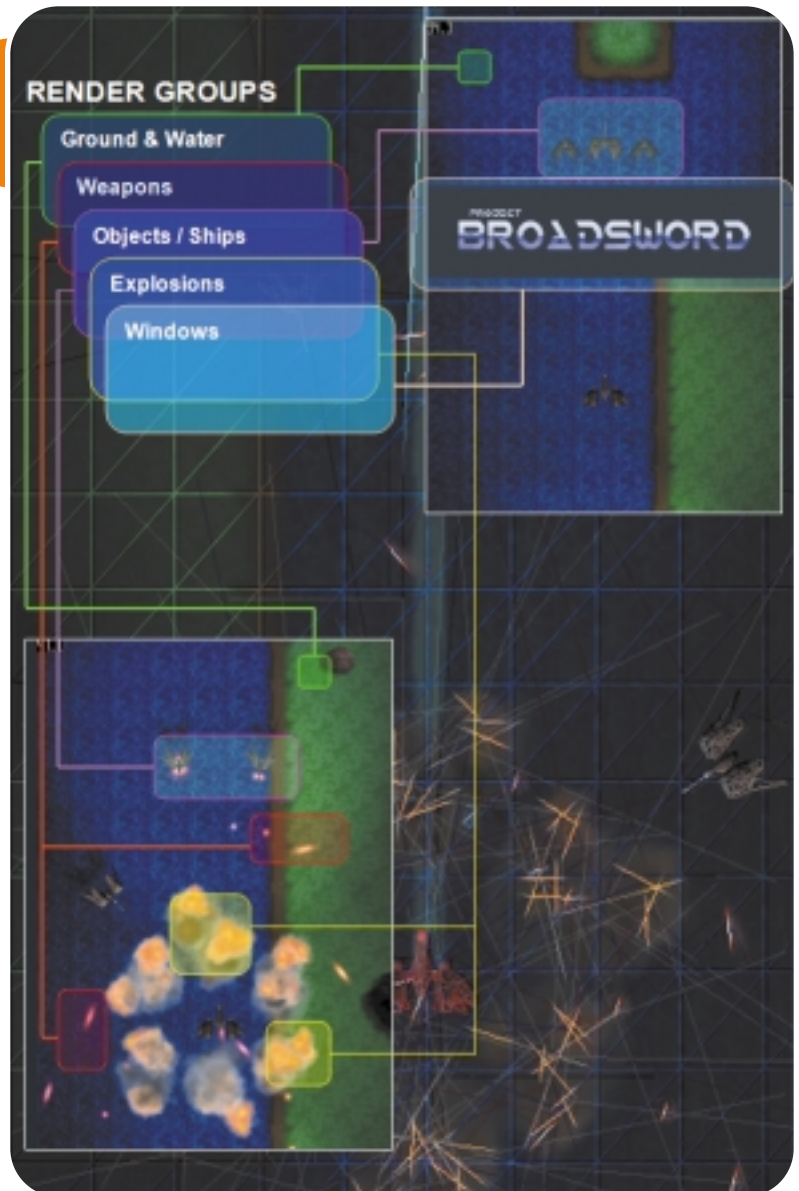
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Aaron Cloutier works for ElementK in Rochester NY and is pursuing a masters degree in information technology at the Rochester Institute of Technology with a concentration in game programming. He has previously worked at Kodak, PictureIQ, and Indaba Corporation as a multimedia specialist and web programmer. Aaron is currently researching several aspects of online 3D games (and Shockwave3D implementations).

figure 1



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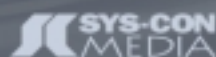


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listing 1

```
global D3D_WORLD

on ghCameraStartup
  vPos = vector(0,0,0) --default lookAt position
  vUp = vector(0,1,0) --default up vector

  D3D_WORLD[#g_3DWorld] = member("WORLD") -- castmember
of the WORLD

  --default camera
  D3D_WORLD[#g_Camera] = D3D_WORLD[#g_3DWorld].camera(1)

  --set initial position
  D3D_WORLD[#g_3DWorld].cameraPosition = vector(0,0,1000)

  --look at the default lookAt position
  D3D_WORLD[#g_Camera].pointAt(vPos, vUp)

  --rotate up to stare 'down' at our game world
  D3D_WORLD[#g_Camera].rotate(-90,0,0,#world)

  --make global camera ortho
  --(render groups can be either ortho or perspective,
not to worry)
  D3D_WORLD[#g_Camera].projection = #orthographic
  D3D_WORLD[#g_Camera].orthoHeight =
(D3D_WORLD[#g_iWorldHeight])
  D3D_WORLD[#g_Camera].rect =
rect(0,0,D3D_WORLD[#g_iWorldWidth], \
  D3D_WORLD[#g_iWorldHeight])

end ghCameraStartup
```

listing 2

```
on ghSetupRenderGroups
  --setup a manager for Render Groups
  D3D_WORLD[#g_oRenderGroupMgr] =
script("RENDER_GROUP_MGR").new()

  --create the basic render groups
  D3D_WORLD[#g_oRenderGroupMgr].mAddRenderGroup("GROUND"
)
  D3D_WORLD[#g_oRenderGroupMgr].mAddRenderGroup("WEAPONS"
)
  D3D_WORLD[#g_oRenderGroupMgr].mAddRenderGroup("OBJECTS"
)
  D3D_WORLD[#g_oRenderGroupMgr].mAddRenderGroup("EXPLO-
SIONS")
  D3D_WORLD[#g_oRenderGroupMgr].mAddRenderGroup("WINDOWS"
)

  --explicitly set the window camera to ortho
  D3D_WORLD[#g_oRenderGroupMgr].mGetRenderGroup("WIN-
DOWS").mToggleCameraOrtho(TRUE)
end ghSetupRenderGroups
```

listing 3

```
property p_plRenderGroups

--create a new render group manager
--and store a propList of render groups to manage
on new me
  p_plRenderGroups = [:]
  return me
end new

on mAddRenderGroup me, a_sName
  --create render group and add it to internal list
  oRenderGrp = script("RENDER_GROUP").new("RG_" & a_sName)
  p_plRenderGroups.addProp(a_sName, oRenderGrp)

end mAddRenderGroup me

--get a specific render group by name from the manager
on mGetRenderGroup me, a_sName
  return p_plRenderGroups.getProp(a_sName)
end mGetRenderGroup
```

listing 4

```
-----
-- RENDER_GROUP
-----

global D3D_WORLD

property p_sName
property p_camCamera
property p_grpRenderGroup

on new me, a_sName
  p_sName = a_sName

  --make the render group
  p_grpRenderGroup =
D3D_WORLD[#g_3DWorld].newGroup(p_sName)

  --void its parent
  p_grpRenderGroup.parent = void

  --create a camera
  --we clone the main scene camera if it has no children,
--otherwise we clone the last child. We have to avoid
--cloning a camera that already has children.
  if D3D_WORLD[#g_Camera].child.count = 0 then
    p_camCamera = D3D_WORLD[#g_Camera].clone(p_sName &
"_cam")
  else
    p_camCamera =
D3D_WORLD[#g_Camera].child[D3D_WORLD[#g_Camera \
].child.count].clone(p_sName & "_cam")
  end if

  --don't let them clear each other's color buffers
  p_camCamera.colorBuffer.clearAtRender = FALSE
```

```

--group camera with the renderGroup
p_camCamera.rootNode = p_grpRenderGroup

iCurNumRenderGroups =
D3D_WORLD[#g_3DWorld].cameraCount()
--add camera to the world
D3D_WORLD[#g_sprWorldSprite].addCamera(p_camCamera,
iCurNumRenderGroups+1)
D3D_WORLD[#g_sprWorldSprite].camera(2).rect = rect( \
0,0, D3D_WORLD[#g_iWorldWidth] ,
D3D_WORLD[#g_iWorldHeight])

--link camera to the "real" one
p_camCamera.parent = D3D_WORLD[#g_Camera]
p_camCamera.transform = transform()

return me
end new

on mToggleCameraOrtho me, a_bIsOrtho
if a_bIsOrtho then
--setup for orthographic projection
p_camCamera.projection = #orthographic
p_camCamera.orthoHeight =
(D3D_WORLD[#g_iWorldHeight])
p_camCamera.rect = rect(0,0,D3D_WORLD[#g_iWorldWidth]
], \
D3D_WORLD[#g_iWorldHeight])
else
--setup for "real 3D" projection
p_camCamera.projection = #perspective
p_camCamera.rect = rect(0,0,D3D_WORLD[#g_iWorldWidth]
], \
D3D_WORLD[#g_iWorldHeight])
end if
end mToggleCameraOrtho

--add a light to this render group
on mAddLight me, a_ltLight
a_ltLight.parent = p_grpRenderGroup
end mAddLight

--remove a light from this render group
on mSubLight me, a_ltLight
a_ltLight.parent = void
end mSubLight

--add a light to this render group by name
on mAddLightByName me, a_sLightName
D3D_WORLD[#g_3DWorld].light(a_sLightName).parent =
p_grpRenderGroup
end mAddLight

--remove a light from this render group by name
on mSubLightByName me, a_sLightName
D3D_WORLD[#g_3DWorld].light(a_sLightName).parent = void
end mSubLightByName

--add a model to this render group by name

```

```

on mAddModelByName me, a_sModelName
D3D_WORLD[#g_3DWorld].model(a_sModelName).parent =
p_grpRenderGroup
end mAddModelByName

--remove a model from this render group by name
on mSubModelByName me, a_sModelName
D3D_WORLD[#g_3DWorld].model(a_sModelName).parent = void
end mSubModelByName

--add a model to this render group
on mAddModel me, a_mModel
a_mModel.parent = p_grpRenderGroup
end mAddModel

--remove a model from this render group
on mSubModel me, a_mModel
a_mModel.parent = void
end mSubModel

--add a group to this render group by name
on mAddGroupByName me, a_sGroupName
D3D_WORLD[#g_3DWorld].group(a_sGroupName).parent =
p_grpRenderGroup
end mAddGroup

--remove a group from this render group by name
on mSubGroupByName me, a_sGroupName
D3D_WORLD[#g_3DWorld].group(a_sGroupName).parent = void
end mSubGroup

--add a group to this render group
on mAddGroup me, a_grpGroup
a_grpGroup.parent = p_grpRenderGroup
end mAddGroup

--remove a group from this render group
on mSubGroup me, a_grpGroup
a_grpGroup.parent = void
end mSubGroup

--get a handle to the camera for this render group
on mGetCamera me
return p_camCamera
end mGetCamera

```

Listing 5

```

--create a model resource
mrSphere =
D3D_WORLD[#g_3DWorld].newModelResource("SphereMR01",
#sphere)
--create a model
mSphere = D3D_WORLD[#g_3DWorld].newModel("SphereM01",
mrSphere)
--add the model to a specific render group created in
ghSetupRenderGroups

D3D_WORLD[#g_oRenderGroupMgr].mGetRenderGroup("GROUND").mA
ddModel(mSphere)

```

listing 5



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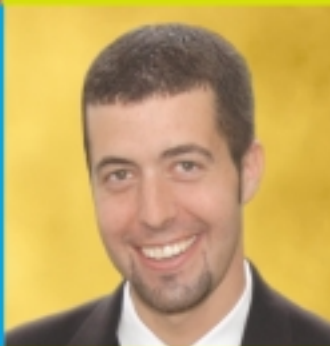
**Matt Ackley**

Senior Director, eBay  
 Developers Program

**Topic:**

Web Services for  
 e-Commerce

**Keynote  
 Speakers  
 & Featured  
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**Wednesday, February 16**  
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**Ari Bixhorn**

Director, Web Services  
 Strategies, Microsoft Corporation

**Topic:**

Indigo and the Future  
 of Web Services



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