

# Practical Ext JS Projects with Gears



Frank W. Zammetti

## **Practical Ext JS Projects with Gears**

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ISBN-13 (pbk): 978-1-4302-1924-8

ISBN-13 (electronic): 978-1-4302-1925-5

Printed and bound in the United States of America 9 8 7 6 5 4 3 2 1

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

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*I'm going to do something unusual for me here and write a serious dedication. This book is dedicated to the memory of Michael A. Baker. Mike, the lead singer for a band named Shadow Gallery, passed away in October 2008 at the far-too-young age of 45. The music of Shadow Gallery has always been a huge inspiration for me, as a musician myself, as a writer, and simply as a human being who appreciates art that touches you. Mike's voice was the emotional anchor of the group's music, an integral part of the experience. I never had the privilege of meeting Mike in person, but through his work I feel like I knew him extremely well, and I don't think I could come up with a greater compliment for any artist. Rest in peace, Mike, and I think I can safely say, on behalf of all Shadow Gallery fans, thank you.*

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# About the Author

■ **FRANK W. ZAMMETTI** is a five-time Oscar nominee, a two-time daytime Emmy winner, and a Grammy finalist three years running. He was also one of the top 36 in last years' *American Idol* competition, hikes in the Andes with Sir Richard Branson twice a year, and is scheduled to fly aboard the next space shuttle flight this summer.

Okay, it's possible that not *all* of that is true.

Frank, however, is in fact an author of a number of web development books with just a <sass>slight</sass> slant toward Ajax development. He is a lead developer/architect/whatever-his-title-says-this-week for one of the largest financial institutions in the United States, leading development of next-generation web applications.

Frank also contributes to a number of open source projects, leads a couple of them, and has even founded a few. His inane ramblings can be found in the archives of many projects' mailing lists!

Frank has done a few public-speaking engagements over the past two or three years and is most likely the reason scientists are currently developing time travel so that a sort of seven-second delay can be applied to live speakers, as is frequently done with "live" television programs to avoid FCC fines.

Frank has achieved a number of things of note in his life, but without question his crowning achievement has been getting his band Cydonia into the top 250 in the video game Rock Band. This even beats the time he spent in an *actual* rock band!

Frank lives in Pennsylvania with his longtime wife Traci and is a proud parent (on most days anyway) of his two children, Andrew and Ashley. Oh yes, and lest his family have further reason to yell at him, there's also the pets: Belle (dog), and Pandora the guinea pig (R.I.P. Flower, Pandora's long-time cage mate who passed away shortly before this book was completed...how's that for ending on a downer?!?).

# About the Technical Reviewer

■ **HERMAN VAN ROSMALEN** works as a developer/software architect for De Nederlandsche Bank N.V., the central bank of the Netherlands. He has more than 20 years of experience in developing software applications in a variety of programming languages. Herman has been involved in building mainframe, PC, and client-server applications. Since 2000, however, he has been involved mainly in building all sorts of JEE web-based applications. After working with Struts for years (pre-1.0), he got interested in Ajax and joined the Java Web Parts open source project in 2005; he is now one of the project's administrators. In addition to this book, Herman has served as technical editor for other Apress titles in the *Practical* series. Herman lives in a small town, Pijnacker, in the Netherlands with his wife Liesbeth and their children, Barbara, Leonie, and Ramon. You can reach him via e-mail at [herros@gmail.com](mailto:herros@gmail.com).

# About the Illustrator

■ **ANTHONY VOLPE.** What can be said about Anthony? He draws. He draws *really* well. He drew the illustrations for this book. His artistic ability is to Frank's as Albert Einstein's intelligence is to... well, anyone else really! That's why Anthony's illustrations have appeared in all of Frank's books so far. Besides, they are far better than Frank's stick figures that would otherwise be in their place!

Not only that, but he happens to be a longtime friend of Frank to boot.

Anthony has worked with Frank to produce a number of video games for several platforms, a few of which have been recognized with awards (too bad they weren't recognized with actual sales!), and they've even got an Internet cartoon under their belts based on some of the characters from the games.

Anthony is a prolific creative force, with a ton of comics to his credit, fiction writing, and a few video games, and he's produced several albums over the years (some of which you can pick up at finer Internet music retail sites (go, run, buy, *now!*). If you dare, check out his site: <http://planetvolpe.com/>.

# Acknowledgments

I'd like to acknowledge all the fine folks who made this book possible. Al Gore, inventor of the Internet. Bill Gates, inventor of the top seven tax brackets in the United States. Billy Mays, inventor of TALKING WAY TOO LOUDLY ON TELEVISION. Professor Hubert Farnsworth, inventor of the "What-If Machine." Conan O'Brien, inventor of television. Montgomery Scott, inventor of transparent aluminum.

Of course, aside from those luminaries, plenty of other people helped make this book a reality, and I'd like to acknowledge them: Richard Dal Porto, Steve Anglin, Douglas Pundick, Liz Welch, Katie Stence, and everyone else at Apress who I inadvertently left out who continue to make writing these books less like work and more like... well, still work, but it's work that I don't mind doing!

I'd like to acknowledge Herman von Rosmalen and Anthony Volpe, the two names that will forever be linked with mine in literary history (my heart goes out to them on that one!)

A special acknowledgment has to go to whatever alien species originally seeded our world with life that eventually evolved from the primordial ooze into modern-day humans. I just wonder, if when they return to check on their experiment, they'll consider it a success or an abject failure?

# Introduction

**T**he Web. A wise man once said: “The Web is like a box of chocolates.”

Well, sure, if you can find a box of chocolates that constantly jumps up in your face when you try to open it and is filled with, shall we say, *adult* chocolates?

It used to be that you could slap some HTML up on a server and call it a web page, and people would love you for it. Not anymore! Now, we’ve moved into the realm of web *applications*, where some useful function has to be performed. More than that, though, it’s got to look cool and work in a slick, “modern” way.

That’s where the term RIA, or rich Internet application, comes from. People now expect a certain degree of “coolness” when they hit a website. They expect the experience to be more like the native applications they use on a daily basis. They want things to fly into view, they want windows, and they want grids they can sort in place and they want... well, they want a bunch of stuff that historically hasn’t been easy to deliver on the Web!

That is, until the modern JavaScript libraries hit the scene. There are lots of great libraries out there today, from jQuery to Dojo, from YUI to script.aculo.us. All of them help you achieve the goal of wicked-cool web applications.

One of them, though, in my opinion, stands above the rest, and that’s what we’re here to look at: Ext JS.

Ext JS allows you to create applications with a richness that historically has only been seen in native applications. From a top-notch windowing system to a data subsystem, various effects, and drag-and-drop, everything you need to create modern web applications is here. Ext JS isn’t limited to the user interface, though; it also contains tons of utility functions that make the core of your application easier and cleaner. What’s more, it does all of this in a highly logical, coherent manner that is, in my opinion, unrivaled on the current RIA landscape.

What’s even better than Ext JS alone is when you team it with Gears, a product of those uber-geniuses at Google. Now, not only can you create the user interface goodness your employer desires but you can also do things like have a true relational database on the client and even have multithreading capabilities in JavaScript! You can create “sovereign” webapps, that special class of webapp where everything is on a single page and runs entirely in the browser.

While the Ext JS and Gears documentation is excellent, with lots of examples and tutorials to learn from, it’s often not enough. Nothing beats having a real application in front of you, one that has been commented and structured well and, better still, that you have the original coder of sitting beside you explaining it all, not just the how’s, but the why’s behind the code. That’s precisely what this book is all about! Contained within it you won’t find a bunch of simplistic, contrived examples; you’ll instead find seven complete, real-world applications that will be dissected and explained. You’ll have the opportunity to hack the code yourself to make changes and enhancements, further providing you with a learn-by-doing experience.

In the end you’ll have a solid grounding in what Ext JS and Gears are about, what they offer, and how to use them effectively. You will also have a good time in the process because I have what most people would describe as a unique tone about my writing. I believe that life is

tough enough when you're serious every minute of every day, so I try to interject humor and a carefree attitude whenever I can. Humor is highly subjective, but I feel confident in saying you won't find this book boring or stuffy.

## An Overview of This Book

Since my editor balked at the idea of one big chapter with a single run-on sentence as I suggested (darn his sense of proper writing style and grammar!), I've instead broken this book down into eight chapters as follows:

- Chapter 1 is the obligatory introductory chapter. We'll take a quick look at web application development, Ajax, and choices in libraries. In no time we'll get into Ext JS itself, including its history, licensing concerns, and the first actual code! We'll then begin looking through Ext JS to start seeing in detail what it offers.
- Chapter 2 covers more “advanced” topics, which just means we'll get into much more of what Ext JS has to offer: things like drag-and-drop, data, and the UI widgets. We'll also take our first look at Gears to see what it offers us.
- Chapter 3 is where we begin our project chapters, beginning with OrganizerExt, a PIM (personal information management) application that lets us store and organize things like contacts, appointments, and notes. We'll see all sorts of cool widgets and utility functions along the way.
- Chapter 4 presents the TimekeeperExt project, which is all about managing projects. Time tracking of resources can be done against the project, and various views of the data are offered. More widgets will present themselves, as well as a new way to architect our Ext JS applications.
- Chapter 5 is when we look at the Code Cabinet Ext project, a handy little utility for code monkey types where we can stash snippets of code and search for them later. We'll further evolve the architecture seen previously, and introduce examples of more Ext JS capabilities.
- Chapter 6 gives us the opportunity to see Local Business Search, which is a *mashup*, or an application that uses some publicly available web services to create an application. We'll create an application that lets us search for businesses in a given area and see information about it, including a map of the area. This is where we'll look at some Ajax, more specifically, JSON-P.
- Chapter 7 provides us with another useful utility application, SQL Workbench. This gives us a way to look at and manipulate the databases that Gears gives us access to. We'll get lots of experience with the Gears database component, and see some new ways of working with Ext JS.
- Chapter 8 is where we break the trend of “serious” applications and create Dueling Cards, a web-based game. We'll see things like drag-and-drop, effects, and even some game theory, not to mention the multithreading capabilities that Gears provides us.
- Chapter 9 finishes things up by looking at an application for tracking your finances that shows off some more cool features of Ext JS, including its charting capabilities.



There's quite a lot of territory to cover, and each chapter will build upon what you learned in the previous chapters. Along the way you'll see multiple ways of doing things so you can decide for yourself which you feel is the best approach.

## Obtaining This Book's Source Code

If you're anything like me, you'll agree that work sucks. What I mean is, effort that isn't actually necessary tends to not be something I enjoy. Or, to put it more succinctly: I'm lazy!

However, I generally try to get as much code printed in my books as possible, so that they pass the Bathroom Test™, that is, you can read them during your... how shall I say it... private time and basically be able to follow everything along.

That being said, this isn't the mid-1980s where you'd happily open up your copy of *RUN* (an old Commodore 64-focused magazine) and type in the 20 pages of machine language code for the parachuting game they published. No, we're better than that now (read: lazier), and typing in all the code yourself would be a monumental waste of your valuable time. So all the source code for this book is available for download at the Apress website. Simply go to [apress.com](http://apress.com), click the Source Code link, and then find this book in the list. Click it and you'll find a download link lurking somewhere on the next page.

## Obtaining Updates for this Book

There are *zero* mistakes in this book. Not a single one.

Now, repeat that a bazillion times and the universe might oblige and make it true.

In reality, writing a technical book of virtually any length is an exercise in getting things as right as possible but knowing you've almost certainly borked something, somewhere. You can be sure that every possible effort was made to ensure everything is accurate, from me as the author checking facts to the technical reviewer hammering me over every relatively minor typo in the code to the editor, copy editor, layout editor, and others going over it with a fine-toothed comb multiple times.

Still, if there really *are* no mistakes then I suspect that would be a first in the publishing industry! In light of this, you can always find the current errata list on this book's home page on the Apress website. You can also submit errata of your own, and this is input I very much welcome. In fact, you can feel free to call me if you ever need blood or a kidney (just please ask first... I don't want to wake up in a hotel bathtub filled with ice). Consider it my way of saying thanks for pointing out my ineptness!

## Contacting the Author

I have been called bad before. Many have said I do things that are not correct to do. I don't believe in talk such as this. I am nice man, with happy feelings, all of the time!<sup>1</sup> If you feel the need or, dare I say, desire, to contact me, please also feel perfectly free to do so! I'm available via email at [fzammetti@omnytex.com](mailto:fzammetti@omnytex.com), and you can catch me online to chat on AOL IM

---

<sup>1</sup> This is a quote from the great movie *Kung Pow: Enter the Fist*. If you haven't seen it, stop reading and go do so now. If you have seen it but don't like it, well, let's just say my editor wouldn't let me print what I suggest you do! In either case, how many times have you seen a footnote in a book's introduction?

(fzammetti), Yahoo! Instant Messenger (fzammetti), or MSN (fzammetti@hotmail.com). I have a bad habit of leaving my IM client open even when I'm not home, so if I don't answer right away don't take it personally! You could also send a carrier pigeon over the northeastern United States and tell them to look for the house with the horribly maintained front lawn (which reminds me: buy another ten copies of this book so I can afford to hire a landscaper!).

I'll also point out that, like every other loser on the planet, I have a blog. I don't update it often, and the topics I cover can absolutely be anything (some not suitable for all audiences, so I wouldn't visit it at work if I were you). If you've really got nothing better to do on a rainy Saturday, feel free to visit and even leave a comment or two: <http://www.zammetti.com>.