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Table of Contents (the real thing)

i Intro

Your brain on EJB. Here *you* are trying to *learn* something, while here your *brain* is doing you a favor by making sure the learning doesn't *stick*. Your brain's thinking, "Better leave room for more important things, like which wild animals to avoid and whether naked snowboarding is a bad idea." So how *do* you trick your brain into thinking that your life depends on knowing EJB?

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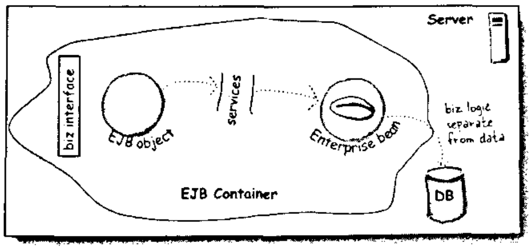
1 Welcome to EJB

Enterprise JavaBeans are easy. Well, at least when you compare EJB to what you'd have to do to write your own scalable, transactional, secure, persistent, concurrent enterprise component server. In this chapter, we'll develop, deploy, and run an EJB application, and then dive into the details. Before we're done, we'll look at the use, benefits, and characteristics of EJB, and we'll look (briefly) at how EJB containers work.



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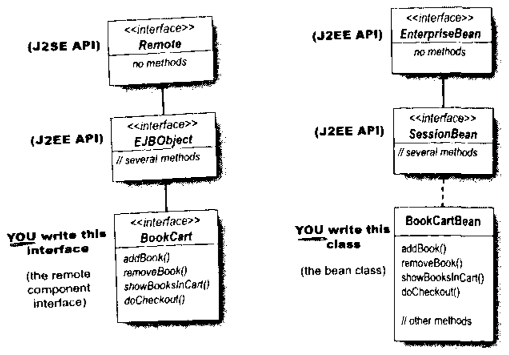
2 EJB Architecture

EJB is about infrastructure. Your components are the building blocks. With EJB, you can build big applications. The kind of applications that could run *everything* from the Victoria's Secret back-end to document-handling systems at CERN. But an architecture with this much flexibility, power, and scalability isn't simple. It all begins with a distributed programming model...



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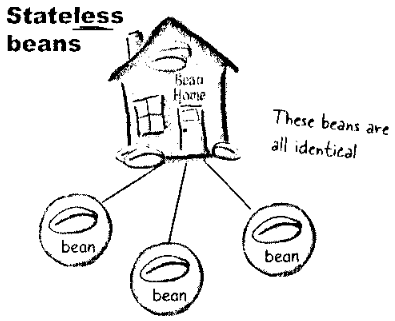
3 Exposing Yourself

You can't keep your bean private. Clients need to see what you've got. (Except for message-driven beans, which don't *have* a client view). The Advice Bean exposes the getAdvice() method in its Component interface—the place where you declare business methods. But that's not *all* the client sees. Remember, the Advice interface extends EJBObject, an interface with methods of its *own*. Methods the client can see. Methods the client can *call*. And it works the same way with the Home interface.



For stateless session beans from the same home, isIdentical() always returns *true*, even for different beans.

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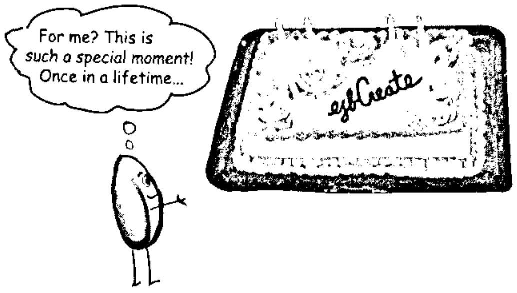
4 Being a Session Bean

Session beans are created and removed. If you're lucky, you're a state*less* bean. Because the life of a state*ful* bean is tied to the whims of a heartless client. Stateful beans are created at the client's insistence, and live and die *only* to serve that one client. But ahhhh, the life of a stateless bean is ***fabulous!*** Pools, those little umbrella drinks, and no boredom since you get to meet so many different clients.



For me? This is such a special moment! Once in a lifetime...
ejbCreate

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5 Entities are Persistent

Entity beans persist. Entity beans exist. Entity beans *are*. They are object representations of something in an ***underlying persistent store***. (Think: ***database,*** because most entity beans represent something from a relational database.) If you have a Customer entity bean, then one bean might represent the entity Tyler Durden, ID #343, while another is the entity Donny Darko, ID #42. Three beans, representing three real *entities*. An entity bean is simply a *realization* of something that already exists.

If you've got any last words, you better do it in your ejbRemove()...

No, Please, No! I'll give you whatever you want, just don't call remove()!

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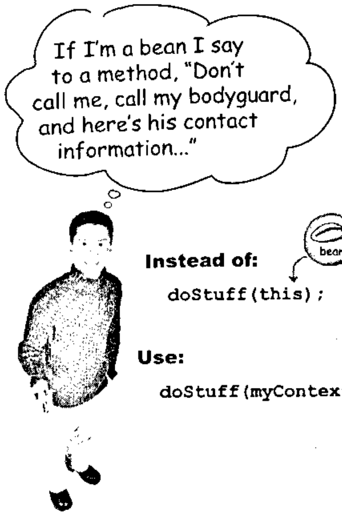
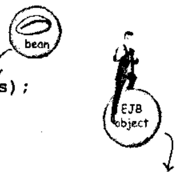
6 Being an Entity Bean

Entity beans are actors. As long as they're alive, they're either in the pool or they're *being* somebody. Somebody from the underlying persistent store (an entity from the database). When a bean is playing a part, the bean and the underlying entity have to stay in sync. Imagine the horror if the bean is pretending to be, say, Audrey Leone, and someone lowers Audrey's credit limit in the database... *but forgets to tell the bean.*


If I'm a bean I say to a method, "Don't call me, call my bodyguard, and here's his contact information..."



Instead of:

```
doStuff(this);
```

Use:

```
doStuff(myContext.getEJBObject());
```

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The EntityBean interface adds new container callbacks	310
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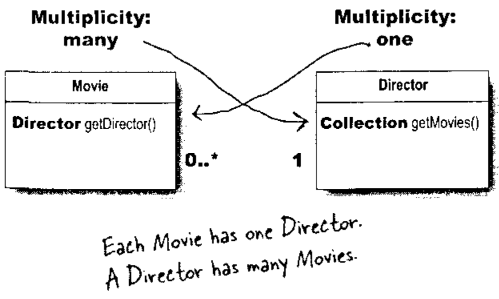
7 When Beans Relate

Entity beans need relationships. An Order needs a Customer. A LineItem needs an Order. An Order needs LineItems. Entity beans can have container-managed relationships (CMR) and the Container takes care of virtually *everything*. Make a new LineItem that's related to an Order? If you ask the Customer to show you his Orders, you'll see the new LineItem. Best of all, you can use EJB-QL to write *portable* queries.



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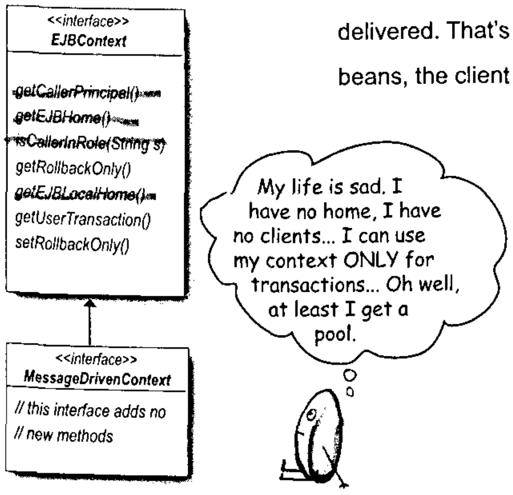
8 Getting the Message

It's fun to receive messages. Not as much fun as, say, getting that eBay package with the genuine Smurf™ lamp, but fun and *efficient* nonetheless. Imagine if you sent your order to eBay, and you couldn't leave your house until the package was delivered. That's what it's like with Session and Entity beans. But with message-driven beans, the client can send a message and walk away.


<<interface>> EJBContext
~~getCallerPrincipal()~~
~~getEJBHome()~~
~~isCallerInRole(String s)~~
getRollbackOnly()
~~getEJBLocalHome()~~
getUserTransaction()
setRollbackOnly()
<<interface>> MessageDrivenContext
// this interface adds no
// new methods
My life is sad. I have no home, I have no clients... I can use my context ONLY for transactions... Oh well, at least I get a pool.

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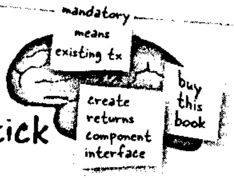
9 The Atomic Age

Transactions protect you. With transactions, you can try something knowing that if anything goes wrong along the way, you can just pretend the whole thing didn't happen. Everything goes back to the way it was *before*. Transactions in EJB are a thing of beauty—you can deploy a bean with customized transaction behavior *without* touching the bean's source code! But you *can* write transaction code, if you need to.

Make it Stick


mandatory means existing tx
create returns component interface
buy this book

CMT beans run
transactions unknown,
while BMT beans
use only their own.

OK, not our best work, we know. So why don't ***you*** try it. Memory devices can help, but they work much better when you create them yourself.

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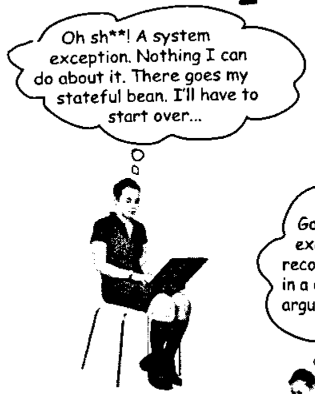
10 When Beans Go Bad

Expect the unexpected. Despite your best efforts, things can go wrong. Terribly, *tragically*, wrong. You need to protect yourself. You can't let your entire program collapse, just because one bean in the family throws an exception. ***The application must go on.*** You can't *prevent* tragedy, but you can *prepare* for it. You need to know what is and is *not* recoverable, and *who* is responsible when a problem occurs.


Oh sh**! A system exception. Nothing I can do about it. There goes my stateful bean. I'll have to start over...

Gotta love application exceptions... I can recover from this if I put in a different value for the argument to the create() method...

Exam objectives	526
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With an Application Exception, the Container will...	533
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Common system exceptions	551
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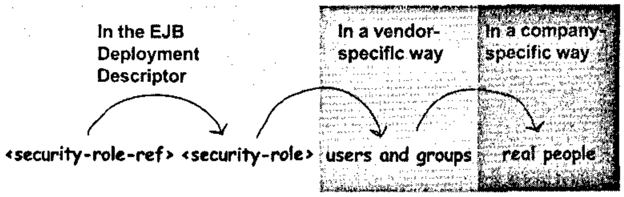
11 Protect Your Secrets

Keep your secrets. Security is about **authentication** and **authorization.** First, you have to prove your identity, and then we'll tell you what you're allowed to do. Security is easy in EJB, because you're only dealing with *authorization*. You decide *who* gets to call which *methods* on your beans. Except one problem... if you're a Bean Provider or App Assembler, you probably don't *know* who the users are going to be!



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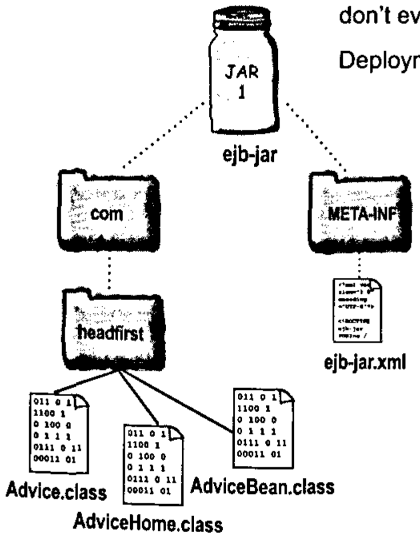
12 The Joy of Deployment

You worked hard on that bean. You coded, you compiled, you tested. About a hundred zillion times. The *last* thing you want to touch is already-tested source code, just because something simple changed in the deployment configuration. And what if you don't even *have* the source code? EJB supports bean reuse through the customizable Deployment Descriptor and a bean's special *environment.*



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What MUST be in an ejb-jar? 624
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A COFFEE CRAM

The final Coffee Cram Mock Exam. This is it. 70 questions. The tone, topics, and difficulty level are virtually identical to the *real* exam. *We know.*

Final Mock Exam 637

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