

ActiveJDBC == ActiveRecord for Java

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Who the heck is Igor Polevoy?

and why should we trust him?

- Developer like you
- Architect
- Teach Java/Rails at DePaul IPD
- Battle-beaten on IT projects
- Currently hacking away at Groupon, Chicago

..but why?

- Hibernate
- JDO
- JPA
- iBatis
- Castor
- Torque
- JPersist
- ...20 more??

Dissatisfaction

- Hibernate: very powerful, but complicated, hard to setup, people have theories how it works, feels like a straight jacket, hard to learn
- JPA – different configuration on every platform, not as feature reach as Hibernate, feels like a black box.
- Most of all: getters/setters
- Not OO!

ActiveRecord just feels right

- DHH is a great API designer
- AR simple to use, yet provides a level of sophistication
- Does not try to solve every problem under sun, but covers 80% of what you need; you can get your work done faster...much faster!
- Complicated DB schemas ==usually== wrong design

Who are parents of invention?

If necessity is a mother
then...

laziness is its father!

ActiveJDBC Design principles

- Should infer metadata from DB
- Should be very easy to work with
- Should reduce amount of code to a minimum
- No configuration, just conventions
- Conventions are overridable in code
- No need to learn another language
- No need to learn another QL - SQL is sufficient
- Code must be lightweight and intuitive, should read like English
- No sessions, no "attaching, re-attaching"
- No persistence managers.
- No classes outside your own models.
- Models are lightweight, no transient fields
- No proxying. What you write is what you get (WYWIWYG :))
- Should have the least possible resistance to startup a project
- No useless getters and setters (they just pollute code). You can still write them if you like.
- No DAOs and DTOs - this is mostly junk code anyway

ActiveJDBC is thin

- The main design principle:
 - thin!!!
 - 4 – 5 methods on stack traces
- Fast: simple non-scientific performance test: read 50K records from DB:
 - 2 times slower than JDBC
 - 40% times faster than Hibernate
 - no cache enabled
- No dependencies...almost
 - Slf4j
 - OSCache (only if needed)
- Size ~ 100k jar

Surrogate PKs

- Same as ActiveRecord
- Easy with MySQL, PostgreSQL
- Harder with Oracle (but doable, more SQL, see website)

Writing Models (Entities)

Fully functional model:

```
public class Person extends Model {}
```

- Maps to table PEOPLE
- Know all necessary details about this table from database
- Immediately ready for CRUD operations

Select

```
List<Person> johns =  
  
    Person.where("last_name = 'John' ") ;  
  
//iterate:  
for(Person p: people) {  
    log(p) ;  
}
```

Select with associations

```
class Address extends Model{}  
//table ADDRESSES has column person_id
```

```
Person p = Person.findFirst("ssn = ?", "123-34-  
5678");
```

```
List<Address> addresses = p.getAll(Address.class);
```

Same API exactly for One to Many, Many to Many and
Polymorphic associations!

Select with Fluent Interfaces

```
List<Person> people =  
    Person.where("age > 21")  
        .limit(40)  
        .offset(20)  
        .orderBy("age asc");
```

Create new data

```
Person p = new Person();  
p.set("first_name", "John");  
p.set("last_name", "Doe");  
p.set("dob", "1935-12-06");  
p.saveIt();
```

Create shortcuts (method chaining)

```
Person p = new Person();  
    p.set("name", "John")  
        .set("last_name", "Doe")  
        .set("dob", "1935-12-06")  
        .saveIt();
```

Create class shortcut

```
Person.createIt("first_name",  
    "Sam", "last_name", "Margulis",  
    "dob", "2001-01-07");
```

Arguments: name, value, name1,
value1, etc., reads like
English

Validations

```
public class Person extends Model {  
    static{  
        validatePresenceOf("first_name","last_name");  
    }  
}
```

Validation, fluent interfaces style

```
public class Percentage extends Model {  
    static{  
        validateNumericalityOf("total")  
            .allowNull(true)  
            .greaterThan(0)  
            .lessThan(100)  
            .onlyInteger()  
            .message("incorrect 'total'");  
    }  
}
```

save() and saveit()

- Same as `save` and `save!` in ActiveRecord

One to Many

User:

```
public class User extends Model {}
```

Address:

```
public class Address extends Model {}
```

```
List<Address> addresses =  
    user.getAll(Address.class);
```

Condition: table **ADDRESSES** needs to have column
user_id

Many to many

Model for table DOCTORS:

```
public class Doctor extends Model {}
```

Model for table PATIENTS:

```
public class Patient extends Model {}
```

```
List<Patient> patients =  
    doctor.getAll(Patient.class);
```

or:

```
List<Doctor> doctors =  
    patient.getAll(Doctor.class);
```

- Condition: have table **DOCTORS_PATIENTS** with columns **doctor_id**, **patient_id**

Adding/removing associated entries

Adding:

```
user.add(address);           //one to many
doctor.add(patient);         //many to many
article.add(tag);             //polymorphic
```

Removing:

```
user.remove(address);        //one to many
doctor.remove(patient);      //many to many
article.remove(tag);          //polymorphic
```

Auto-generated fields

- `created_at` — set at creation time
- `updated_at` — set at update time, as well as batch updates
- `id` (can override name, value generated by DB)

Caching

@Cached

```
public class Library extends Model {}
```

Supports efficient clustering (courtesy OSCache)

Life-cycle callbacks

```
void beforeSave();  
void afterSave();  
void beforeCreate();  
void afterCreate();  
void beforeDelete();  
void afterDelete();  
void beforeValidation();  
void afterValidation();
```

Callback example

```
public class User extends Model{  
    public void beforeSave(){  
        set("password" encryptPassword());  
    }  
    private String encryptPassword(){  
        //do what it takes  
        return encrypted;  
    }  
}
```

Lazy/Eager

ActiveJDBC is lazy by default.

If you need to load eager, use `include()`:

```
List<User> users =  
    User.findAll().orderBy("id")  
        .include(Address.class);
```

Addresses are loaded eagerly.

Include works for:

- One to many children
- One to many parents
- Many to many

Logging

- Uses SFL4J – hookup a log system *de jur*
- By default will not log anything
- Will log everything at INFO level:

```
java -Dactivejdbc.log  
com.acme.YourProgram
```
- Will log whatever matches regexp:

```
-Dactivejdbc.log=your-reg-exp
```
- Can change matching expression at run time

Questions

