EAR Testing

Example ear-testing can be browsed at https://github.com/apache/tomee/tree/master/examples/ear-testing

The goal of this example is to demonstrate how maven projects might be organized in a more real world style and how testing with OpenEJB can fit into that structure.

This example takes the basic moviefun code we us in many of examples and splits it into two modules:

- `business-logic`
- `business-model`

As the names imply, we keep our `@Entity` beans in the `business-model` module and our session beans in the `business-logic` model. The tests located and run from the business logic module.

```
ear-testing
ear-testing/business-logic
ear-testing/business-logic/pom.xml
ear-testing/business-logic/src/main/java/org/superbiz/logic/Movies.java
ear-testing/business-logic/src/main/java/org/superbiz/logic/MoviesImpl.java
ear-testing/business-logic/src/main/resources
ear-testing/business-logic/src/main/resources/META-INF
ear-testing/business-logic/src/main/resources/META-INF/ejb-jar.xml
ear-testing/business-logic/src/test/java/org/superbiz/logic/MoviesTest.java
ear-testing/business-model
ear-testing/business-model/pom.xml
ear-testing/business-model/src/main/java/org/superbiz/model/Movie.java
ear-testing/business-model/src/main/resources/META-INF/persistence.xml
ear-testing/pom.xml
```

Project configuration

The parent pom, trimmed to the minimum, looks like so:

```
<project xmlns="http://maven.apache.org/POM/4.0.0"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 http://maven.apache.org/maven-
v4_0_0.xsd">
```

```
<modelVersion>4.0.0</modelVersion>
<groupId>org.superbiz</groupId>
<artifactId>myear</artifactId>
<version>1.1.0-SNAPSHOT</version>
```

```
<packaging>pom</packaging>
```

```
<modules>
   <module>business-model</module>
   <module>business-logic</module>
</modules>
```

```
   <dependencyManagement>
     <dependencies>
       <dependency>
         <groupId>org.apache.openejb</groupId>
         <artifactId>javaee-api</artifactId>
         <version>6.0-2</version>
       </dependency>
       <dependency>
         <groupId>junit</groupId>
         <artifactId>junit</artifactId>
         <version>4.8.1</version>
       </dependency>
     </dependencies>
   </dependencyManagement>
</project>
```

The business-model/pom.xml as follows:

```
<project xmlns="http://maven.apache.org/POM/4.0.0"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 http://maven.apache.org/maven-
v4_0_0.xsd">
   <parent>
     <groupId>org.superbiz</groupId>
     <artifactId>myear</artifactId>
     <version>1.1.0-SNAPSHOT</version>
   </parent>
```

```
<modelVersion>4.0.0</modelVersion>
```

```
<artifactId>business-model</artifactId>
<packaging>jar</packaging>
```

```
<dependencies>
  <dependency>
    <groupId>org.apache.openejb</groupId>
    <artifactId>javaee-api</artifactId>
    <scope>provided</scope>
  </dependency>
  <dependency>
    <groupId>junit</groupId>
    <artifactId>junit</artifactId>
    <scope>test</scope>
  </dependency>
```

```
</dependencies>
```

```
</project>
```

And finally, the `business-logic/pom.xml` which is setup to support embedded testing with OpenEJB:

```
<project xmlns="http://maven.apache.org/POM/4.0.0"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 http://maven.apache.org/maven-
v4_0_0.xsd">
  <parent>
    <groupId>org.superbiz</groupId>
    <artifactId>myear</artifactId>
    <version>1.1.0-SNAPSHOT</version>
  </parent>
```

```
<modelVersion>4.0.0</modelVersion>
```

```
<artifactId>business-logic</artifactId>
<packaging>jar</packaging>
```

```
<dependencies>
  <dependency>
    <groupId>org.superbiz</groupId>
    <artifactId>business-model</artifactId>
    <version>${project.version}</version>
  </dependency>
  <dependency>
    <groupId>org.apache.openejb</groupId>
    <artifactId>javaee-api</artifactId>
    <scope>provided</scope>
  </dependency>
  <dependency>
    <groupId>junit</groupId>
    <artifactId>junit</artifactId>
    <scope>test</scope>
  </dependency>
  <!--
  The <scope>test</scope> guarantees that non of your runtime
  code is dependent on any OpenEJB classes.
  -->
  <dependency>
    <groupId>org.apache.openejb</groupId>
    <artifactId>openejb-core</artifactId>
    <version>7.0.0-SNAPSHOT</version>
    <scope>test</scope>
  </dependency>
</dependencies>
</project>
```

TestCode

The test code is the same as always:

```java
public class MoviesTest extends TestCase {

    public void test() throws Exception {
        Properties p = new Properties();
        p.put(Context.INITIAL_CONTEXT_FACTORY,
"org.apache.openejb.core.LocalInitialContextFactory");

        p.put("openejb.deployments.classpath.ear", "true");

        p.put("movieDatabase", "new://Resource?type=DataSource");
        p.put("movieDatabase.JdbcDriver", "org.hsqldb.jdbcDriver");
        p.put("movieDatabase.JdbcUrl", "jdbc:hsqldb:mem:moviedb");

        p.put("movieDatabaseUnmanaged", "new://Resource?type=DataSource");
        p.put("movieDatabaseUnmanaged.JdbcDriver", "org.hsqldb.jdbcDriver");
        p.put("movieDatabaseUnmanaged.JdbcUrl", "jdbc:hsqldb:mem:moviedb");
        p.put("movieDatabaseUnmanaged.JtaManaged", "false");

        Context context = new InitialContext(p);

        Movies movies = (Movies) context.lookup("MoviesLocal");

        movies.addMovie(new Movie("Quentin Tarantino", "Reservoir Dogs", 1992));
        movies.addMovie(new Movie("Joel Coen", "Fargo", 1996));
        movies.addMovie(new Movie("Joel Coen", "The Big Lebowski", 1998));

        List<Movie> list = movies.getMovies();
        assertEquals("List.size()", 3, list.size());

        for (Movie movie : list) {
            movies.deleteMovie(movie);
        }

        assertEquals("Movies.getMovies()", 0, movies.getMovies().size());
    }
}
```

Running

```
-------------------------------------------------------
 T E S T S
-------------------------------------------------------
Running org.superbiz.logic.MoviesTest
Apache OpenEJB 7.0.0-SNAPSHOT    build: 20111002-04:06
http://tomee.apache.org/
INFO - openejb.home = /Users/dblevins/examples/ear-testing/business-logic
INFO - openejb.base = /Users/dblevins/examples/ear-testing/business-logic
```

```
INFO - Configuring Service(id=Default Security Service, type=SecurityService,
provider-id=Default Security Service)
INFO - Configuring Service(id=Default Transaction Manager, type=TransactionManager,
provider-id=Default Transaction Manager)
INFO - Configuring Service(id=movieDatabaseUnmanaged, type=Resource, provider-
id=Default JDBC Database)
INFO - Configuring Service(id=movieDatabase, type=Resource, provider-id=Default JDBC
Database)
INFO - Found PersistenceModule in classpath: /Users/dblevins/examples/ear-
testing/business-model/target/business-model-1.0.jar
INFO - Found EjbModule in classpath: /Users/dblevins/examples/ear-testing/business-
logic/target/classes
INFO - Using 'openejb.deployments.classpath.ear=true'
INFO - Beginning load: /Users/dblevins/examples/ear-testing/business-
model/target/business-model-1.0.jar
INFO - Beginning load: /Users/dblevins/examples/ear-testing/business-
logic/target/classes
INFO - Configuring enterprise application: /Users/dblevins/examples/ear-
testing/business-logic/classpath.ear
INFO - Configuring Service(id=Default Stateful Container, type=Container, provider-
id=Default Stateful Container)
INFO - Auto-creating a container for bean Movies: Container(type=STATEFUL, id=Default
Stateful Container)
INFO - Configuring PersistenceUnit(name=movie-unit)
INFO - Enterprise application "/Users/dblevins/examples/ear-testing/business-
logic/classpath.ear" loaded.
INFO - Assembling app: /Users/dblevins/examples/ear-testing/business-
logic/classpath.ear
INFO - PersistenceUnit(name=movie-unit,
provider=org.apache.openjpa.persistence.PersistenceProviderImpl) - provider time 415ms
INFO - Jndi(name=MoviesLocal) --> Ejb(deployment-id=Movies)
INFO - Jndi(name=global/classpath.ear/business-logic/Movies!org.superbiz.logic.Movies)
--> Ejb(deployment-id=Movies)
INFO - Jndi(name=global/classpath.ear/business-logic/Movies) --> Ejb(deployment-
id=Movies)
INFO - Created Ejb(deployment-id=Movies, ejb-name=Movies, container=Default Stateful
Container)
INFO - Started Ejb(deployment-id=Movies, ejb-name=Movies, container=Default Stateful
Container)
INFO - Deployed Application(path=/Users/dblevins/examples/ear-testing/business-
logic/classpath.ear)
Tests run: 1, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 2.393 sec

Results :

Tests run: 1, Failures: 0, Errors: 0, Skipped: 0
```