bean-validation-design-by-contract

Example bean-validation-design-by-contract can be browsed at https://github.com/apache/tomee/tree/master/examples/bean-validation-design-by-contract

Bean Validation - Design By Contract

Bean Validation (aka JSR 303) contains an optional appendix dealing with method validation.

Some implementions of this JSR implement this appendix (Apache bval, Hibernate validator for example).

OpenEJB provides an interceptor which allows you to use this feature to do design by contract.

Design by contract

The goal is to be able to configure with a finer grain your contract. In the example you specify the minimum centimeters a sport man should jump at pole vaulting:

```java
@Local
public interface PoleVaultingManager {
    int points(@Min(120) int centimeters);
}
```

Usage

TomEE and OpenEJB do not provide anymore `BeanValidationAppendixInterceptor` since Bean Validation 1.1 does it (with a slighly different usage but the exact same feature).

So basically you don't need to configure anything to use it. = Errors

If a parameter is not validated an exception is thrown, it is an EJBException wrapping a ConstraintViolationException:

```java
try {
    gamesManager.addSportMan("I lose", "EN");
    fail("no space should be in names");
} catch (EJBException wrappingException) {
    assertTrue(wrappingException.getCause() instanceof ConstraintViolationException);
    ConstraintViolationException exception =
ConstraintViolationException.class.cast(wrappingException.getCausedByException());
    assertEquals(1, exception.getConstraintViolations().size());
}
```

Example

OlympicGamesManager

```java
package org.superbiz.designbycontract;

import javax.ejb.Stateless;
import javax.validation.constraints.NotNull;
import javax.validation.constraints.Pattern;
import javax.validation.constraints.Size;

@Stateless
public class OlympicGamesManager {
    public String addSportMan(@Pattern(regexp = "^[A-Za-z]+$") String name, @Size(min = 2, max = 4) String country) {
        if (country.equals("USA")) {
            return null;
        }
        return new StringBuilder(name).append(" [").append(country).append("]").toString();
    }
}
```

PoleVaultingManager

```java
package org.superbiz.designbycontract;

import javax.ejb.Local;
import javax.validation.constraints.Min;

@Local
public interface PoleVaultingManager {
    int points(@Min(120) int centimeters);
}
```

PoleVaultingManagerBean

```
package org.superbiz.designbycontract;

import javax.ejb.Stateless;

@Stateless
public class PoleVaultingManagerBean implements PoleVaultingManager {
    @Override
    public int points(int centimeters) {
        return centimeters - 120;
    }
}
```

OlympicGamesTest

```
public class OlympicGamesTest {
    private static Context context;

    @EJB
    private OlympicGamesManager gamesManager;

    @EJB
    private PoleVaultingManager poleVaultingManager;

    @BeforeClass
    public static void start() {
        Properties properties = new Properties();
        properties.setProperty(BeanContext.USER_INTERCEPTOR_KEY,
BeanValidationAppendixInterceptor.class.getName());
        context = EJBContainer.createEJBContainer(properties).getContext();
    }

    @Before
    public void inject() throws Exception {
        context.bind("inject", this);
    }

    @AfterClass
    public static void stop() throws Exception {
        if (context != null) {
            context.close();
        }
    }

    @Test
    public void sportMenOk() throws Exception {
        assertEquals("IWin [FR]", gamesManager.addSportMan("IWin", "FR"));
    }
```

```java
    @Test
    public void sportMenKoBecauseOfName() throws Exception {
        try {
            gamesManager.addSportMan("I lose", "EN");
            fail("no space should be in names");
        } catch (EJBException wrappingException) {
            assertTrue(wrappingException.getCause() instanceof
ConstraintViolationException);
            ConstraintViolationException exception = ConstraintViolationException
.class.cast(wrappingException.getCausedByException());
            assertEquals(1, exception.getConstraintViolations().size());
        }
    }


    @Test
    public void sportMenKoBecauseOfCountry() throws Exception {
        try {
            gamesManager.addSportMan("ILoseTwo", "TOO-LONG");
            fail("country should be between 2 and 4 characters");
        } catch (EJBException wrappingException) {
            assertTrue(wrappingException.getCause() instanceof
ConstraintViolationException);
            ConstraintViolationException exception = ConstraintViolationException
.class.cast(wrappingException.getCausedByException());
            assertEquals(1, exception.getConstraintViolations().size());
        }
    }

    @Test
    public void polVaulting() throws Exception {
        assertEquals(100, poleVaultingManager.points(220));
    }

    @Test
    public void tooShortPolVaulting() throws Exception {
        try {
            poleVaultingManager.points(119);
            fail("the jump is too short");
        } catch (EJBException wrappingException) {
            assertTrue(wrappingException.getCause() instanceof
ConstraintViolationException);
            ConstraintViolationException exception = ConstraintViolationException
.class.cast(wrappingException.getCausedByException());
            assertEquals(1, exception.getConstraintViolations().size());
        }
    }
}
```

Running

```
---------------------------------------------------------
 T E S T S
---------------------------------------------------------
Running OlympicGamesTest
Apache OpenEJB 4.0.0-beta-1    build: 20111002-04:06
http://tomee.apache.org/
INFO - openejb.home = /Users/dblevins/examples/bean-validation-design-by-contract
INFO - openejb.base = /Users/dblevins/examples/bean-validation-design-by-contract
INFO - Using 'javax.ejb.embeddable.EJBContainer=true'
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 - Found EjbModule in classpath: /Users/dblevins/examples/bean-validation-design-
by-contract/target/classes
INFO - Beginning load: /Users/dblevins/examples/bean-validation-design-by-
contract/target/classes
INFO - Configuring enterprise application: /Users/dblevins/examples/bean-validation-
design-by-contract
INFO - Configuring Service(id=Default Stateless Container, type=Container, provider-
id=Default Stateless Container)
INFO - Auto-creating a container for bean PoleVaultingManagerBean:
Container(type=STATELESS, id=Default Stateless Container)
INFO - Configuring Service(id=Default Managed Container, type=Container, provider-
id=Default Managed Container)
INFO - Auto-creating a container for bean OlympicGamesTest: Container(type=MANAGED,
id=Default Managed Container)
INFO - Enterprise application "/Users/dblevins/examples/bean-validation-design-by-
contract" loaded.
INFO - Assembling app: /Users/dblevins/examples/bean-validation-design-by-contract
INFO - Jndi(name="java:global/bean-validation-design-by-
contract/PoleVaultingManagerBean!org.superbiz.designbycontract.PoleVaultingManager")
INFO - Jndi(name="java:global/bean-validation-design-by-
contract/PoleVaultingManagerBean")
INFO - Jndi(name="java:global/bean-validation-design-by-
contract/OlympicGamesManager!org.superbiz.designbycontract.OlympicGamesManager")
INFO - Jndi(name="java:global/bean-validation-design-by-contract/OlympicGamesManager")
INFO - Jndi(name="java:global/EjbModule236054577/OlympicGamesTest!OlympicGamesTest")
INFO - Jndi(name="java:global/EjbModule236054577/OlympicGamesTest")
INFO - Created Ejb(deployment-id=OlympicGamesManager, ejb-name=OlympicGamesManager,
container=Default Stateless Container)
INFO - Created Ejb(deployment-id=PoleVaultingManagerBean, ejb-
name=PoleVaultingManagerBean, container=Default Stateless Container)
INFO - Created Ejb(deployment-id=OlympicGamesTest, ejb-name=OlympicGamesTest,
container=Default Managed Container)
INFO - Started Ejb(deployment-id=OlympicGamesManager, ejb-name=OlympicGamesManager,
container=Default Stateless Container)
```

```
INFO - Started Ejb(deployment-id=PoleVaultingManagerBean, ejb-
name=PoleVaultingManagerBean, container=Default Stateless Container)
INFO - Started Ejb(deployment-id=OlympicGamesTest, ejb-name=OlympicGamesTest,
container=Default Managed Container)
INFO - Deployed Application(path=/Users/dblevins/examples/bean-validation-design-by-
contract)
Tests run: 5, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 1.245 sec

Results :

Tests run: 5, Failures: 0, Errors: 0, Skipped: 0
```