Mbean Auto Registration

Example mbean-auto-registration can be browsed at https://github.com/apache/tomee/tree/master/examples/mbean-auto-registration

This example shows how to automatically create and register mbeans using TomEE features.

Dependencies

To be able to use it you need to import the mbean api (annotations):

```xml
<dependency>
  <groupId>org.apache.openejb</groupId>
  <artifactId>mbean-annotation-api</artifactId>
  <version>4.5.0</version>
  <scope>provided</scope>
</dependency>
```

The MBean

The mbean implements a simple game where the goal is to guess a number.

It allows the user to change the value too.

```
package org.superbiz.mbean;

import javax.management.Description;
import javax.management.MBean;
import javax.management.ManagedAttribute;
import javax.management.ManagedOperation;

@MBean
@Description("play with me to guess a number")
public class GuessHowManyMBean {
    private int value = 0;

    @ManagedAttribute
    @Description("you are cheating!")
    public int getValue() {
        return value;
    }

    @ManagedAttribute
    public void setValue(int value) {
        this.value = value;
    }

    @ManagedOperation
    public String tryValue(int userValue) {
        if (userValue == value) {
            return "winner";
        }
        return "not the correct value, please have another try";
    }
}
```

To register a MBean you simply have to specify a property either in system.properties, or in intial context properties.

```
Properties properties = new Properties();
properties.setProperty("openejb.user.mbeans.list", GuessHowManyMBean.class.getName());
EJBContainer.createEJBContainer(properties);
```

Accessing the MBean

Then simply get the platform server and you can play with parameters and operations:

```java
package org.superbiz.mbean;

import org.junit.Test;

import javax.ejb.embeddable.EJBContainer;
import javax.management.Attribute;
import javax.management.MBeanInfo;
import javax.management.MBeanServer;
import javax.management.ObjectName;
import java.lang.management.ManagementFactory;
import java.util.Properties;

import static junit.framework.Assert.assertEquals;

public class GuessHowManyMBeanTest {
    private static final String OBJECT_NAME =
"openejb.user.mbeans:group=org.superbiz.mbean,application=mbean-auto-
registration,name=GuessHowManyMBean";

    @Test
    public void play() throws Exception {
        Properties properties = new Properties();
        properties.setProperty("openejb.user.mbeans.list", GuessHowManyMBean.class
.getName());
        EJBContainer container = EJBContainer.createEJBContainer(properties);

        MBeanServer server = ManagementFactory.getPlatformMBeanServer();
        ObjectName objectName = new ObjectName(OBJECT_NAME);
        MBeanInfo infos = server.getMBeanInfo(objectName);
        assertEquals(0, server.getAttribute(objectName, "value"));
        server.setAttribute(objectName, new Attribute("value", 3));
        assertEquals(3, server.getAttribute(objectName, "value"));
        assertEquals("winner", server.invoke(objectName, "tryValue", new Object[]{3},
null));
        assertEquals("not the correct value, please have another try", server.invoke
(objectName, "tryValue", new Object[]{2}, null));

        container.close();
    }
}
```

Note

If OpenEJB can't find any module it can't start. So to force him to start even if the example has only the mbean as java class, we added a `beans.xml` file to turn our project into a Java EE module.

Running

```
--------------------------------------------------------
 T E S T S
--------------------------------------------------------
Running org.superbiz.mbean.GuessHowManyMBeanTest
Apache OpenEJB 4.0.0-beta-1    build: 20111002-04:06
http://tomee.apache.org/
INFO - openejb.home = /Users/dblevins/examples/mbean-auto-registration
INFO - openejb.base = /Users/dblevins/examples/mbean-auto-registration
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/mbean-auto-
registration/target/classes
INFO - Beginning load: /Users/dblevins/examples/mbean-auto-registration/target/classes
INFO - Configuring enterprise application: /Users/dblevins/examples/mbean-auto-
registration
INFO - MBean
openejb.user.mbeans:application=,group=org.superbiz.mbean,name=GuessHowManyMBean
registered.
INFO - MBean openejb.user.mbeans:application=mbean-auto-
registration,group=org.superbiz.mbean,name=GuessHowManyMBean registered.
INFO - MBean
openejb.user.mbeans:application=EjbModule1847652919,group=org.superbiz.mbean,name=Gues
sHowManyMBean registered.
INFO - Configuring Service(id=Default Managed Container, type=Container, provider-
id=Default Managed Container)
INFO - Auto-creating a container for bean mbean-auto-registration.Comp:
Container(type=MANAGED, id=Default Managed Container)
INFO - Enterprise application "/Users/dblevins/examples/mbean-auto-registration"
loaded.
INFO - Assembling app: /Users/dblevins/examples/mbean-auto-registration
INFO - Jndi(name="java:global/mbean-auto-registration/mbean-auto-
registration.Comp!org.apache.openejb.BeanContext$Comp")
INFO - Jndi(name="java:global/mbean-auto-registration/mbean-auto-registration.Comp")
INFO -
Jndi(name="java:global/EjbModule1847652919/org.superbiz.mbean.GuessHowManyMBeanTest!or
g.superbiz.mbean.GuessHowManyMBeanTest")
INFO -
Jndi(name="java:global/EjbModule1847652919/org.superbiz.mbean.GuessHowManyMBeanTest")
INFO - Created Ejb(deployment-id=mbean-auto-registration.Comp, ejb-name=mbean-auto-
registration.Comp, container=Default Managed Container)
INFO - Created Ejb(deployment-id=org.superbiz.mbean.GuessHowManyMBeanTest, ejb-
name=org.superbiz.mbean.GuessHowManyMBeanTest, container=Default Managed Container)
INFO - Started Ejb(deployment-id=mbean-auto-registration.Comp, ejb-name=mbean-auto-
registration.Comp, container=Default Managed Container)
```

```
INFO - Started Ejb(deployment-id=org.superbiz.mbean.GuessHowManyMBeanTest, ejb-
name=org.superbiz.mbean.GuessHowManyMBeanTest, container=Default Managed Container)
INFO - Deployed Application(path=/Users/dblevins/examples/mbean-auto-registration)
INFO - Undeploying app: /Users/dblevins/examples/mbean-auto-registration
Tests run: 1, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 1.063 sec

Results :

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