

Telephone Stateful

Example `telephone-stateful` can be browsed at <https://github.com/apache/tomee/tree/master/examples/telephone-stateful>

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This example shows how to use OpenEJB's remoting capabilities in an embedded scenario.

The basic recipe is the same for a standard embedded scenario but with these added ingredients:

- `openejb.embedded.remotable` property
- `openejb-ejbd` jar

While creating the `InitialContext`, pass in the `openejb.embedded.remotable` property with the value of `"true"`. When this is seen by the `LocalInitialContextFactory`, it will boot up the `Server ServiceManager` in the VM which will in turn look for `ServerServices` in the classpath.

Provided you have the `openejb-ejbd` jar in your classpath along with its dependencies (`openejb-server`, `openejb-client`, `openejb-core`), then those services will be brought online and remote clients will be able to connect into your vm and invoke beans.

If you want to add more `ServerServices` such as the http version of the ejbd protocol you'd simply add the `openejb-http` jar to your classpath. A number of `ServerServices` are available currently:

- `openejb-ejbd`
- `openejb-http`
- `openejb-telnet`
- `openejb-derbynet`
- `openejb-hsql`
- `openejb-activemq`

Telephone

```
package org.superbiz.telephone;

public interface Telephone {

    void speak(String words);

    String listen();
}
```

TelephoneBean

```

package org.superbiz.telephone;

import javax.ejb.Remote;
import javax.ejb.Stateful;
import java.util.ArrayList;
import java.util.List;

@Remote
@Stateful
public class TelephoneBean implements Telephone {

    private static final String[] answers = {
        "How nice.",
        "Oh, of course.",
        "Interesting.",
        "Really?",
        "No.",
        "Definitely.",
        "I wondered about that.",
        "Good idea.",
        "You don't say!",
    };

    private List<String> conversation = new ArrayList<String>();

    public void speak(String words) {
        conversation.add(words);
    }

    public String listen() {
        if (conversation.size() == 0) {
            return "Nothing has been said";
        }

        String lastThingSaid = conversation.get(conversation.size() - 1);
        return answers[Math.abs(lastThingSaid.hashCode()) % answers.length];
    }
}

```

TelephoneTest

```

package org.superbiz.telephone;

import junit.framework.TestCase;

import javax.naming.Context;
import javax.naming.InitialContext;
import java.util.Properties;

```

```

/**
 * @version $Rev: 1090810 $ $Date: 2011-04-10 07:49:26 -0700 (Sun, 10 Apr 2011) $
 */
public class TelephoneTest extends TestCase {

    protected void setUp() throws Exception {
        Properties properties = new Properties();
        properties.setProperty(Context.INITIAL_CONTEXT_FACTORY,
"org.apache.openejb.core.LocalInitialContextFactory");
        properties.setProperty("openejb.embedded.remotable", "true");
        // Uncomment these properties to change the defaults
        //properties.setProperty("ejbd.port", "4202");
        //properties.setProperty("ejbd.bind", "localhost");
        //properties.setProperty("ejbd.threads", "200");
        //properties.setProperty("ejbd.disabled", "false");
        //properties.setProperty("ejbd.only_from", "127.0.0.1,192.168.1.1");

        new InitialContext(properties);
    }

    /**
     * Lookup the Telephone bean via its remote interface but using the
     LocalInitialContextFactory
     *
     * @throws Exception
     */
    public void testTalkOverLocalNetwork() throws Exception {

        Properties properties = new Properties();
        properties.setProperty(Context.INITIAL_CONTEXT_FACTORY,
"org.apache.openejb.core.LocalInitialContextFactory");
        InitialContext localContext = new InitialContext(properties);

        Telephone telephone = (Telephone) localContext.lookup("TelephoneBeanRemote");

        telephone.speak("Did you know I am talking directly through the embedded
container?");

        assertEquals("Interesting.", telephone.listen());

        telephone.speak("Yep, I'm using the bean's remote interface but since the ejb
container is embedded " +
            "in the same vm I'm just using the LocalInitialContextFactory.");

        assertEquals("Really?", telephone.listen());

        telephone.speak("Right, you really only have to use the
RemoteInitialContextFactory if you're in a different vm.");
    }
}

```

```

        assertEquals("Oh, of course.", telephone.listen());
    }

    /**
     * Lookup the Telephone bean via its remote interface using the
     RemoteInitialContextFactory
     *
     * @throws Exception
     */
    public void testTalkOverRemoteNetwork() throws Exception {
        Properties properties = new Properties();
        properties.setProperty(Context.INITIAL_CONTEXT_FACTORY,
"org.apache.openejb.client.RemoteInitialContextFactory");
        properties.setProperty(Context.PROVIDER_URL, "ejbd://localhost:4201");
        InitialContext remoteContext = new InitialContext(properties);

        Telephone telephone = (Telephone) remoteContext.lookup("TelephoneBeanRemote");

        telephone.speak("Is this a local call?");

        assertEquals("No.", telephone.listen());

        telephone.speak("This would be a lot cooler if I was connecting from another
VM then, huh?");

        assertEquals("I wondered about that.", telephone.listen());

        telephone.speak("I suppose I should hangup and call back over the
LocalInitialContextFactory.");

        assertEquals("Good idea.", telephone.listen());

        telephone.speak("I'll remember this though in case I ever have to call you
accross a network.");

        assertEquals("Definitely.", telephone.listen());
    }
}

```

Running

T E S T S

```

Running org.superbiz.telephone.TelephoneTest
Apache OpenEJB 4.0.0-beta-1    build: 20111002-04:06
http://tomee.apache.org/
INFO - openejb.home = /Users/dblevins/examples/telephone-stateful
INFO - openejb.base = /Users/dblevins/examples/telephone-stateful
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/telephone-
stateful/target/classes
INFO - Beginning load: /Users/dblevins/examples/telephone-stateful/target/classes
INFO - Configuring enterprise application: /Users/dblevins/examples/telephone-
stateful/classpath.ear
INFO - Configuring Service(id=Default Stateful Container, type=Container, provider-
id=Default Stateful Container)
INFO - Auto-creating a container for bean TelephoneBean: Container(type=STATEFUL,
id=Default Stateful Container)
INFO - Enterprise application "/Users/dblevins/examples/telephone-
stateful/classpath.ear" loaded.
INFO - Assembling app: /Users/dblevins/examples/telephone-stateful/classpath.ear
INFO - Jndi(name=TelephoneBeanRemote) --> Ejb(deployment-id=TelephoneBean)
INFO - Jndi(name=global/classpath.ear/telephone-
stateful/TelephoneBean!org.superbiz.telephone.Telephone) --> Ejb(deployment-
id=TelephoneBean)
INFO - Jndi(name=global/classpath.ear/telephone-stateful/TelephoneBean) -->
Ejb(deployment-id=TelephoneBean)
INFO - Created Ejb(deployment-id=TelephoneBean, ejb-name=TelephoneBean,
container=Default Stateful Container)
INFO - Started Ejb(deployment-id=TelephoneBean, ejb-name=TelephoneBean,
container=Default Stateful Container)
INFO - Deployed Application(path=/Users/dblevins/examples/telephone-
stateful/classpath.ear)
INFO - Initializing network services
INFO - Creating ServerService(id=admin)
INFO - Creating ServerService(id=ejbd)
INFO - Creating ServerService(id=ejbds)
INFO - Initializing network services
    ** Starting Services **
    NAME                IP            PORT
    admin thread        127.0.0.1    4200
    ejbd                 127.0.0.1    4201
    ejbd                 127.0.0.1    4203
    -----
Ready!
Tests run: 2, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 1.448 sec

Results :

Tests run: 2, Failures: 0, Errors: 0, Skipped: 0

```