

ACCESSING AN ENTERPRISE BEAN

Assignment 4: implement a simple enterprise bean using WildFly

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Introduction:

This project is an implementation of a simple stateless java enterprise bean.

The *Server* module consists of a class *TimestampBean* which implements the *Timestamp* interface placed in the *Common* module. Such enterprise bean is deployed on WildFly so that a client is able to retrieve a remote instance and interact with such class.

The client once an instance of *Timestamp* has been acquired it asks 2 times for the current time.

Implementation:

The project is composed of 3 java modules: *Client*, *Server* and *Common*.

The *Common* module contains the definition of the shared interface between *Client* and *Server* : the *Timestamp* class. This interface extends *Serializable*. It provides the signature of a method that returns a String representation of the current time.

The *Client* module contains the *Client* class which first sets some parameters required to create the proper *InitialContext*. The client tries to connect to the server asking for an instance of an object implementing the *Timestamp* interface. The name used to get the instance is the one where WildFly places the enterprise bean defined by the *Server* module. In conclusion the *Client* call 2 times the *getTimestamp()* method on the retrieved object, between the 2 calls it waits 1 second.

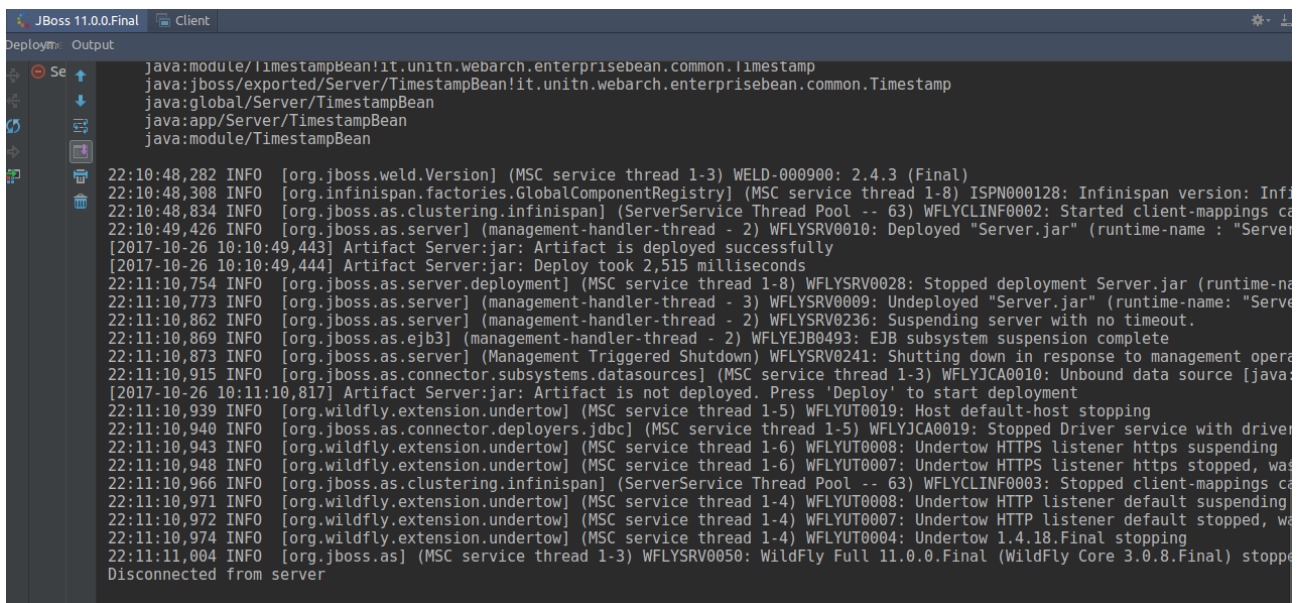
The *Server* module contains the class *TimestampBean* which is a stateless implementation of the *Timestamp* interface. The annotations: *Stateless* and *Remote(Timestamp.class)* tell WildFly that this class provides a stateless implementation of the *Timestamp* interface, so that it can process in creating a binding between the bean and a name.

Deployment:

In order to deploy the enterprise bean on *WildFly* I have used the facilities of the IntelliJ IDE which is able to take care of the creation of the java archive and starting *WildFly* in standalone mode, given the *JBOSS_HOME* path.

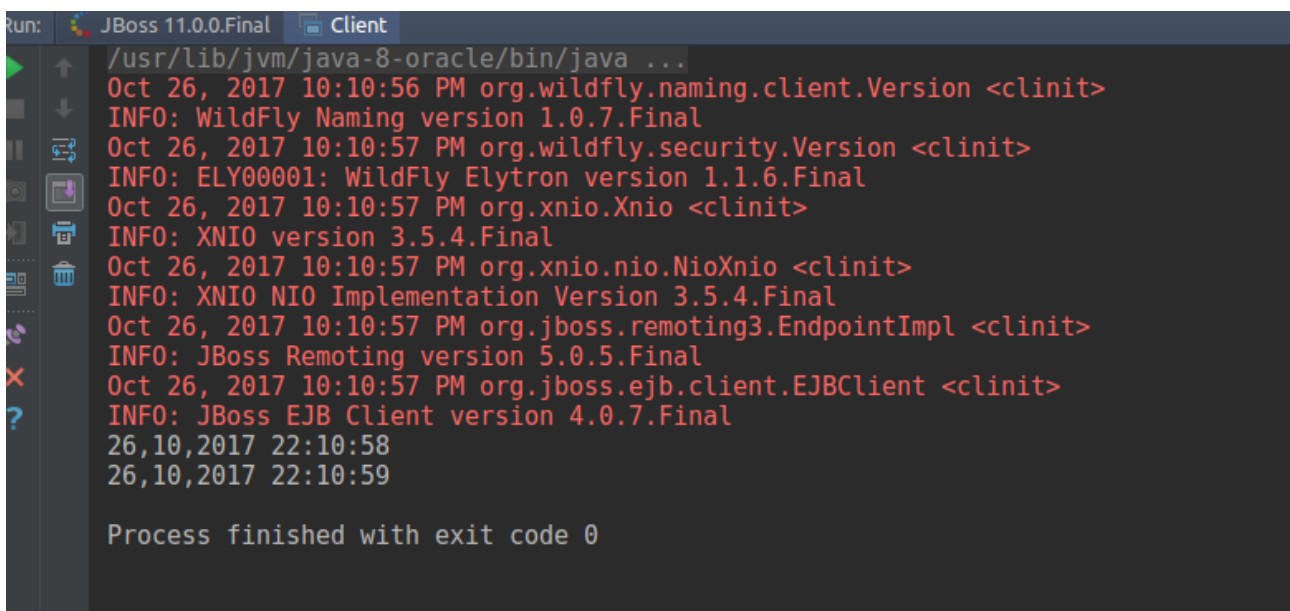
Note:

This image shows the log of the *WildFly* server. In particular the JNDI bindings can be seen.



```
JBoss 11.0.0.Final Client
Deployer: Output
Se
java:module/!timestampBean!it.unitn.webarch.enterprisebean.common.Timestamp
java:jboss/exported/Server/TimeStampBean!it.unitn.webarch.enterprisebean.common.Timestamp
java:global/Server/TimeStampBean
java:app/Server/TimeStampBean
java:module/TimeStampBean
22:10:48,282 INFO [org.jboss.weld.Version] (MSC service thread 1-3) WELD-000900: 2.4.3 (Final)
22:10:48,308 INFO [org.infinispan.factories.GlobalComponentRegistry] (MSC service thread 1-8) ISPN000128: Infinispan version: Inf
22:10:48,834 INFO [org.jboss.as.clustering.infinispan] (ServerService Thread Pool -- 63) WFLYCLINF0002: Started client-mappings ca
22:10:49,426 INFO [org.jboss.as.server] (management-handler-thread - 2) WFLYSRV0010: Deployed "Server.jar" (runtime-name : "Server
[2017-10-26 10:10:49,443] Artifact Server:jar: Artifact is deployed successfully
[2017-10-26 10:10:49,444] Artifact Server:jar: Deploy took 2,515 milliseconds
22:11:10,754 INFO [org.jboss.as.server.deployment] (MSC service thread 1-8) WFLYSRV0028: Stopped deployment Server.jar (runtime-na
22:11:10,773 INFO [org.jboss.as.server] (management-handler-thread - 3) WFLYSRV0009: Undeployed "Server.jar" (runtime-name: "Serve
22:11:10,862 INFO [org.jboss.as.server] (management-handler-thread - 2) WFLYSRV0236: Suspending server with no timeout.
22:11:10,869 INFO [org.jboss.as.ejb3] (management-handler-thread - 2) WFLYEJB0493: EJB subsystem suspension complete
22:11:10,873 INFO [org.jboss.as.server] (Management Triggered Shutdown) WFLYSRV0241: Shutting down in response to management opera
22:11:10,915 INFO [org.jboss.as.connector.subsystems.datasources] (MSC service thread 1-3) WFLYJCA0010: Unbound data source [java:
[2017-10-26 10:11:10,817] Artifact Server:jar: Artifact is not deployed. Press 'Deploy' to start deployment
22:11:10,939 INFO [org.wildfly.extension.undertow] (MSC service thread 1-5) WFLYUT0019: Host default-host stopping
22:11:10,940 INFO [org.jboss.as.connector.deployers.jdbc] (MSC service thread 1-5) WFLYJCA0019: Stopped Driver service with driver
22:11:10,943 INFO [org.wildfly.extension.undertow] (MSC service thread 1-6) WFLYUT0008: Undertow HTTPS listener https suspending
22:11:10,948 INFO [org.wildfly.extension.undertow] (MSC service thread 1-6) WFLYUT0007: Undertow HTTPS listener https stopped, was
22:11:10,966 INFO [org.jboss.as.clustering.infinispan] (ServerService Thread Pool -- 63) WFLYCLINF0003: Stopped client-mappings ca
22:11:10,971 INFO [org.wildfly.extension.undertow] (MSC service thread 1-4) WFLYUT0008: Undertow HTTP listener default suspending
22:11:10,972 INFO [org.wildfly.extension.undertow] (MSC service thread 1-4) WFLYUT0007: Undertow HTTP listener default stopped, was
22:11:10,974 INFO [org.wildfly.extension.undertow] (MSC service thread 1-4) WFLYUT0004: Undertow 1.4.18.Final stopping
22:11:11,004 INFO [org.jboss.as] (MSC service thread 1-3) WFLYSRV0050: WildFly Full 11.0.0.Final (WildFly Core 3.0.8.Final) stoppe
Disconnected from server
```

The following image shows a single run of the *Client* class. The last 2 lines show the log on standard output of the 2 timestamps acquired from the enterprise bean.



```
Run: JBoss 11.0.0.Final Client
/usr/lib/jvm/java-8-oracle/bin/java ...
Oct 26, 2017 10:10:56 PM org.wildfly.naming.client.Version <clinit>
INFO: WildFly Naming version 1.0.7.Final
Oct 26, 2017 10:10:57 PM org.wildfly.security.Version <clinit>
INFO: ELY00001: WildFly Elytron version 1.1.6.Final
Oct 26, 2017 10:10:57 PM org.xnio.Xnio <clinit>
INFO: XNIO version 3.5.4.Final
Oct 26, 2017 10:10:57 PM org.xnio.nio.NioXnio <clinit>
INFO: XNIO NIO Implementation Version 3.5.4.Final
Oct 26, 2017 10:10:57 PM org.jboss.remoting3.EndpointImpl <clinit>
INFO: JBoss Remoting version 5.0.5.Final
Oct 26, 2017 10:10:57 PM org.jboss.ejb.client.EJBClient <clinit>
INFO: JBoss EJB Client version 4.0.7.Final
26,10,2017 22:10:58
26,10,2017 22:10:59

Process finished with exit code 0
```