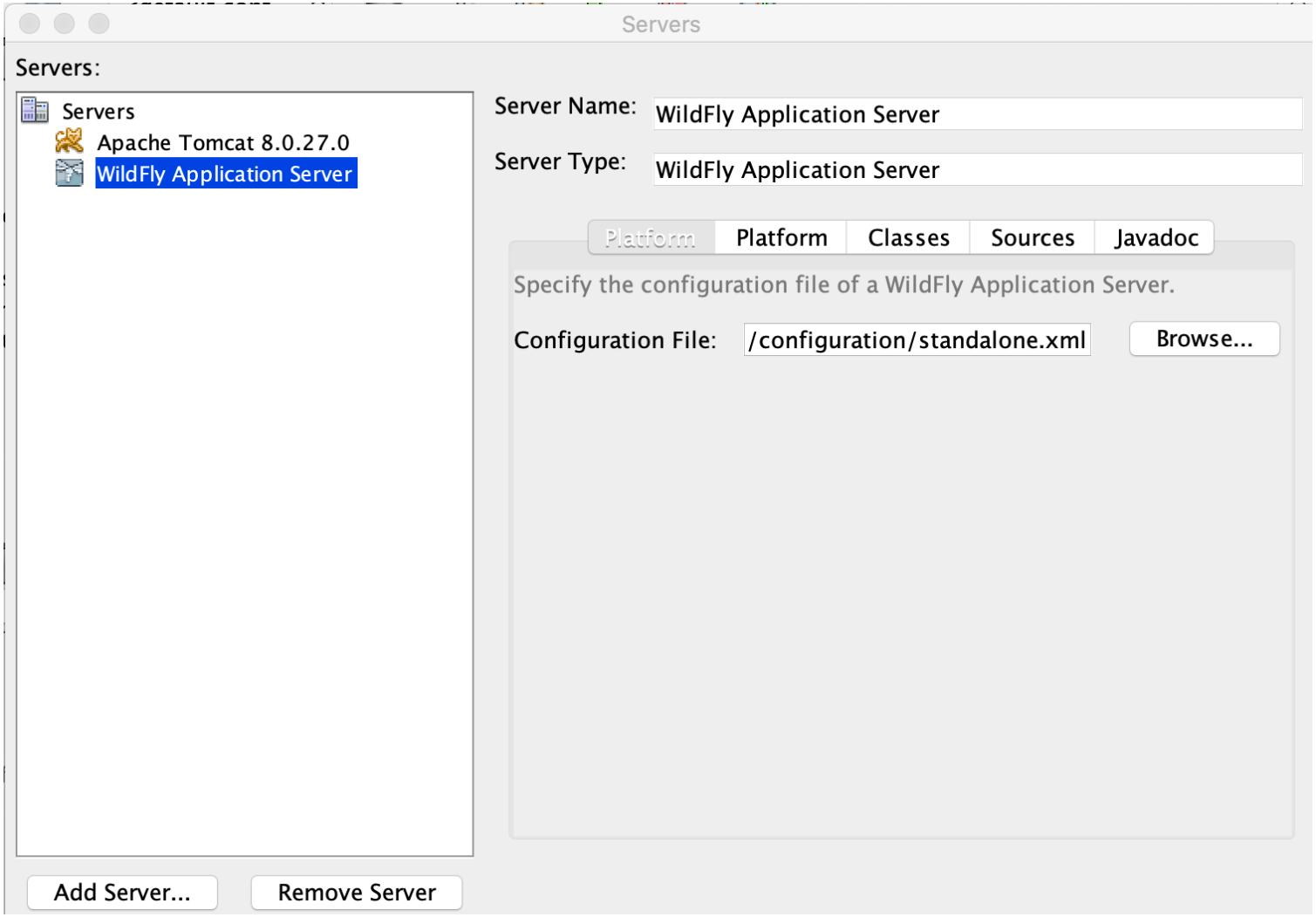
# How to configure Wildfly with Netbeans

## Part 1: Stateless (and Stateful) beans

# Configure the server

In Netbeans, go to Tools->Servers and add Wildfly
Check which is the active configuration file, or choose one (e.g. standalone.xml)



# The remote interface

**included both il the client and in the server!**

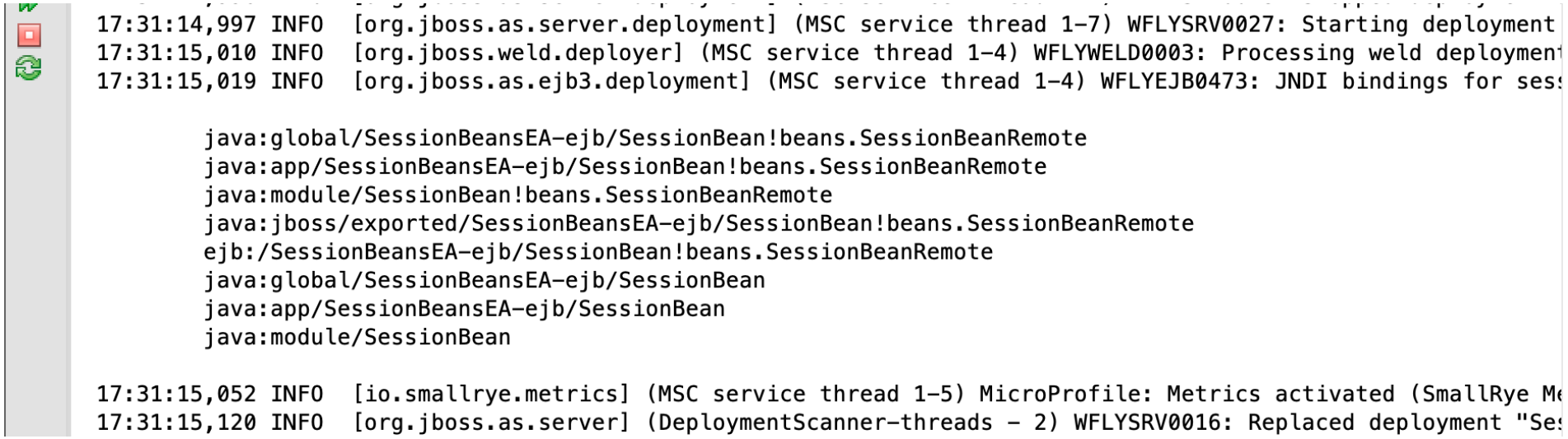
```
package beans;
import javax.ejb.Remote;

@Remote
public interface SessionBeanRemote {
    String hello();
}
```

# Our stateless bean  (in the server)

```
package beans;
import javax.ejb.Remote;
import javax.ejb.Stateless;
@Stateless
@Remote(SessionBeanRemote.class)
public class SessionBean implements SessionBeanRemote {
    @Override
    public String hello() {
        return "ciao";
    }
}
```

# Hint: How do I find the right JNDI name?

Alternative 1: look at the starting  log of the server, choose the  "ejb" one



```
17:31:14,997 INFO  [org.jboss.as.server.deployment] (MSC service thread 1-7) WFLYSRV0027: Starting deployment
17:31:15,010 INFO  [org.jboss.weld.deployer] (MSC service thread 1-4) WFLYWELD0003: Processing weld deployment
17:31:15,019 INFO  [org.jboss.as.ejb3.deployment] (MSC service thread 1-4) WFLYEJB0473: JNDI bindings for sess

        java:global/SessionBeansEA-ejb/SessionBean!beans.SessionBeanRemote
        java:app/SessionBeansEA-ejb/SessionBean!beans.SessionBeanRemote
        java:module/SessionBean!beans.SessionBeanRemote
        java:jboss/exported/SessionBeansEA-ejb/SessionBean!beans.SessionBeanRemote
        ejb:/SessionBeansEA-ejb/SessionBean!beans.SessionBeanRemote
        java:global/SessionBeansEA-ejb/SessionBean
        java:app/SessionBeansEA-ejb/SessionBean
        java:module/SessionBean

17:31:15,052 INFO  [io.smallrye.metrics] (MSC service thread 1-5) MicroProfile: Metrics activated (SmallRye Me
17:31:15,120 INFO  [org.jboss.as.server] (DeploymentScanner-threads - 2) WFLYSRV0016: Replaced deployment "Ses
```

# How do I find the right JNDI name?

https://docs.jboss.org/author/display/WFLY10/EJB%20invocations%20from%20a%20remote%20client%20using%20JNDI.html

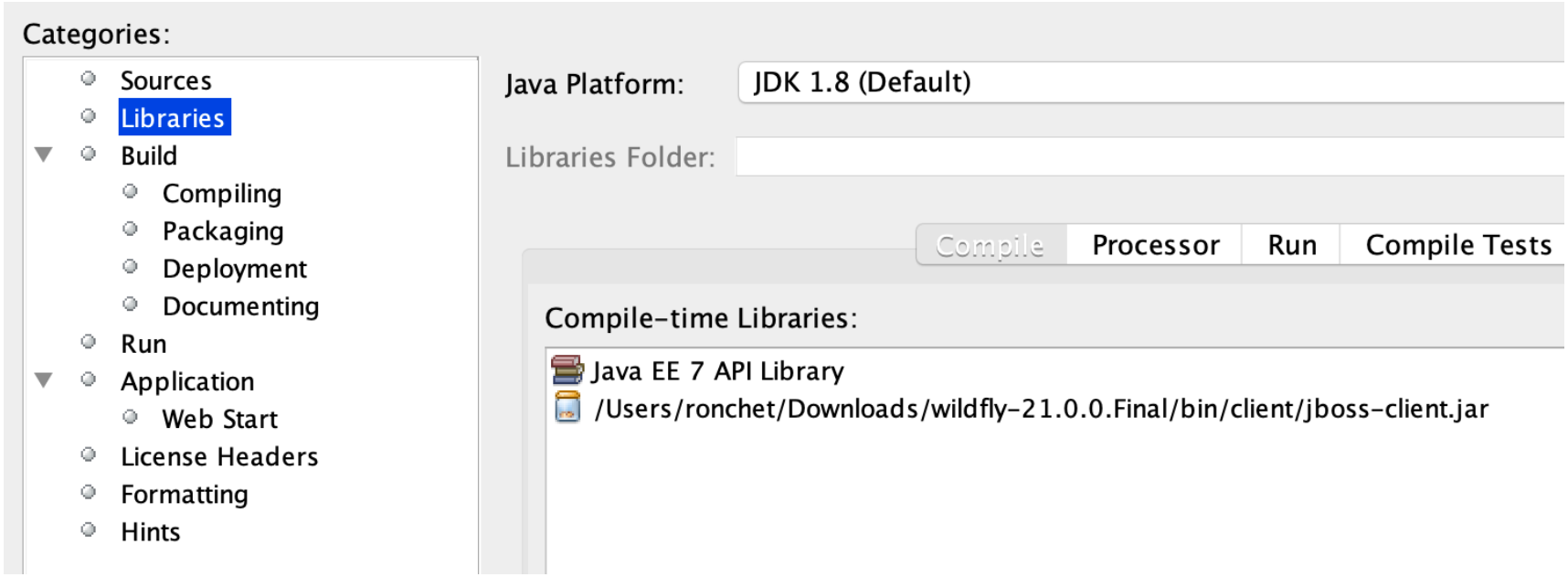
Alternative 2: Compose it following a rule:

```
// The app name is the application name of the deployed EJBs. This is typically the ear name
// without the .ear suffix. However, the application name could be overridden in the application.xml
// of the EJB deployment on the server.
// If haven't deployed the application as a .ear, the app name for us will be an empty string
        final String appName = "";
// This is the module name of the deployed EJBs on the server. This is typically the jar name of the
// EJB deployment, without the .jar suffix, but can be overridden via the ejb-jar.xml
// In this example, we have deployed the EJBs in a jboss-as-ejb-remote-app.jar, so the module name is
// jboss-as-ejb-remote-app
        final String moduleName = "jboss-as-ejb-remote-app";
// AS7 allows each deployment to have an (optional) distinct name. We haven't specified a distinct name for
// our EJB deployment, so this is an empty string
        final String distinctName = "";
// The EJB name which by default is the simple class name of the bean implementation class
        final String beanName = CalculatorBean.class.getSimpleName();
// the remote view fully qualified class name -
// add a ?stateful string as the last part of the jndi name for stateful bean lookup
        final String viewClassName = RemoteCalculator.class.getName();
// let's do the lookup
        return (RemoteCalculator) context.lookup("ejb:" + appName + "/" + moduleName + "/" + distinctName +
"/" + beanName + "!" + viewClassName);
```

# Our client

```
package clientea;
import java.util.logging.Level;  import java.util.logging.Logger; import javax.naming.Context;
import javax.naming.InitialContext; import javax.naming.NamingException; import
beans.SessionBeanRemote; import java.util.Hashtable; import javax.ejb.Stateless;
public class ClientHello {
  public ClientHello() {
  final Hashtable jndiProperties = new Hashtable();
  jndiProperties.put(Context.INITIAL_CONTEXT_FACTORY,
       "org.wildfly.naming.client.WildFlyInitialContextFactory");
  jndiProperties.put(Context.PROVIDER_URL,
       "http-remoting://localhost:8080");
  Context ctx=null; SessionBeanRemote hello=null;
  try {
     ctx = new InitialContext(jndiProperties);
     System.out.println("before");
     hello = (SessionBeanRemote) ctx.lookup(
        "ejb:/SessionBeansEA-ejb/SessionBean!beans.SessionBeanRemote");
  } catch (NamingException ex) {
      Logger.getLogger(ClientHello.class.getName()).log(Level.SEVERE, null, ex);
  }
  System.out.println(hello.hello());
  System.out.println("after");
}
```

# Hint 1: Check the client libraries!




Make sure you use the Java EE 7 API, not the version 6!
Make sure you include the jboss-client.jar

# How to configure Wildfly with Netbeans

## Part 2: Datasources and Entities

# Let's take a look at our DB


- name: SESSION_DB
- connection: jdbc:derby://localhost:1527/SESSION_DB

# standalone.xml

you must change the content
of the datasouces section like this

```
<datasources>
        <datasource jndi-name="java:jboss/datasources/ExampleDS" pool-name="ExampleDS" enabled="true" use-java-context="true" statistics-enabled="${wildfly.datasources.statistics-enabled:${wildfly.statistics-enabled:false}}">
          <connection-url>jdbc:h2:mem:test;DB_CLOSE_DELAY=-1;DB_CLOSE_ON_EXIT=FALSE</connection-url>
          <driver>h2</driver>
          <security>
            <user-name>sa</user-name>
            <password>sa</password>
          </security>
        </datasource>
        <datasource jndi-name="java:jboss/datasources/DerbyDS" pool-name="DerbyDS" enabled="true" use-ccm="false">
          <connection-url>jdbc:derby://localhost:1527/SESSION_DB;create=true</connection-url>
          <driver>org.apache.derby</driver>
          <security>
            <user-name>user1</user-name>
            <password>pw</password>
          </security>
          <validation>
            <validate-on-match>false</validate-on-match>
            <background-validation>false</background-validation>
          </validation>
```

JNDI name

Symbolic name

Name or your DB

- you must change the name of your DB
- you may change the symbolic name and the last token of the JNDI name

```
<statement>
                <share-prepared-statements>false</share-prepared-statements>
            </statement>
        </datasource>
        <drivers>
            <driver name="h2" module="com.h2database.h2">
                <xa-datasource-class>org.h2.jdbcx.JdbcDataSource</xa-datasource-class>
            </driver>
            <driver name="org.apache.derby" module="org.apache.derby">
                <xa-datasource-class>org.apache.derby.jdbc.ClientXADataSource</xa-datasource-class>
            </driver>
        </drivers>
    </datasources>
```

# Configure the datasource

- Make sure the driver libraries are included. In your Wildfly home directory, you should have the following directory structure (if not, create it):

modules->org->apache->derby-> main

- In main you should have:
  - derbyclient.jar
  - module.xml

**Module.xml:**

```
<?xml version="1.0" encoding="UTF-8"?>
<module xmlns="urn:jboss:module:1.3" name="org.apache.derby">
   <resources>
      <resource-root path="derbyclient.jar"/>
   </resources>
   <dependencies>
      <module name="javax.api"/>
      <module name="javax.transaction.api"/>
   </dependencies>
</module>
```

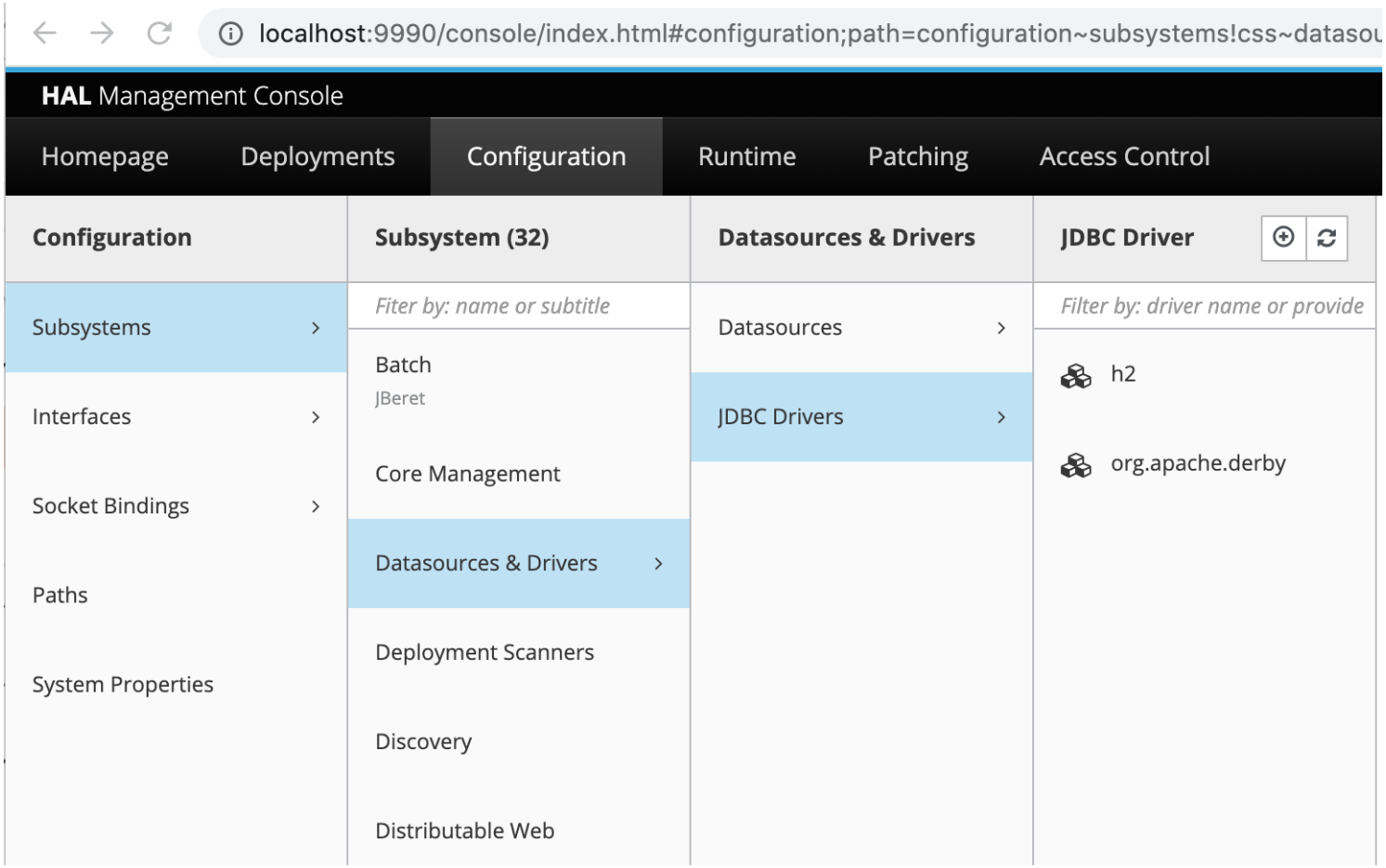
# Check the datasource

- Make sure the DB Service is started (e.f. from within Netbeans)
- Open a shell, and cd to the bin directory of wildfly.
- Start wildfly with the following command:

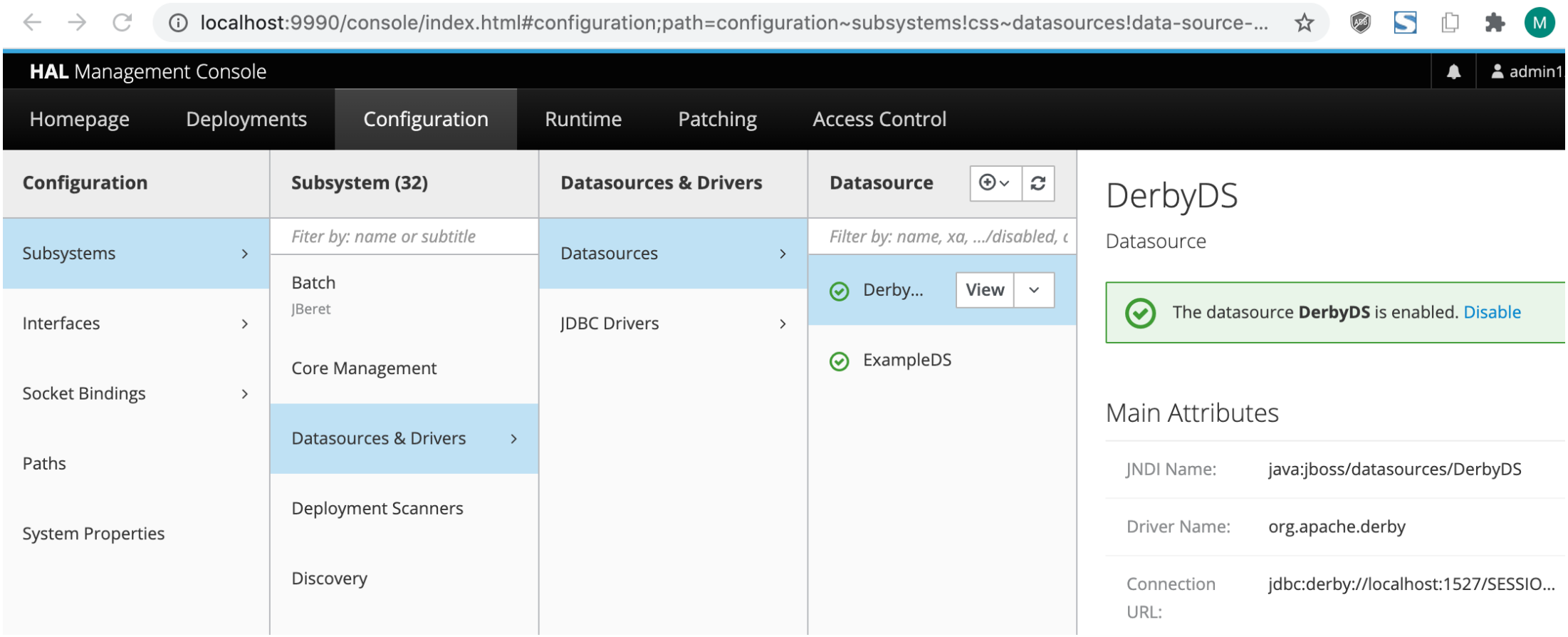
```
./standalone.sh &
```

- Check it in the console

# Connect to the console, check the driver



# Connect to the console, check the datasource



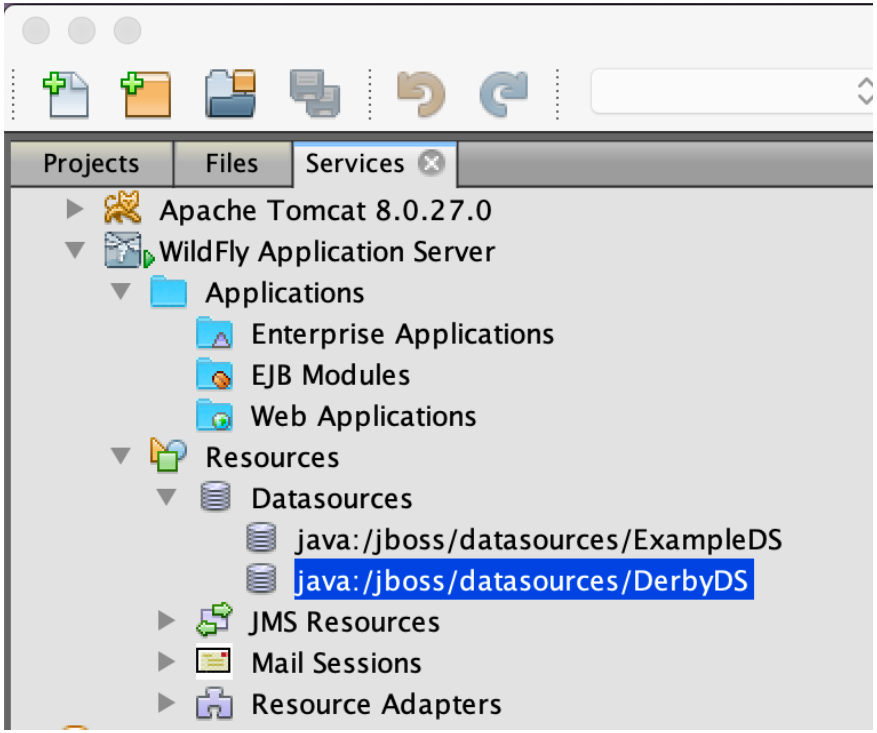
# Shut down Wildfly – repeat from within Netbeans

In the shell, issue the command:

```
./jboss-cli.sh --connect command=:shutdown
```

Repeat the check after starting wildfly from within Netbeans.

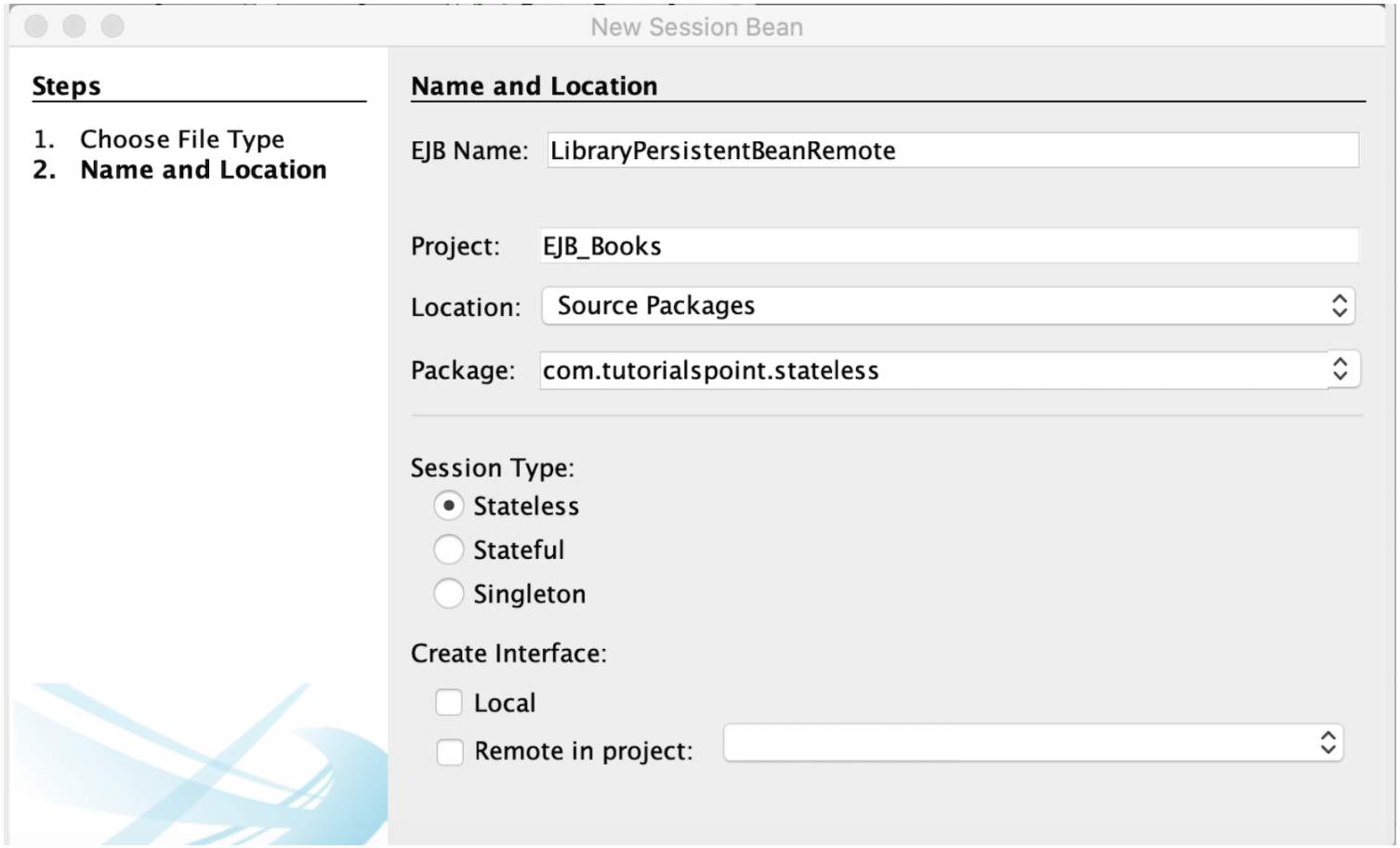
You should also see the datasource from within Netbeans.



# let's create and configure a project

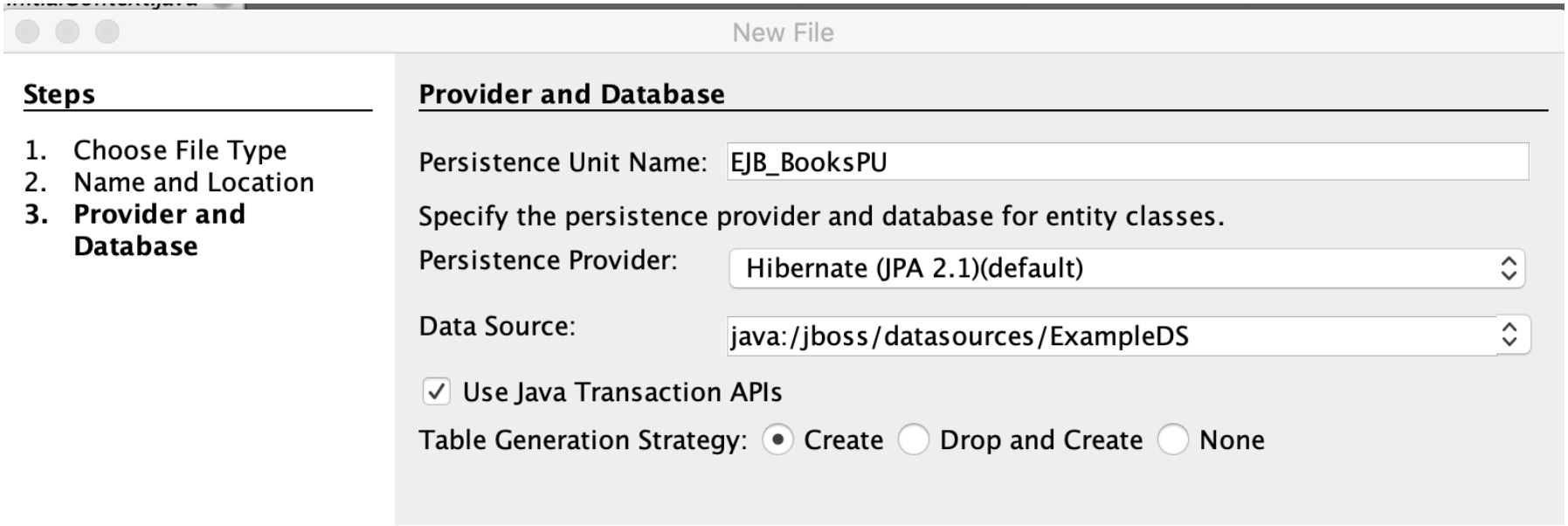
Let's create an EJB project as EJB Module.

In it let's create a stateless bean



# let's continue configuring our project

In it let's create an entity



# let's continue writing our project

Let's copy the code from
https://www.tutorialspoint.com/ejb/ejb_persistence.htm

but for now NOT the client part.

```
@Remote
public interface LibraryPersistentBeanRemote {
  void addBook(Book bookName);
  List<Book> getBooks();
}
```

```
@Stateless
public class LibraryPersistentBean implements
LibraryPersistentBeanRemote {
  public LibraryPersistentBean() {   }
  @PersistenceContext(unitName="EjbComponentPU")
  private EntityManager entityManager;
  public void addBook(Book book) {   entityManager.persist(book);  }
  public List<Book> getBooks() {
    return entityManager.createQuery("From Book").getResultList();   }
}
```

```
@Entity
@Table(name="books")
public class Book implements Serializable{
  private int id;
  private String name;
  public Book() { }
  @Id
  @GeneratedValue(strategy= GenerationType.IDENTITY)
  @Column(name="id")
  public int getId() { return id; }
  public void setId(int id) {  this.id = id;}
  public String getName() {      return name; }
  public void setName(String name) {  this.name = name; }
}
```

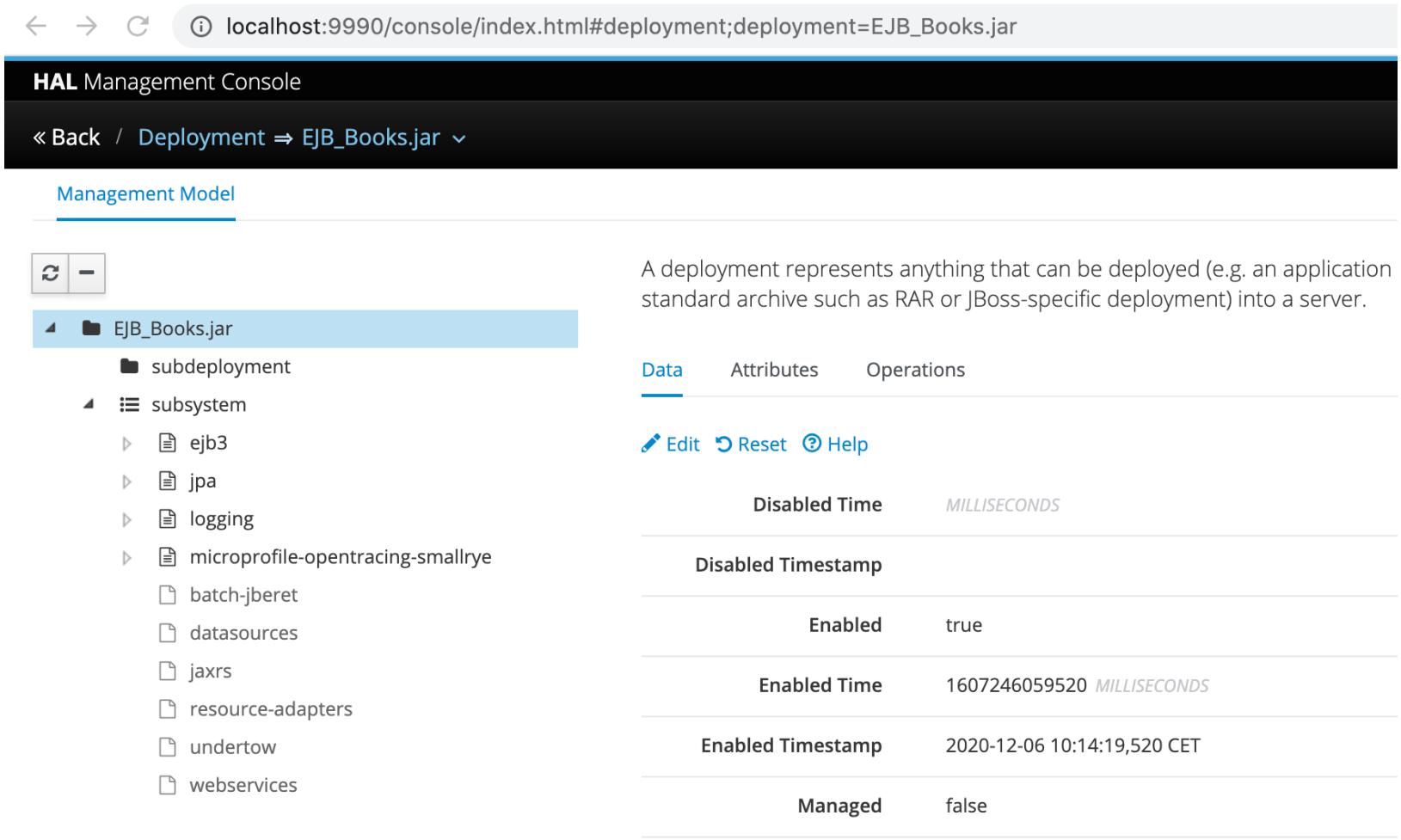
# configuration files: persistence.xml

The name of the persistence-unit (in red) can be changed, but then also the name of the **@PersistenceContext** in the stateless must be coherent.

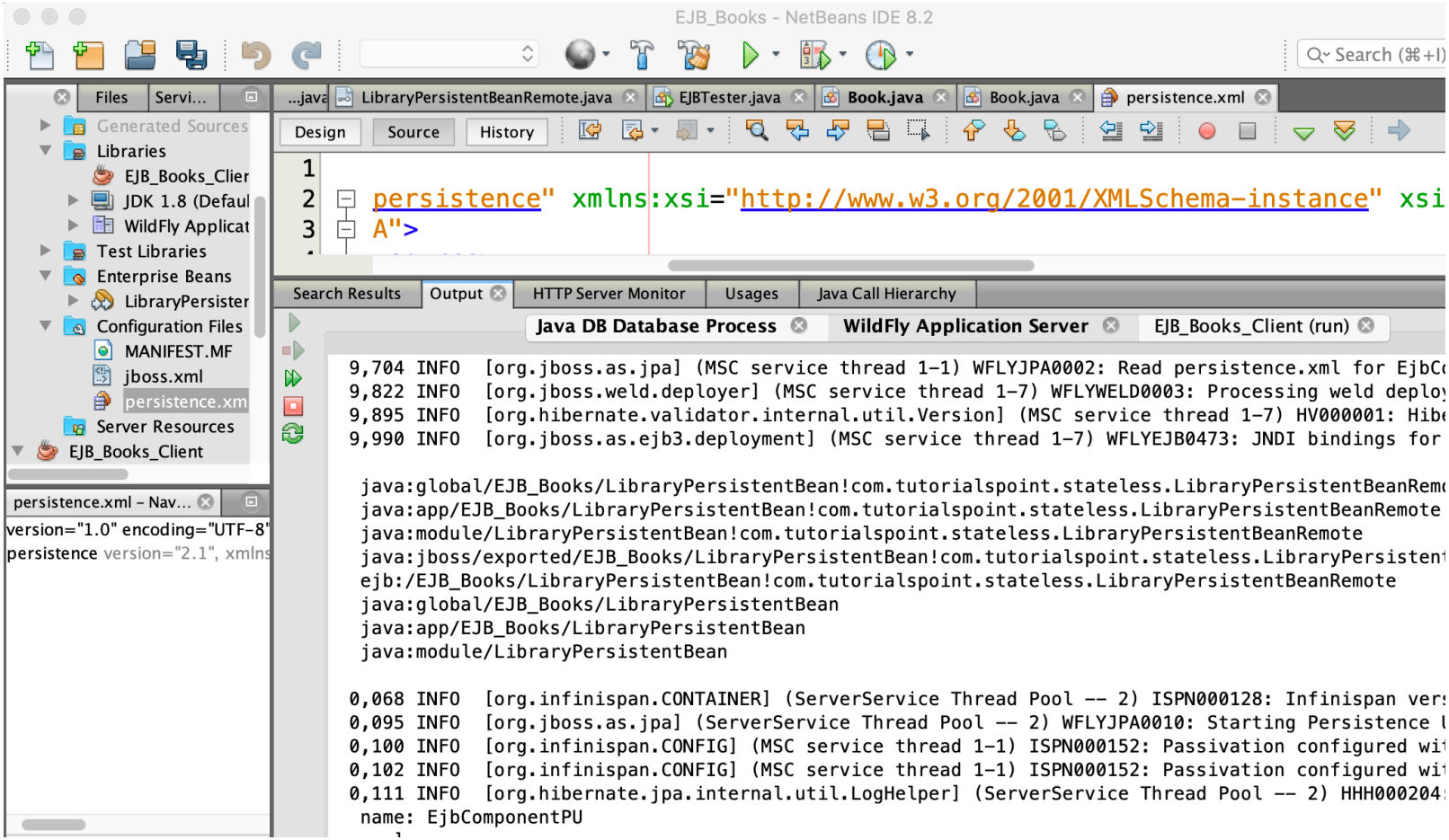
The first time we deploy, we uncomment the green lines. We keep them commented the following times.

```
<?xml version="1.0" encoding="UTF-8"?>
<persistence version="2.1" xmlns=http://xmlns.jcp.org/xml/ns/persistence
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://xmlns.jcp.org/xml/ns/persistence/persistence_2_1.xsd">
  <persistence-unit name="EjbComponentPU" transaction-type="JTA">
    <jta-data-source>java:/jboss/datasources/DerbyDS</jta-data-source>
    <exclude-unlisted-classes>false</exclude-unlisted-classes>
    <!--properties>
      <property name="javax.persistence.schema-generation.database.action" value="create"/>
    </properties-->
  </persistence-unit>
</persistence>
```

# On the console, let's check the deployment

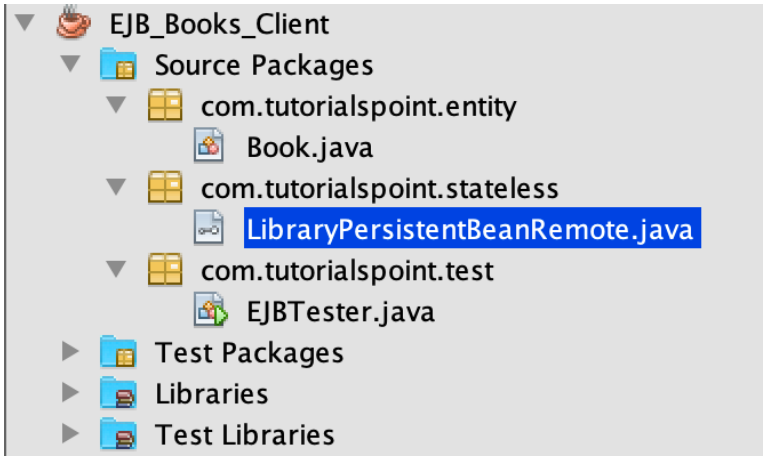


# Check the log, and note the JNDI bindings




The one we need is: ejb:/EJB_Books/LibraryPersistentBean!com.tutorialspoint.stateless.LibraryPersistentBeanRemote

# Let's create the client project




We need to:

- make sure libraries are ok (same as those we used for the stateless project)
- copy in it the Remote interface and the Entity.

  NOTE: the Entity MAY keep the annotations, but they are unused because here it will be detached. So if we want we can as well remove them.
- copy the client code (class EJBTester) from https://www.tutorialspoint.com/ejb/ejb_persistence.htm

  and modify it according to the following slide:

# Let's put the right JNDI bindings:

```
final Hashtable jndiProperties = new Hashtable();
jndiProperties.put(Context.INITIAL_CONTEXT_FACTORY,
      "org.wildfly.naming.client.WildFlyInitialContextFactory");
jndiProperties.put(
      Context.PROVIDER_URL, "http-remoting://localhost:8080");
        try {
            ctx = new InitialContext(jndiProperties);
        } catch (NamingException ex) {
            ex.printStackTrace();
        }
```

```
LibraryPersistentBeanRemote libraryBean= (LibraryPersistentBeanRemote) ctx.lookup(
"ejb:/EJB_Books/LibraryPersistentBean!com.tutorialspoint.stateless.
LibraryPersistentBeanRemote");
```

# Now we can run the client project

Of course, the server part must be deployed first.