JDBC Lab on Liberty

Contents

JDBC and Liberty

Deploying a data access application includes more than installing your web application archive (WAR) or enterprise archive (EAR) file onto a Liberty. Deployment can include tasks for configuring the data access resources of the server and overall runtime environment.

In this lab exercise, you will learn:

__a. Configure Derby Database on Liberty
__b. Create a sample JDBC servlet
__c. Run the sample JDBC Servlet

To run this lab, your workstation must meet the following requirements:

- Approximately 8GB of storage available for the Windows 7 virtual image
- Approximately 3 GB of memory free to run the developer workbench and the server
- Connectivity to the internet is NOT required
- Please refer to the following table for file and resource location references on different operating systems.

Location Ref.	OS	Absolute Path
{LAB_HOME}	Windows	*C:\WLP_<version>*
	Linux	*~/ WLP_<version*
	Mac OSX	

As prerequisites, you should:

__a. Complete Setup lab to set up the lab environment, and learn how to create a server using WebSphere Developer Tools.

__b. Install Derby Database

__i. If you are not a Virtual POT attendee: Download Derby on your own and extract it to a directory of your choosing.

__ii. For Virtual POT attendees:

(1) **For Windows**:
extract **{LAB_HOME}\derby\ db-derby-10.14.1.0-lib.zip to {LAB_HOME}\ db-derby-10.14.1.0-lib** directory.

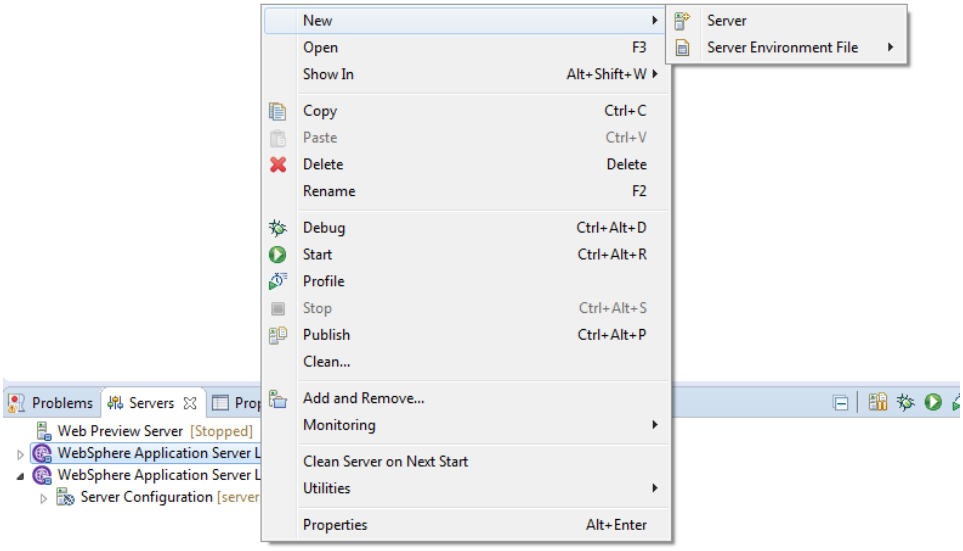
(2) **For Linux or Mac** :
extract **{LAB_HOME}/derby/ db-derby-10.14.1.0-lib.tar.gz to {LAB_HOME}/was855/ db-derby-10.14.1.0-lib** directory

1.1 Create and Configure Liberty Server for JDBC

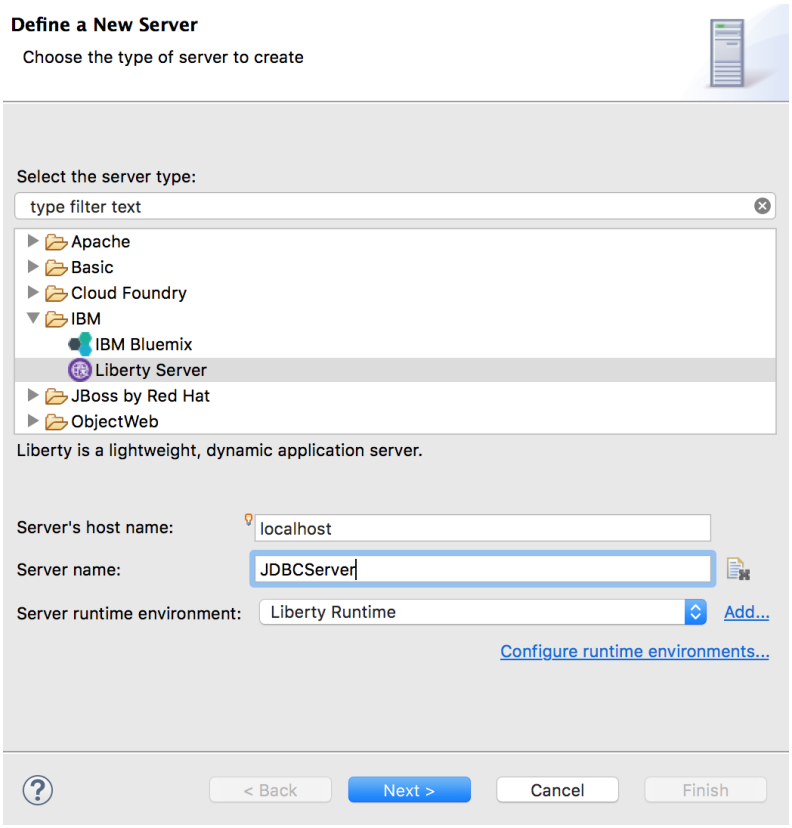
__**1.** Start **Eclipse** from **{LAB_HOME}/wdt/eclipse** directory

__**2.** Create a new Liberty application server called **JDBCServer.**

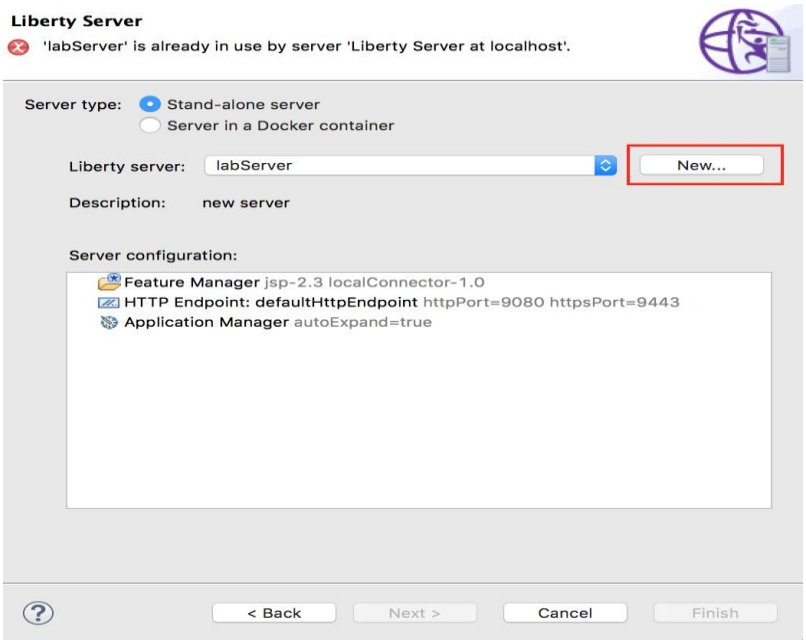
__**a.** Right Click on the **Servers** tab and Select **New → Server**



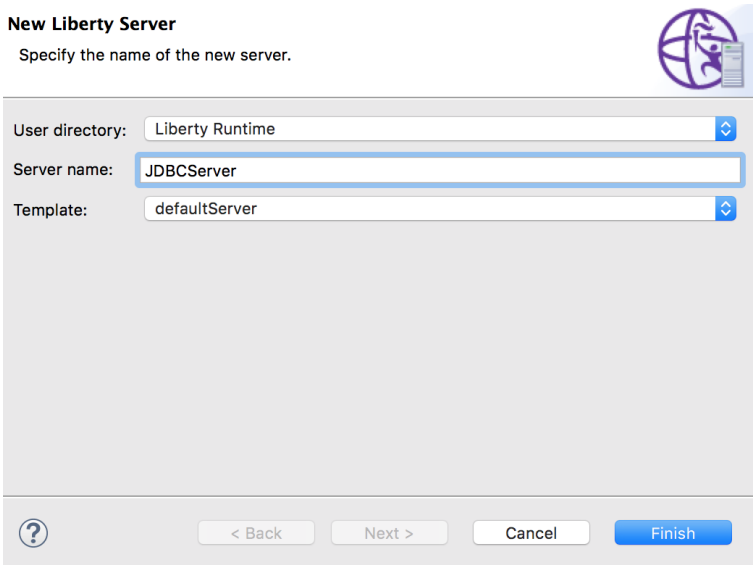
__c. Select **Liberty Server**. Click **Next**



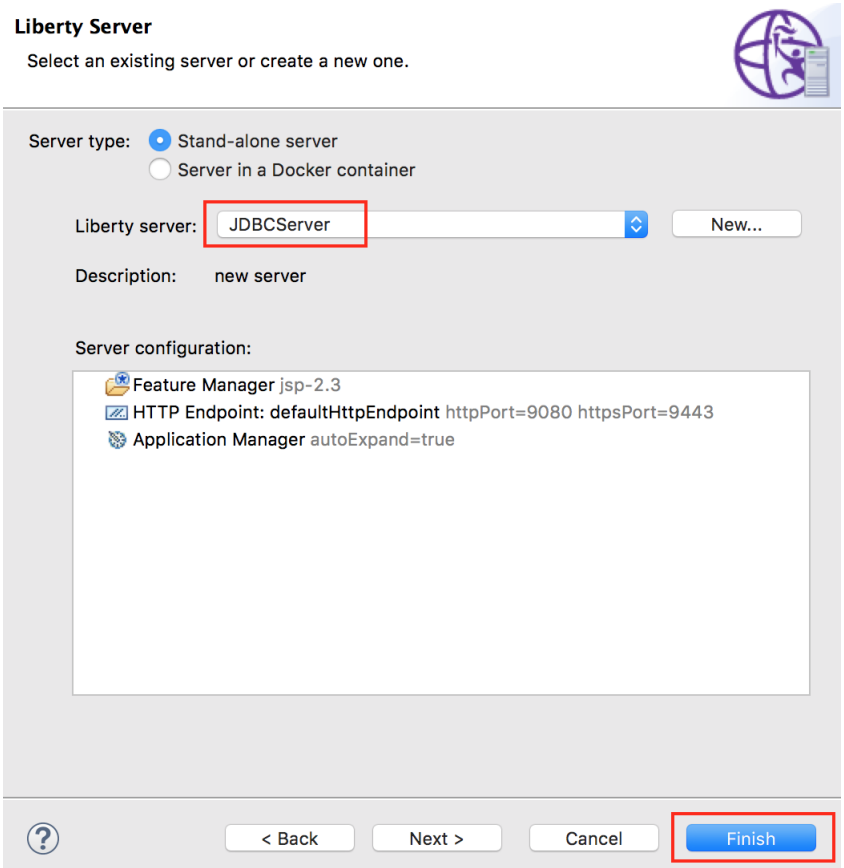
__d. Click **New** in the New Server window to create a new Liberty Server



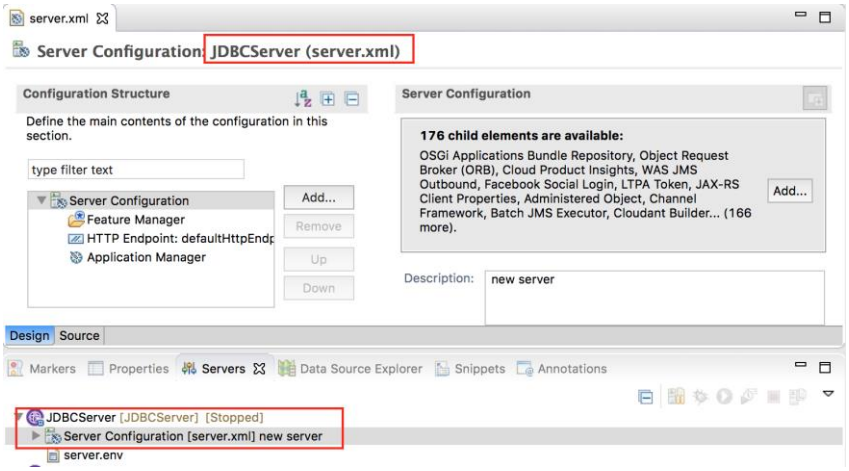
__e. Enter the server name as **JDBCServer** and Click **Finish**



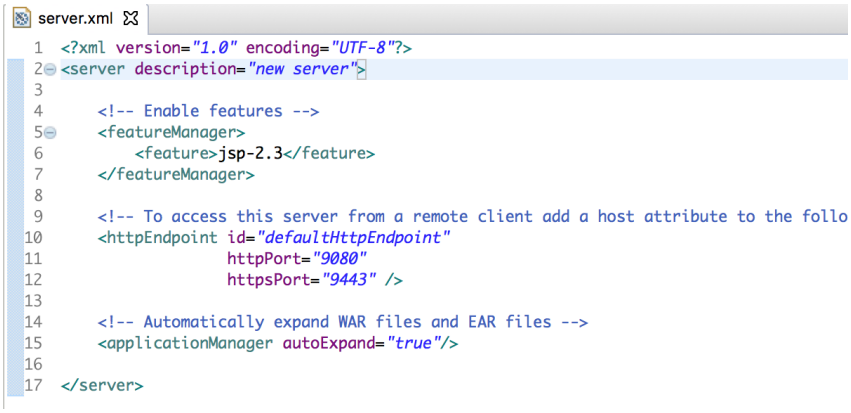
__f. Click **Finish** in the New Server window after the new Liberty Server has been created, making sure **JDBCServer** shows in the combo box



__3. Double click Server Configuration for the **JDBCServer** to bring up **server.xml**



__4. Click on the **Source** tab.



__5. Remove the **jsp-2.3** feature from **server.xml**, and add the following features:

<feature>jdbc-4.0</feature>

<feature>servlet-3.1</feature>

__7. Paste the following **DataSource** definition into **server.xml**. If you are using Linux or Mac you need to update directory location for the ***fileset*** tag to the following value: "**{LAB_HOME}/db-derby-10.14.1.0-lib/lib"**

```
<library id="JDBCSampleDerbyLibs">
        <fileset dir="{LAB_HOME}\db-derby-10.14.1.0-lib\lib" includes="derby.jar"/>
</library>

<jdbcDriver id="DerbyEmbedded" libraryRef="JDBCSampleDerbyLibs"/>

<dataSource id="ds1" jdbcDriverRef="DerbyEmbedded" jndiName="jdbc/exampleDS">
        <properties.derby.embedded createDatabase="create"
        databaseName="${server.config.dir}/data/exampleDB"/>
</dataSource>
```

__8. Note that we had used **${server.config.dir}\data\exampleDB** as the location of the database. Once the **server.xml** has been updated you should see it as shown below.

__9. **Save** the configuration

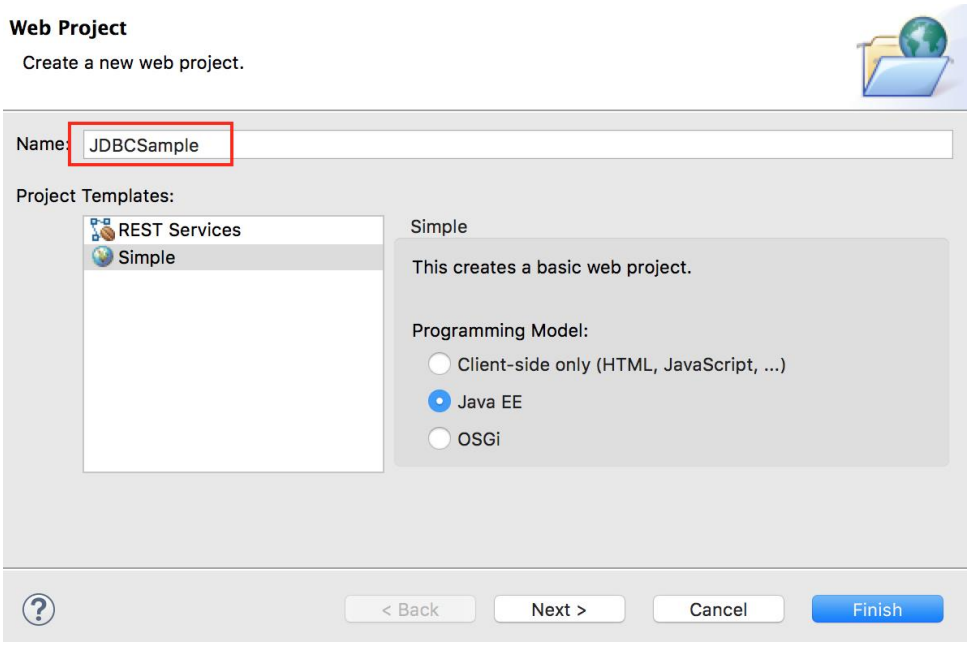
1.2 Create New Web Project

In this section we will create a new web project called **JDBC Sample** to deploy and run the JDBC servlet.

__1. Create a **Web Project** called **"JDBCSample"**

__a. Select **File → New → Web Project**

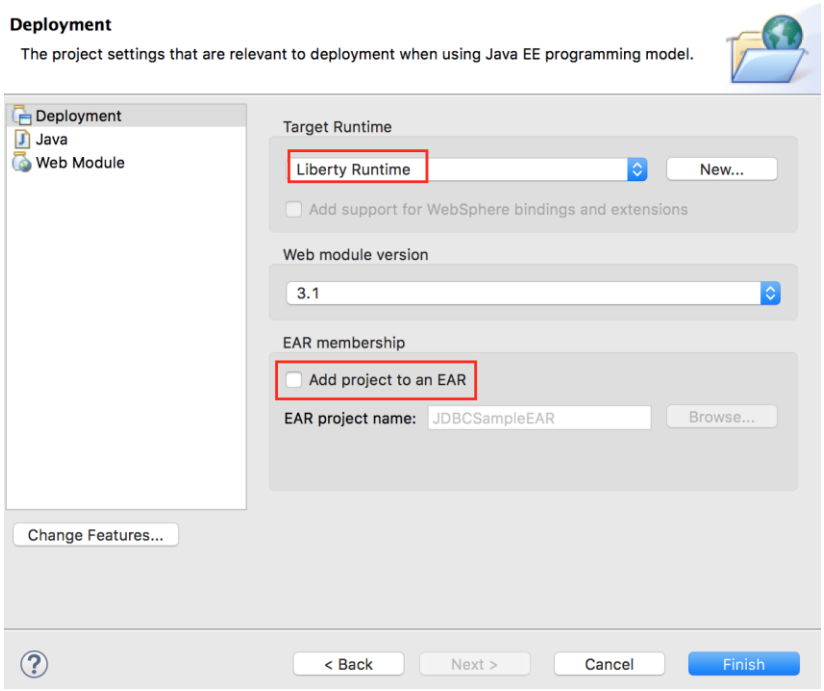
__b. Enter **JDBCSample** as the name



__c. Click **Next**

__d. Under **Target Runtime** select **Liberty Runtime**

__e. Deselect **Add project to EAR**

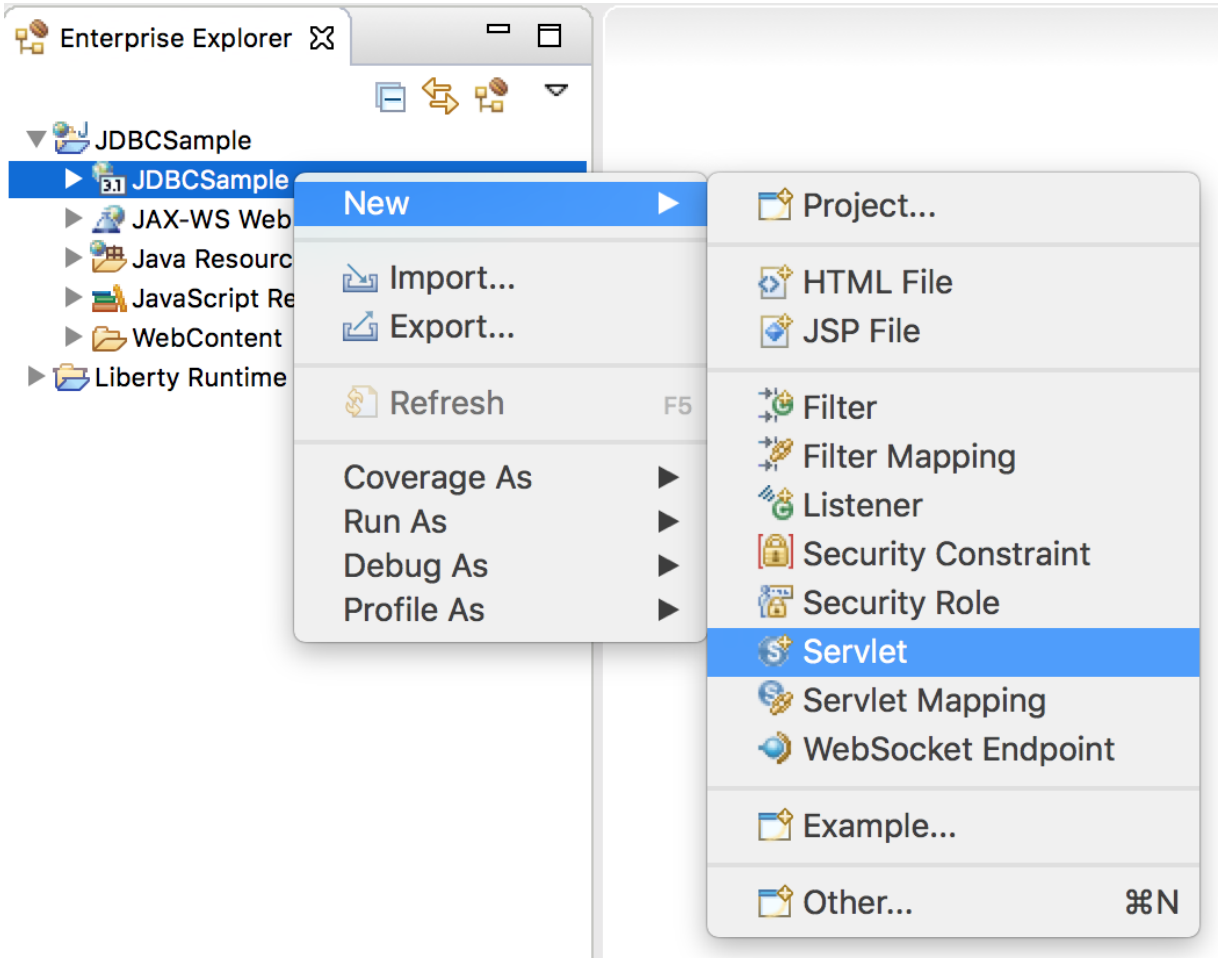


__f. Click **Finish**

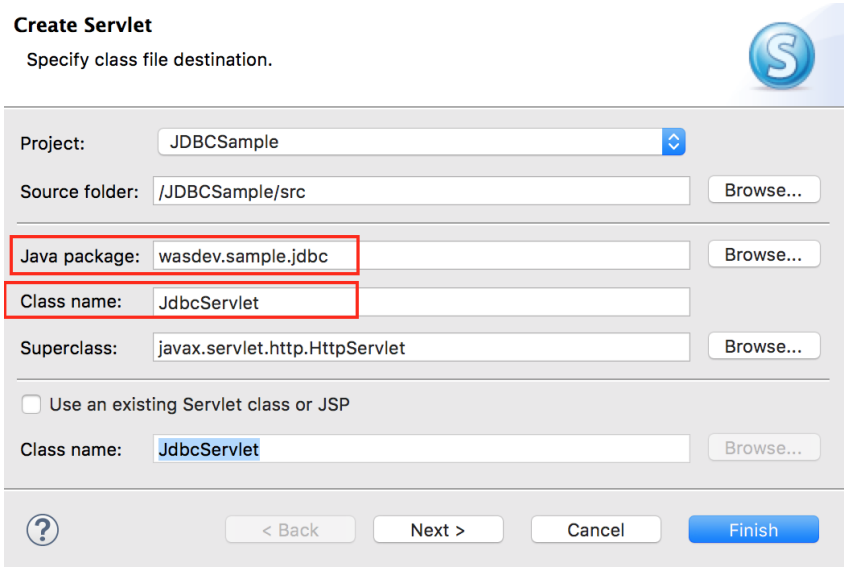
__g. Click **Open** if prompted to switch to **Web perspective**

1.3 Create JDBC Servlet

__1. From the **Enterprise Explorer**, Right click **"JDBCSample"** project, and select **New → Servlet**



__2. Use **wasdev.sample.jdbc** as the package, and **JdbcServlet** as the class



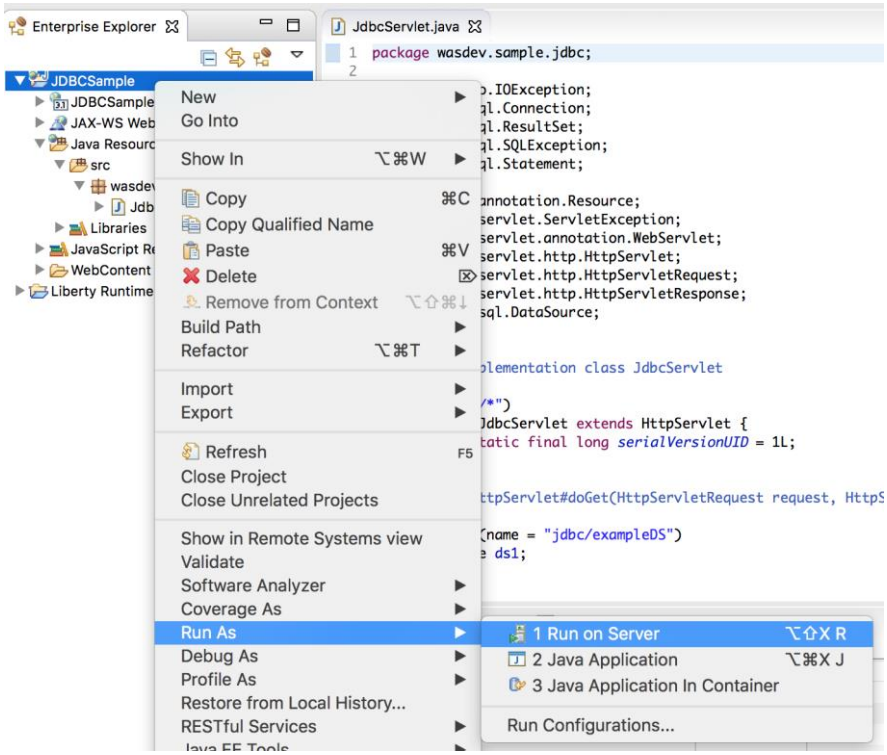
__3. Click **Finish**

__4. Replace the contents of **JdbcServlet.java** with **{LAB_HOME}/labs/development/2_JDBC_<timestamp>\JdbcServlet.java**

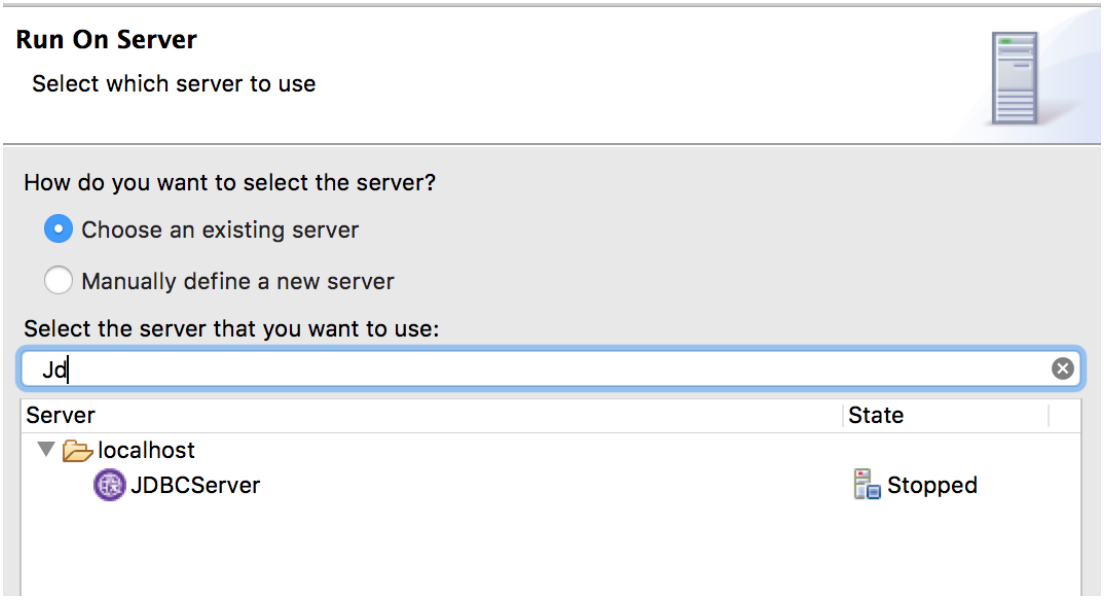
__5. Review the servlet source code to learn how it is calling JDBC.

1.4 Running the Sample JDBC Servlet

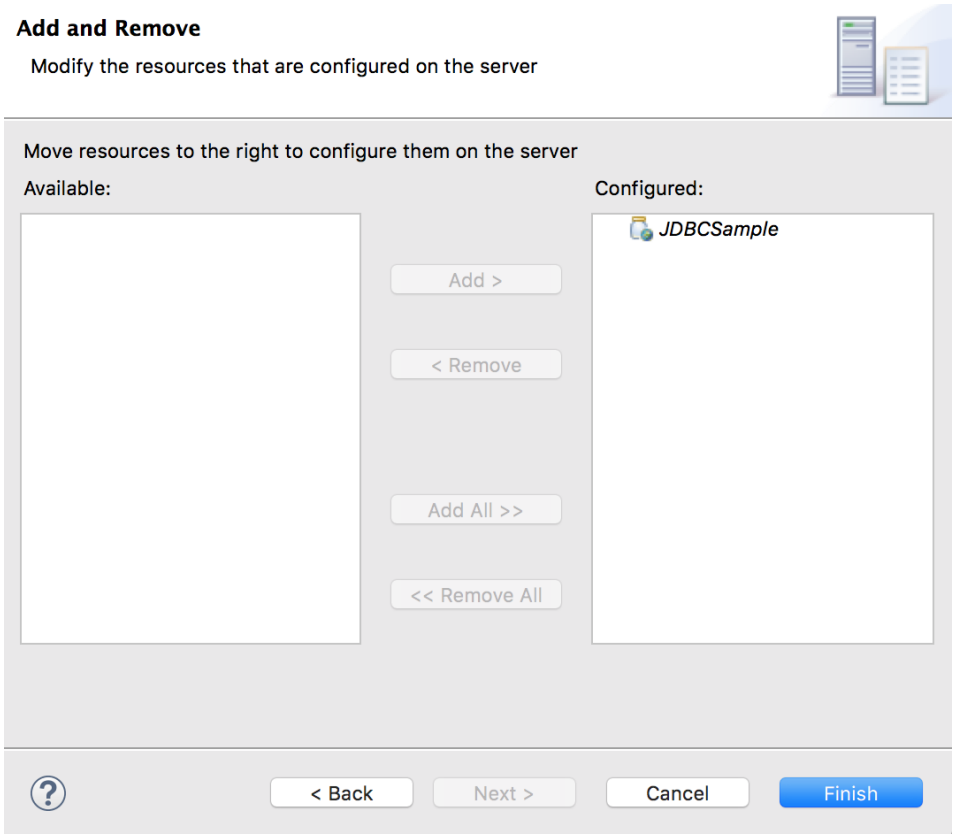
__1. Right click the "**JDBCSample"** project, and choose **Run As → Run on Server**



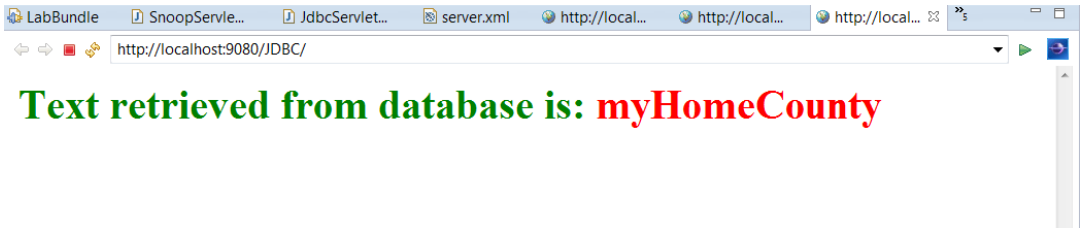
__2. Choose the **JDBCServer** (if you have multiple servers created), then click **Next.**



__3. If you have multiple projects, just select **JDBCSample** as the project to run, and then click **Finish**

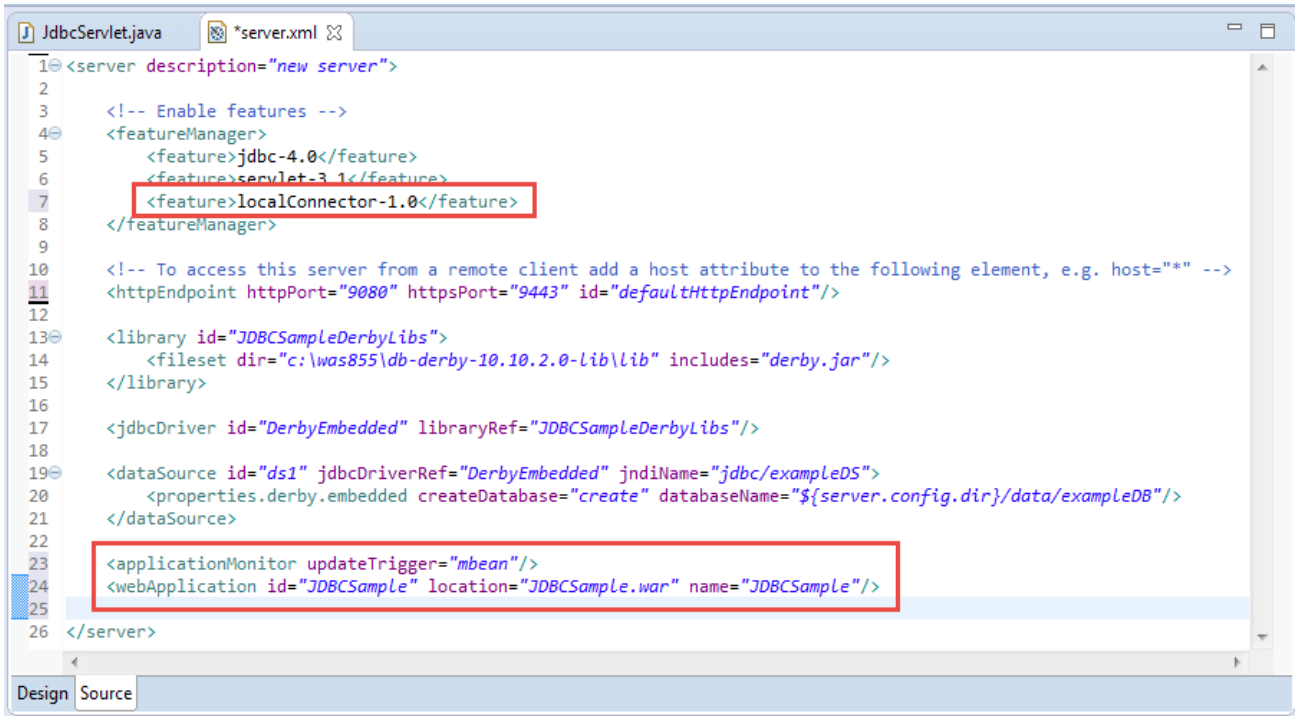


__4. WDT will run and open a browser to the application automatically as shown below:



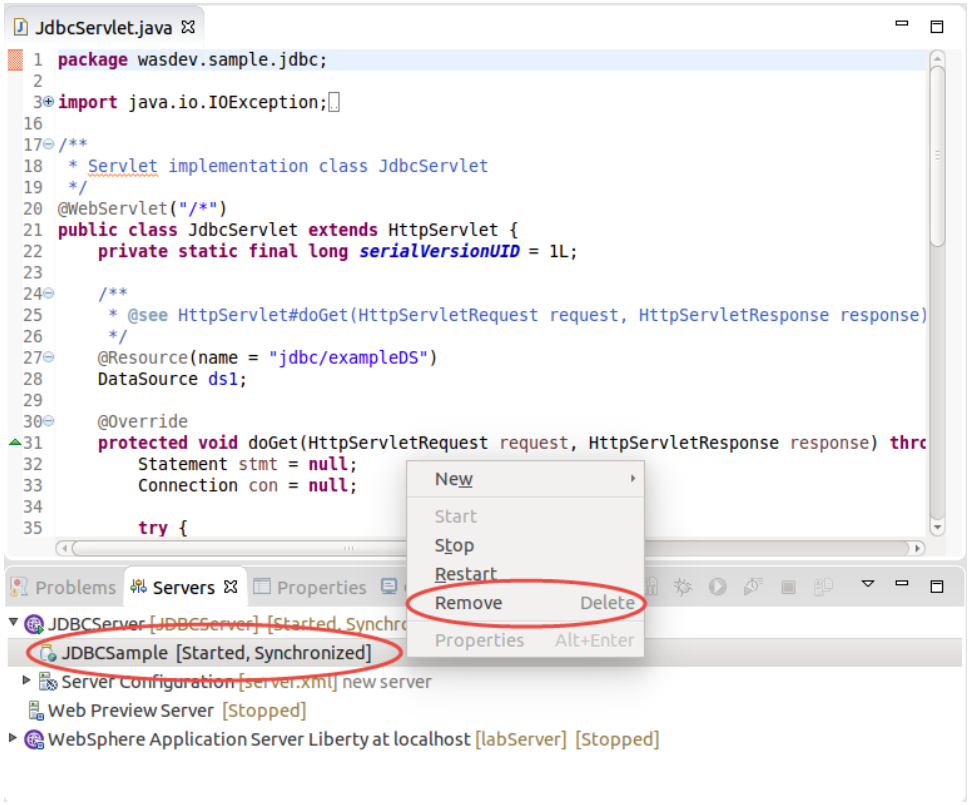
__5. Check that **{LAB_HOME}\wlp\usr\servers\JDBCServer\data\exampleDB** is created.

__6. Check the contents of **server.xml.** WDT adds additional configuration automatically to set up a development environment.

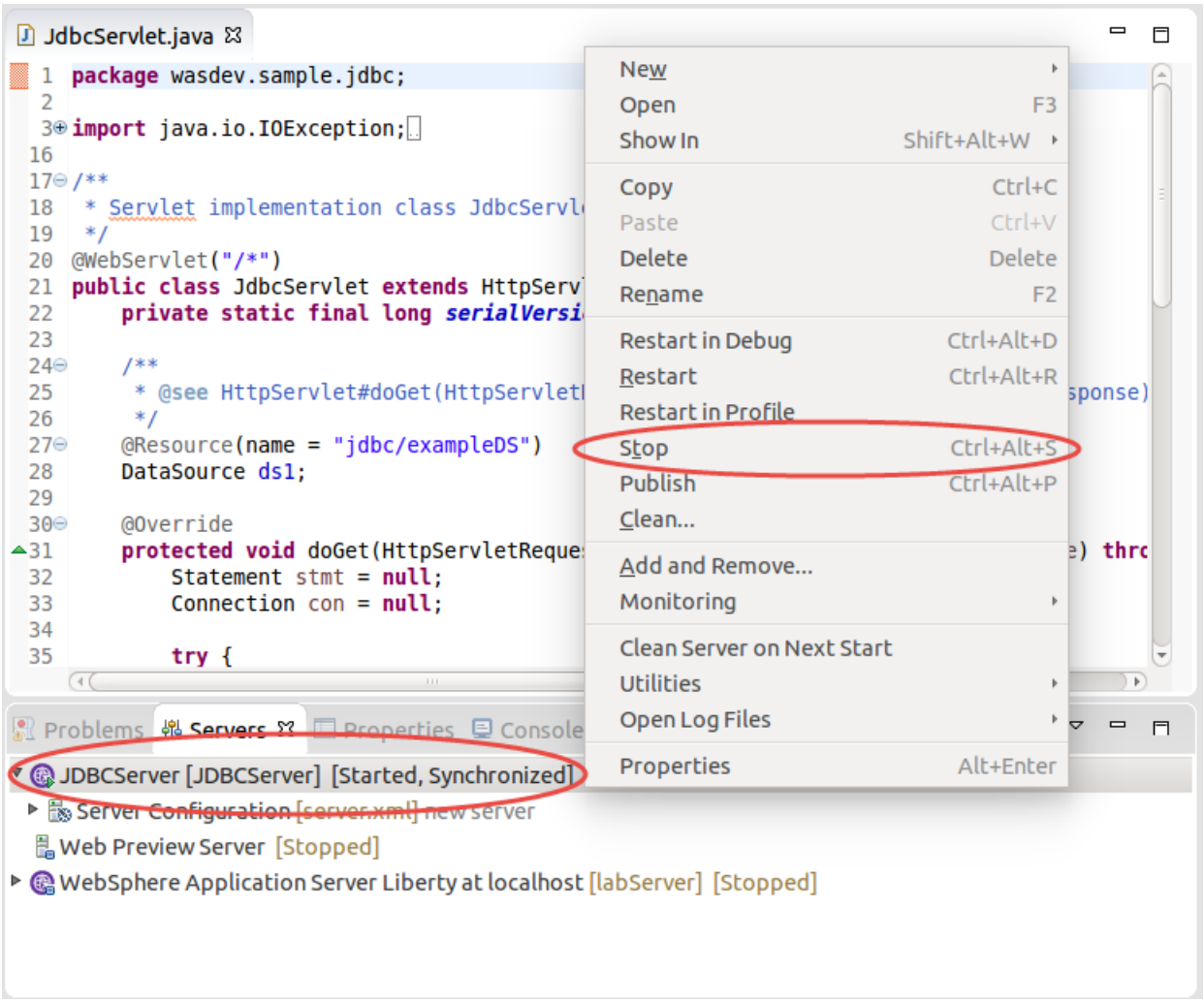


1.5 Clean up

__1. Right click on the **JDBC project** and select **Remove**



__2. Right click on the **JDBCServer** and select **Stop** to stop the server



1.6 Summary

In this lab you have learned:

- ✓ Configuring Derby Database on Liberty
- ✓ Create a sample JDBC servlet
- ✓ Run the sample JDBC Servlet

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