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Using Hibernate Tools generate entity classes from Tables

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3- Connect to the database via the "Database Development"
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6- Appendix: Error while generating the entities
7- Hibernate Tutorial

1- Introduction

This document is based on:

- Eclipse 4.5 (MARS)
- Hibernate 5.1.0.Final
- Hibernate Tools 4.3.1.Final.html

(Last update document: 21-05-2016).

The first we must be make sure you have make sure that installed **"Hibernate Tools"** on **Eclipse**. **"Hibernate Tools"** is one tool in the tools of **JBoss** -. **"JBoss Tools"**.

See more:

- Install JBoss Tools into Eclipse

2- Database for example, used in this document

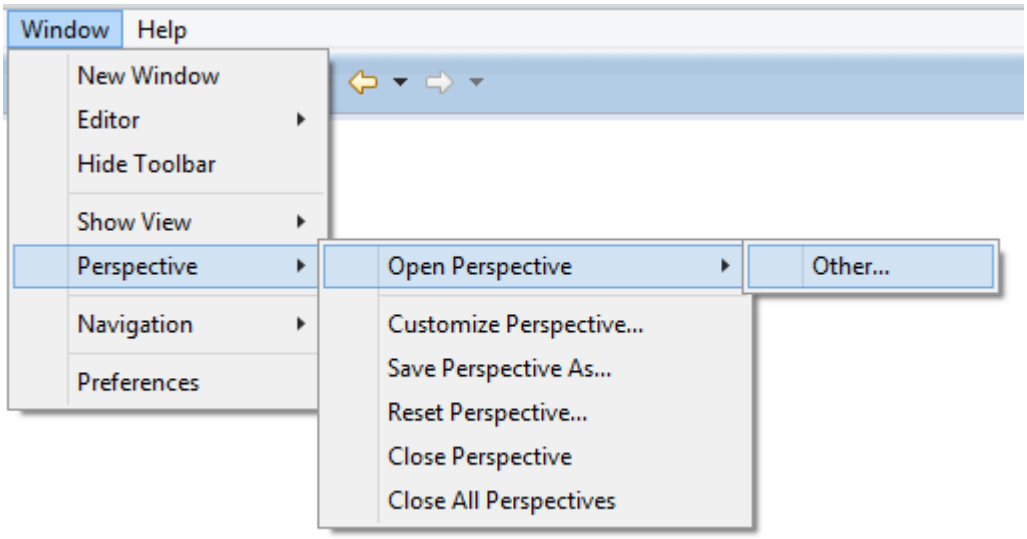
The database used to illustrate in this tutorial is **"simplehr"**. You can refer to:

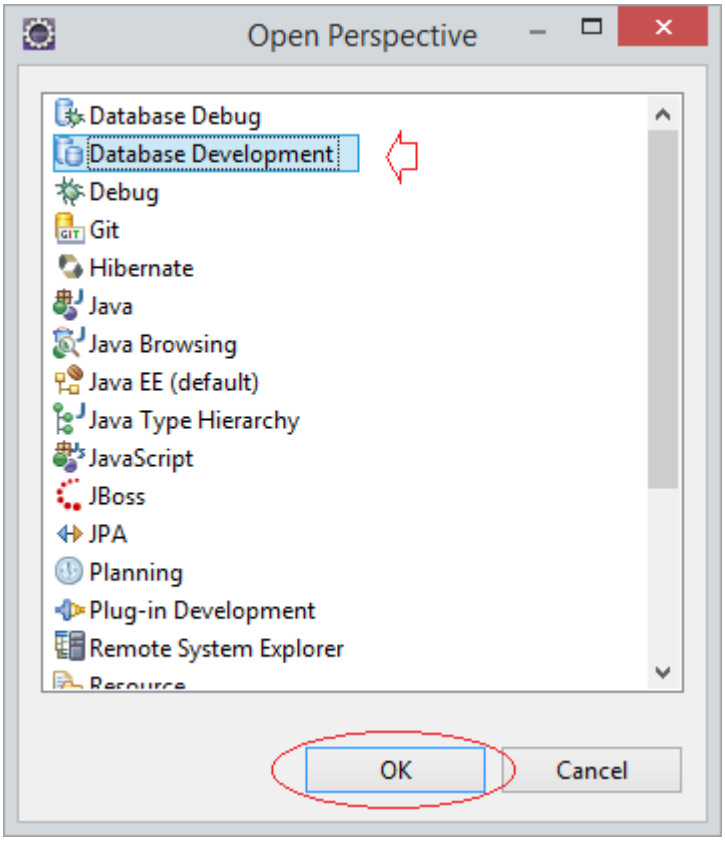
- Sample Database

3- Connect to the database via the "Database Development"

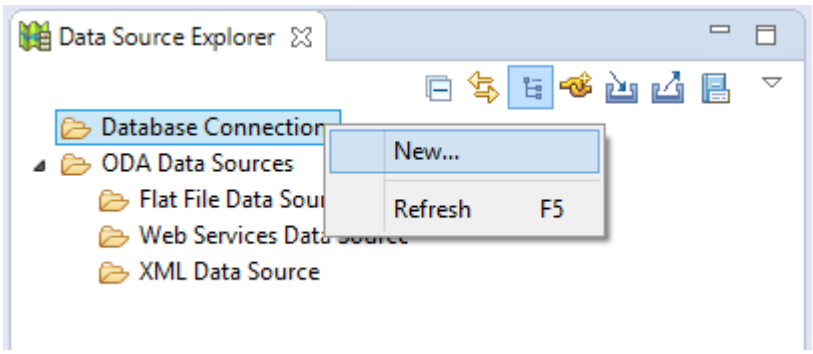
In **Eclipse** select ***:***

- *Window/Perspective/Open Perspective/Other...*

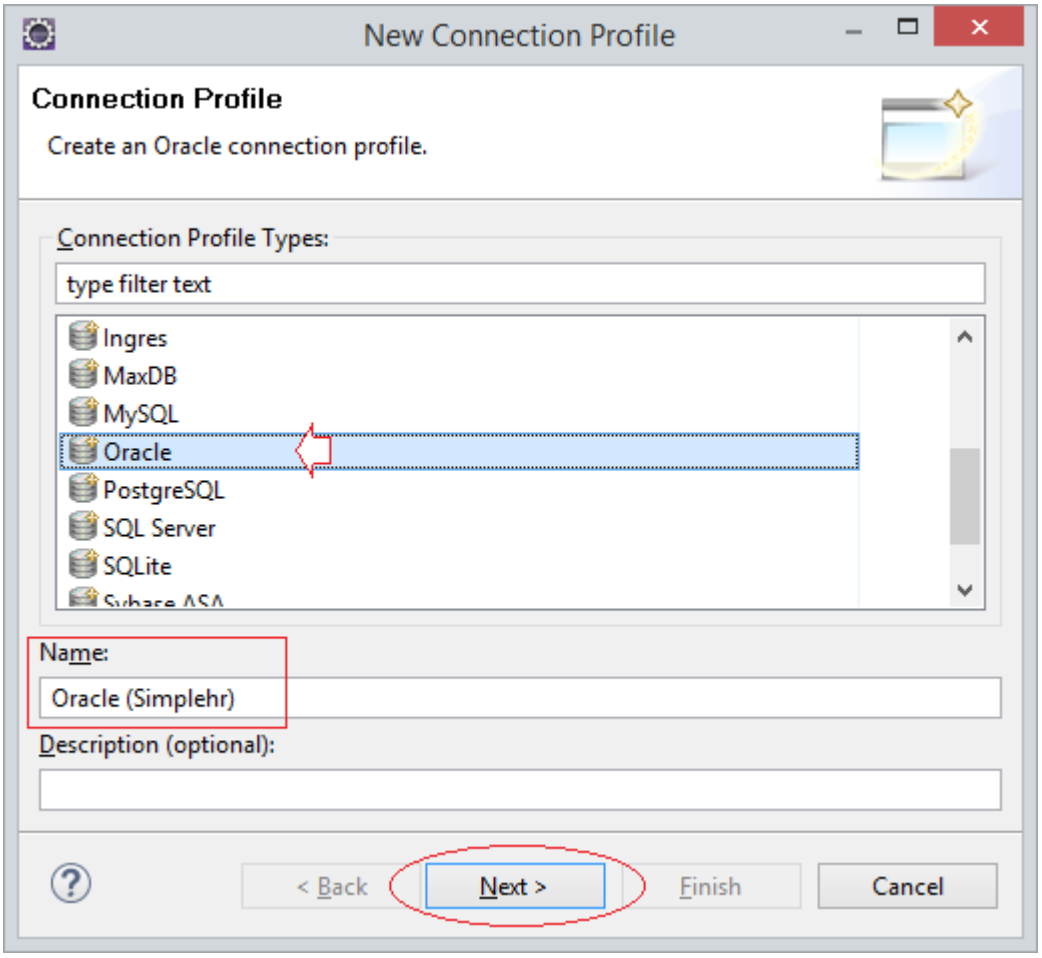




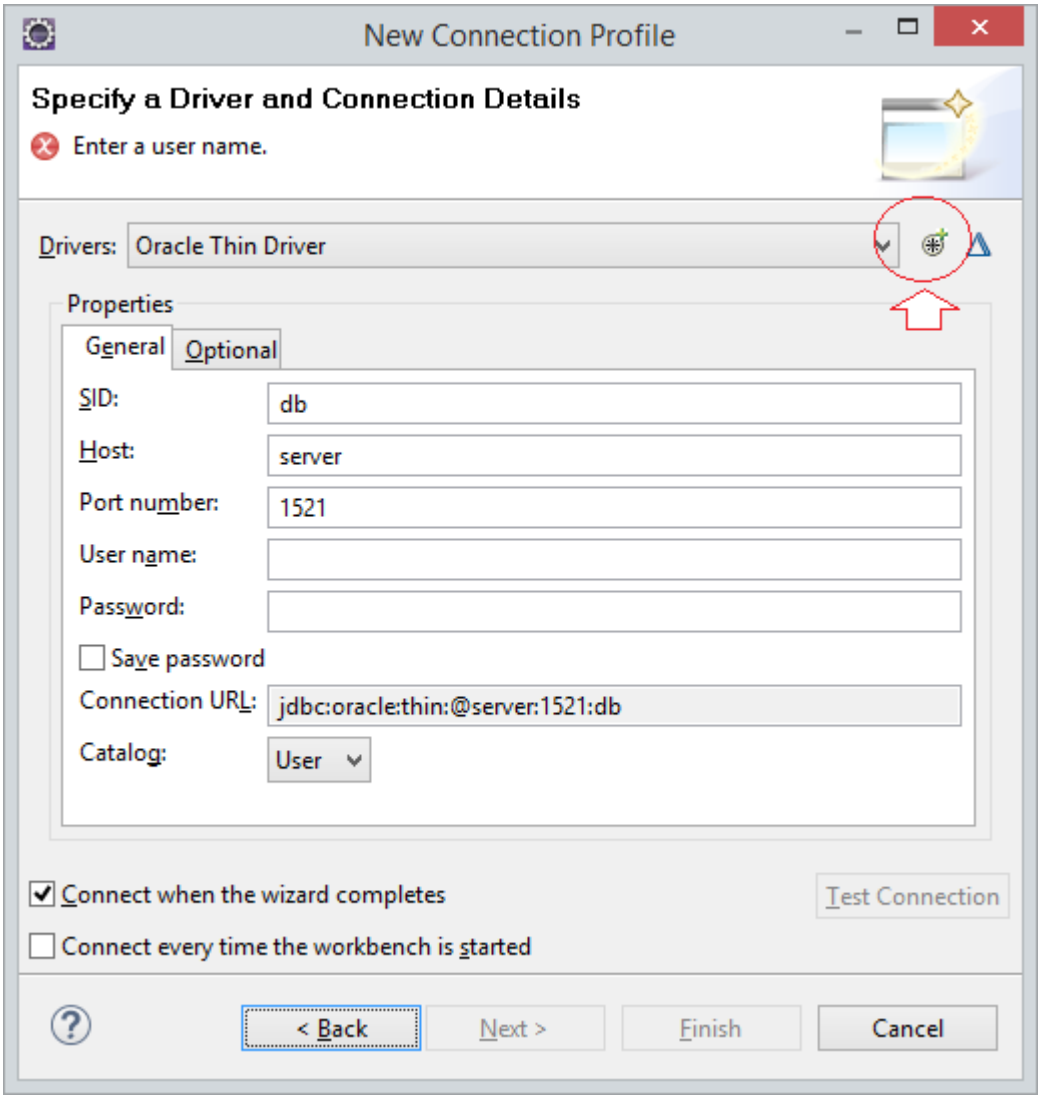
Create a new connection to the **"simplehr"** database:

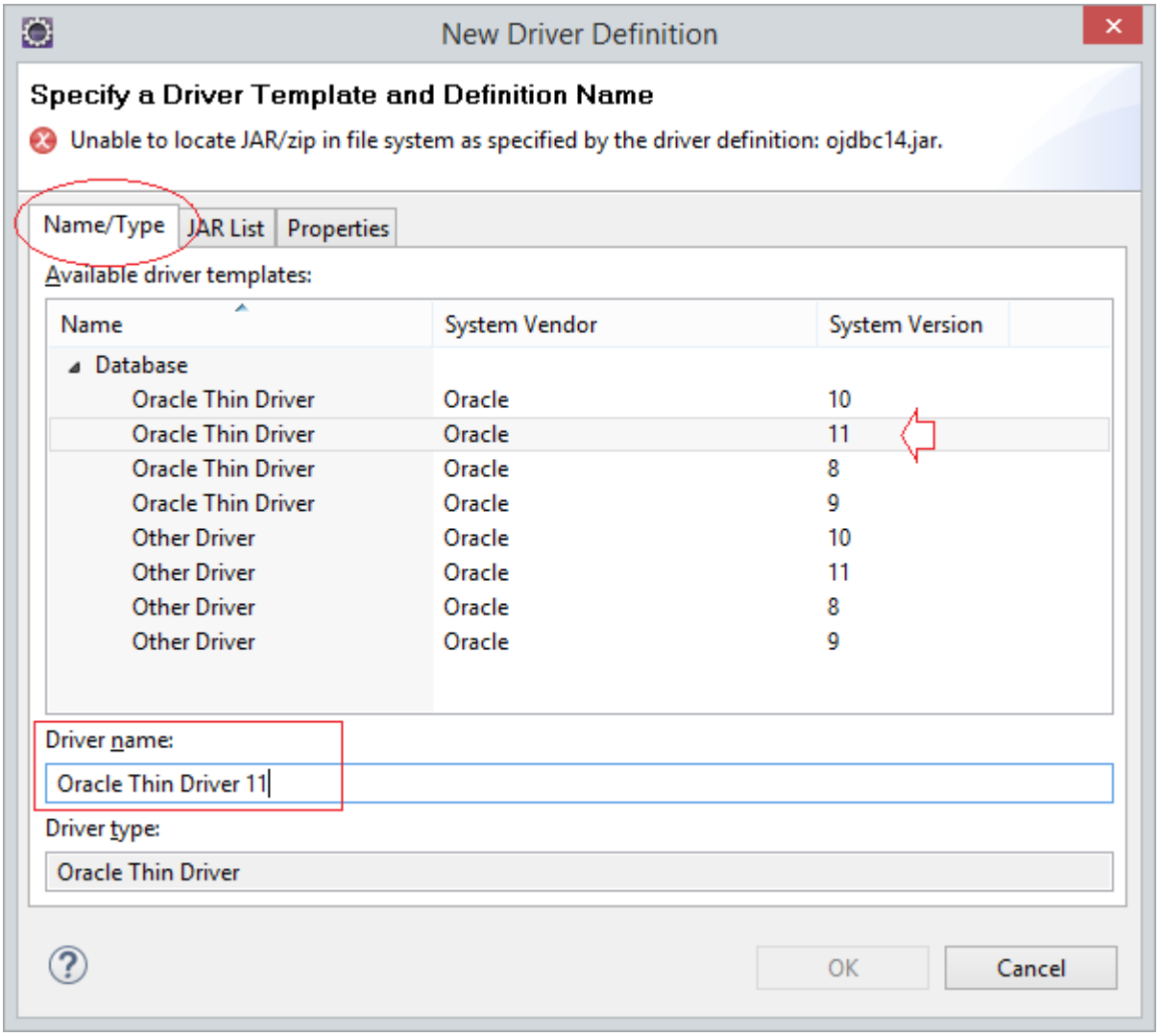


In this tutorial I will connect to **Oracle** database. You can connect to a different database, entirely similar way.

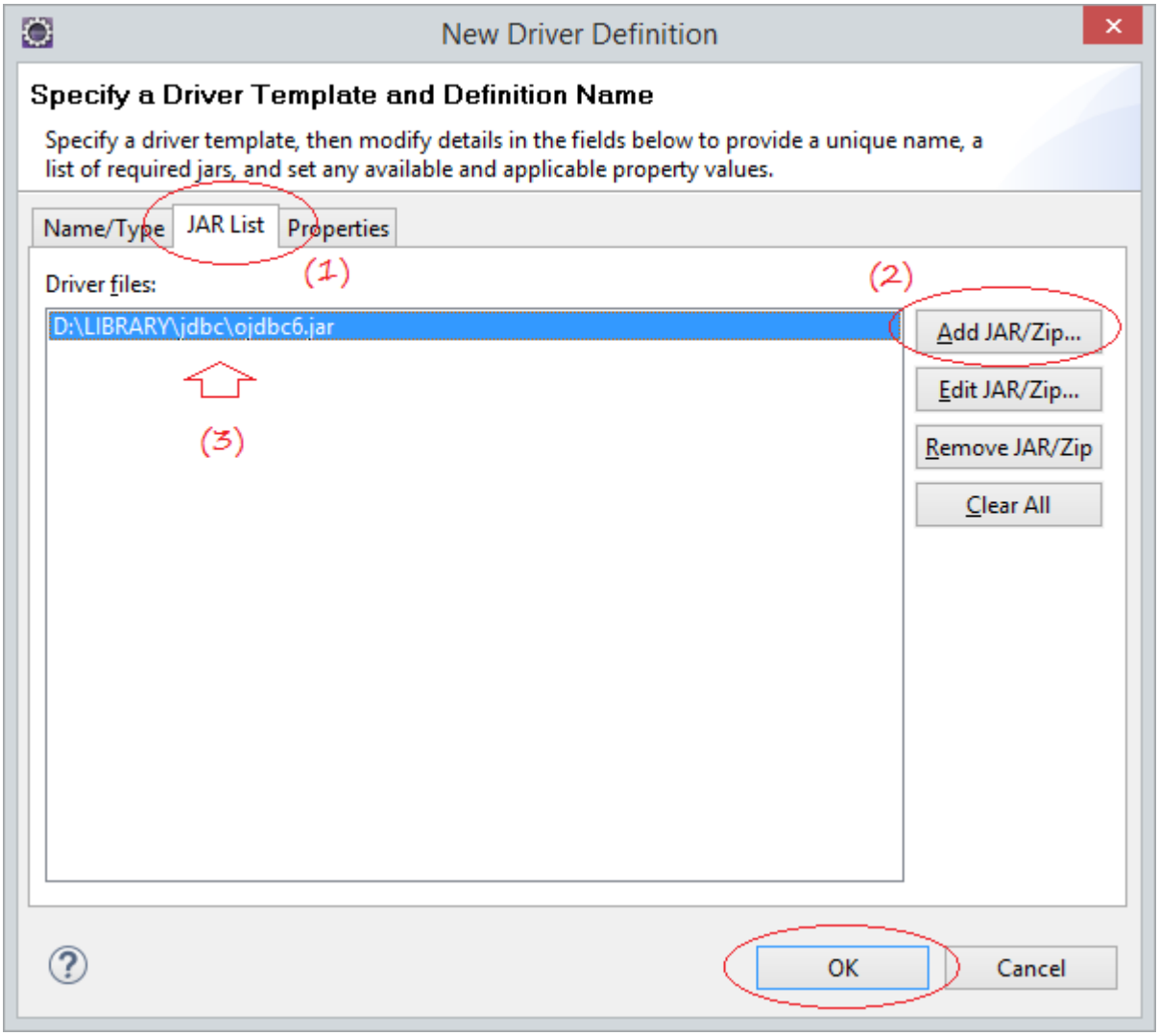


Press to the icon, to declare **Driver** for your selected database.

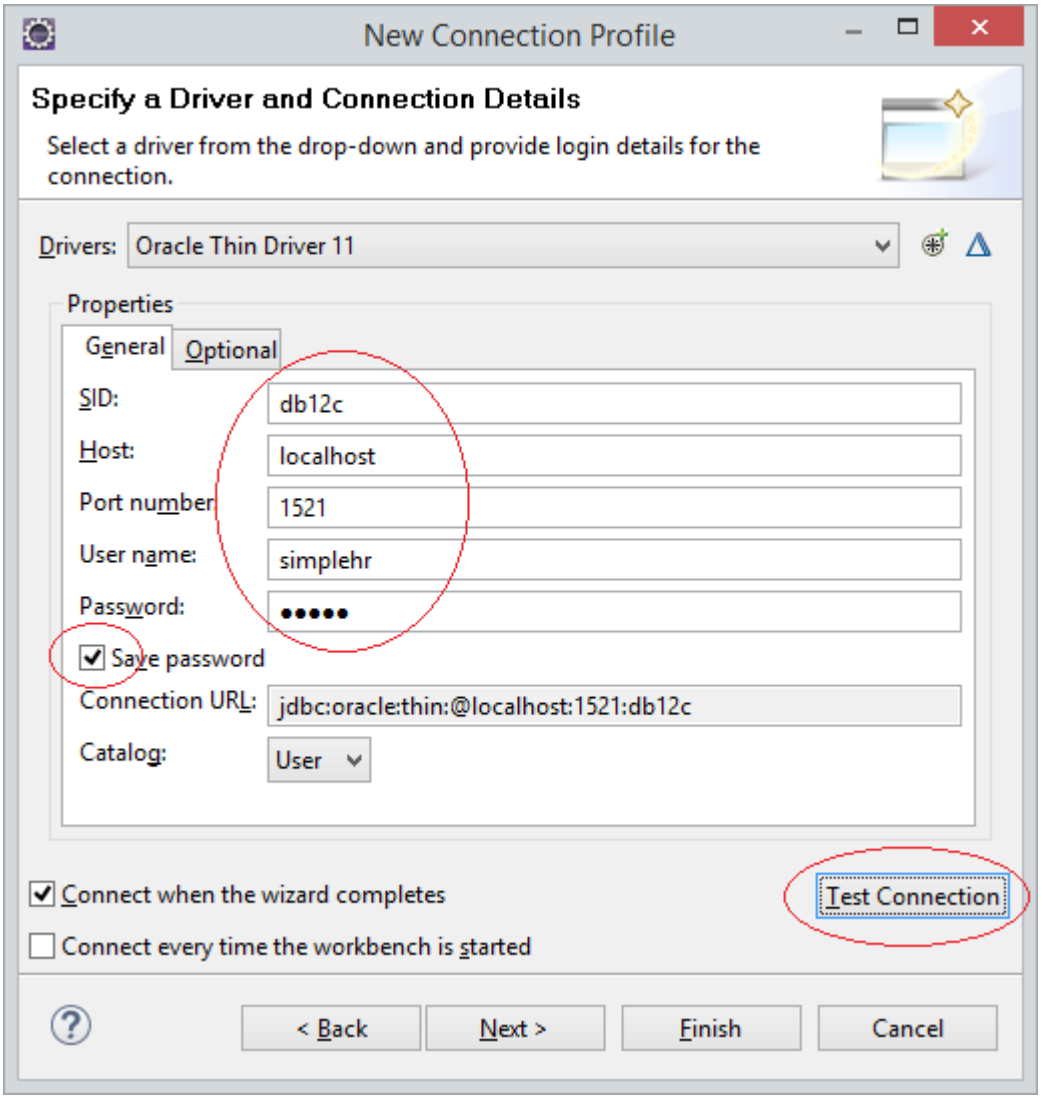

New Connection Profile
Specify a Driver and Connection Details
Enter a user name.
Drivers:
Oracle Thin Driver
Properties
General
Optional
SID:
db
Host:
server
Port number:
1521
User name:
Password:
Save password
Connection URL:
jdbc:oracle:thin:@server:1521:db
Catalog:
User
Connect when the wizard completes
Test Connection
Connect every time the workbench is started
< Back
Next >
Finish
Cancel

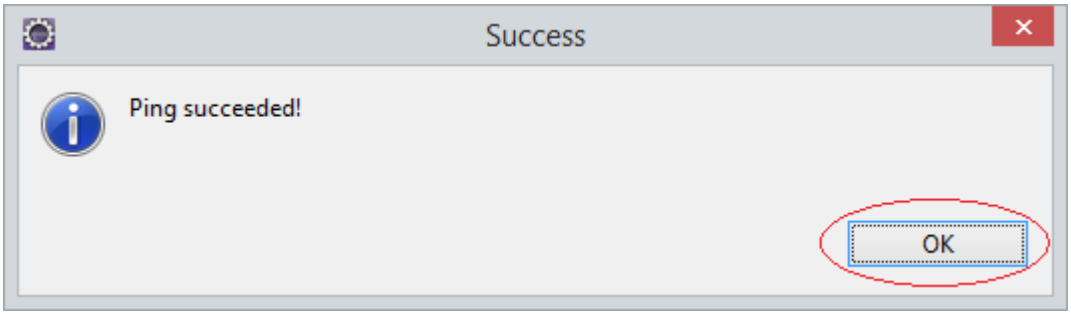


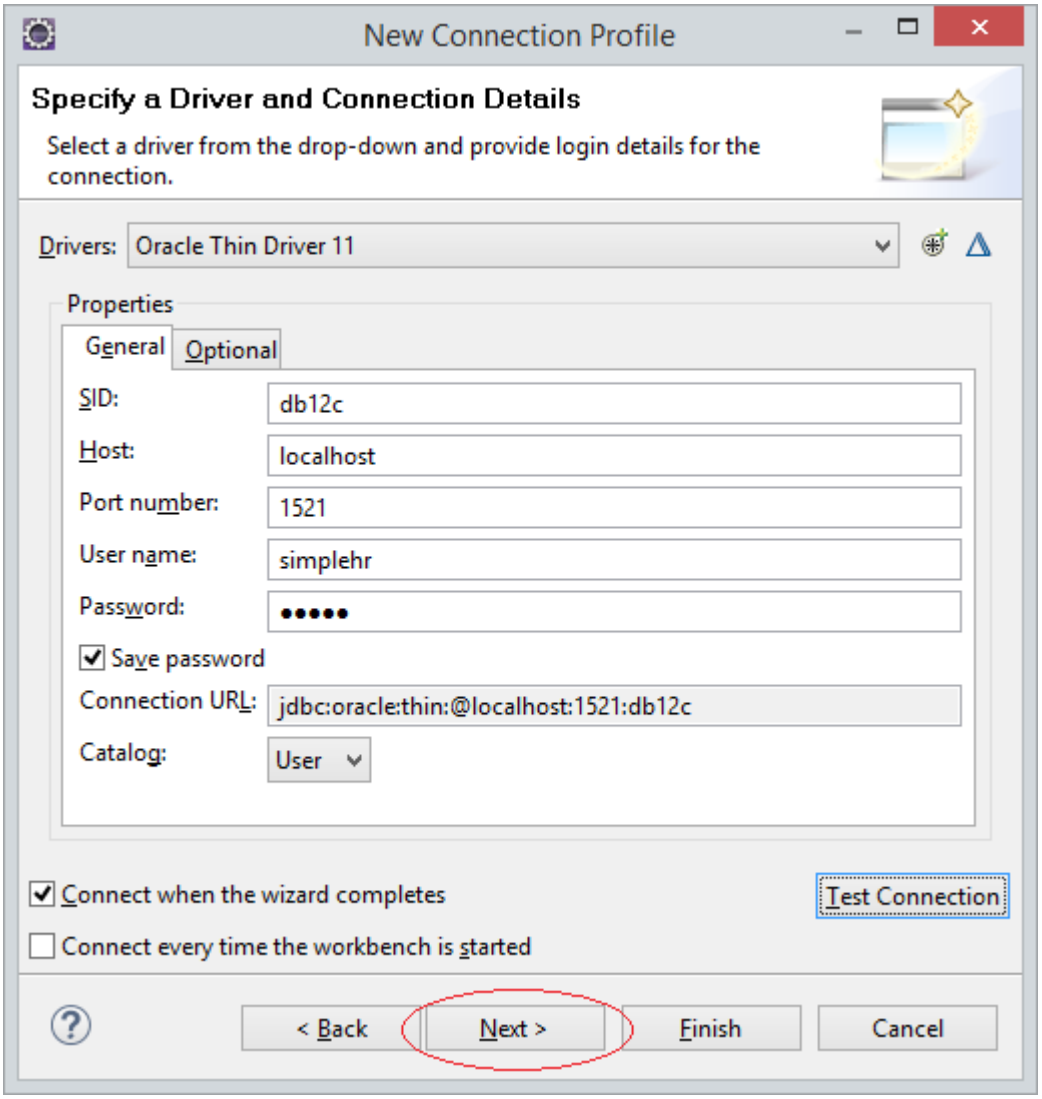
Click to **"Add JAR/Zip"**

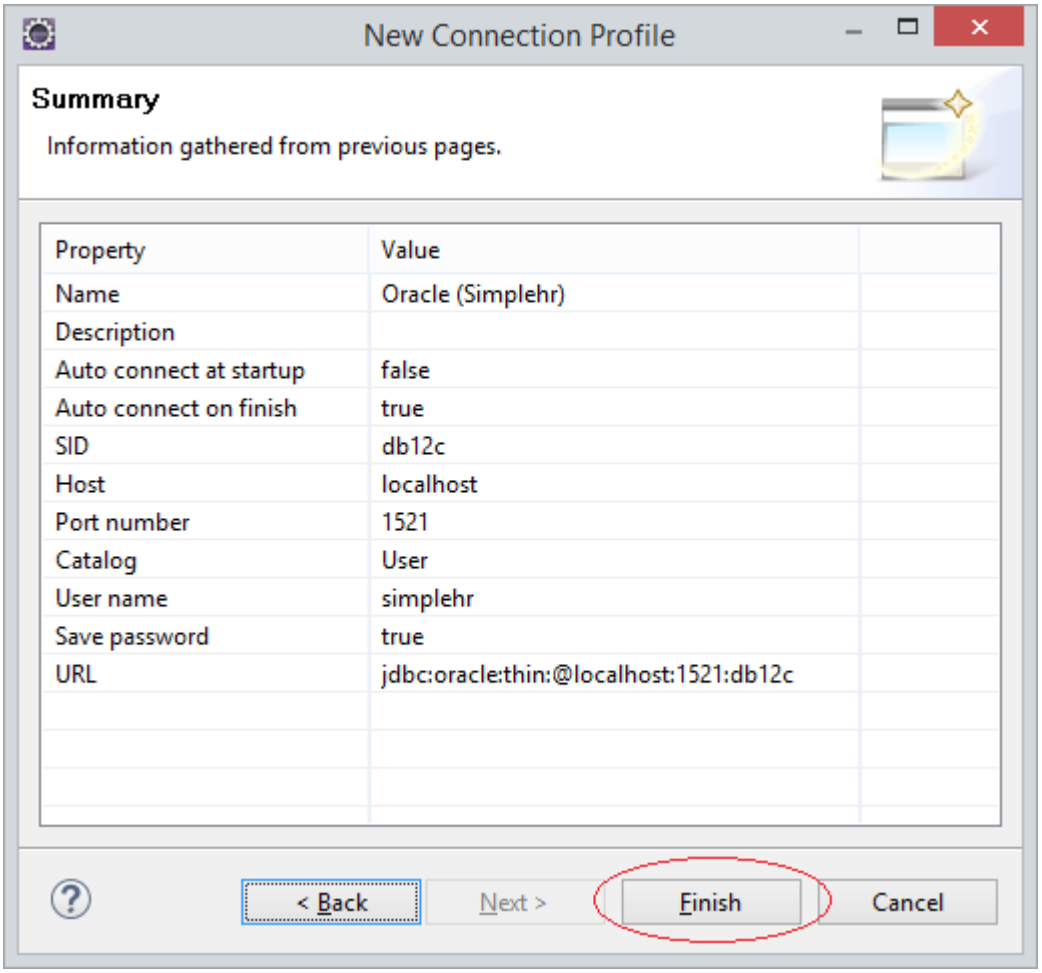


Enter the information to connect to the database. Then click ***"Test Connection"*** to ensure that the database connection is successful.

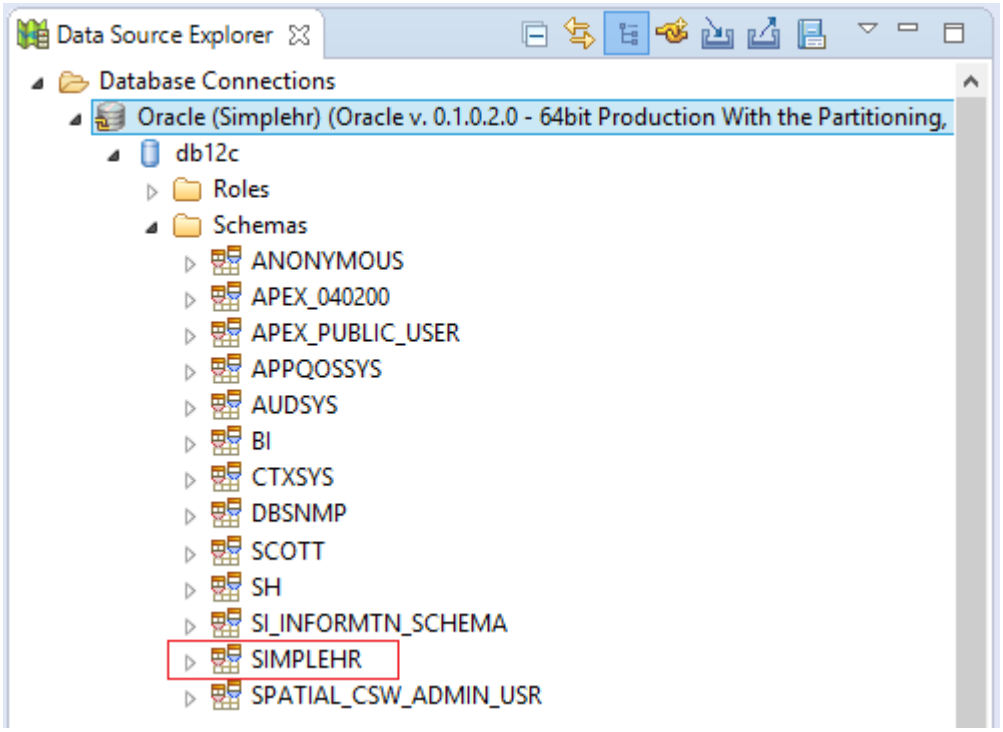

New Connection Profile
Specify a Driver and Connection Details
Select a driver from the drop-down and provide login details for the connection.
Drivers: Oracle Thin Driver 11
Properties
General
Optional
SID: db12c
Host: localhost
Port number: 1521
User name: simplehr
Password: •••••
Save password
Connection URL: jdbc:oracle:thin:@localhost:1521:db12c
Catalog: User
Connect when the wizard completes
Connect every time the workbench is started
Test Connection
< Back
Next >
Finish
Cancel


Success
Ping succeeded!
OK

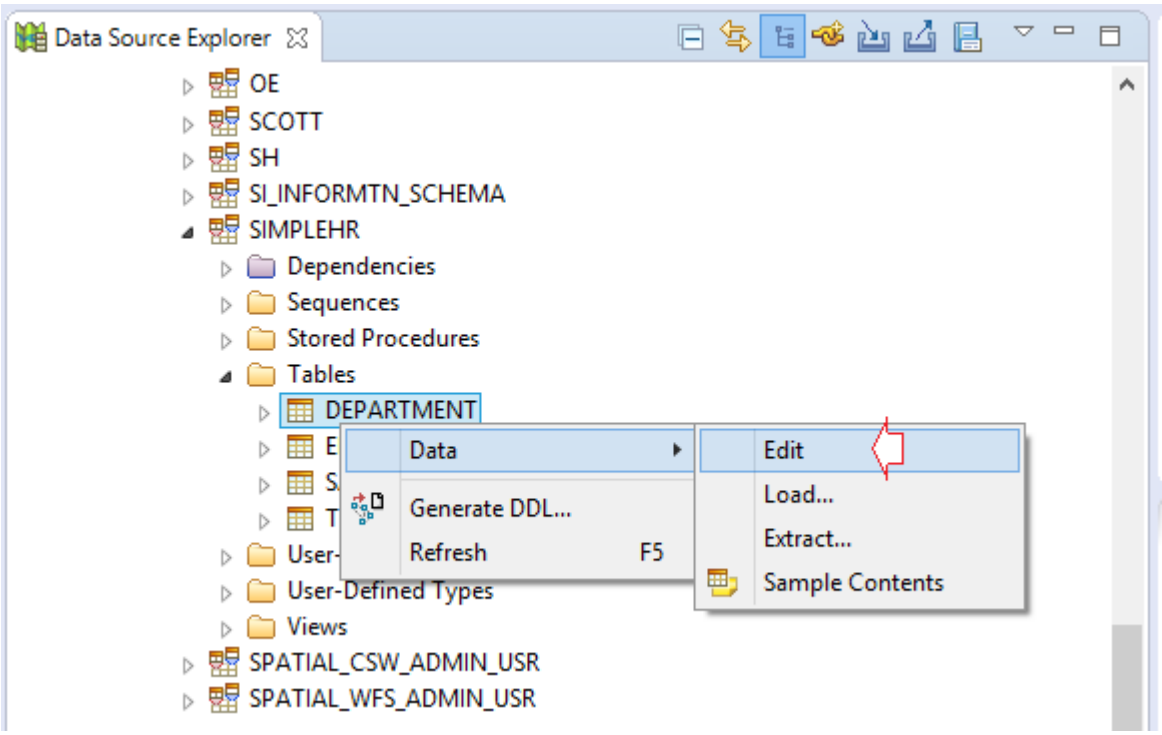

New Connection Profile
Specify a Driver and Connection Details
Select a driver from the drop-down and provide login details for the connection.
Drivers: Oracle Thin Driver 11
Properties
General
Optional
SID: db12c
Host: localhost
Port number: 1521
User name: simplehr
Password: •••••
Save password
Connection URL: jdbc:oracle:thin:@localhost:1521:db12c
Catalog: User
Connect when the wizard completes
Test Connection
Connect every time the workbench is started
< Back
Next >
Finish
Cancel



You can see the structure of your database in the *"Data Source Explorer"*.



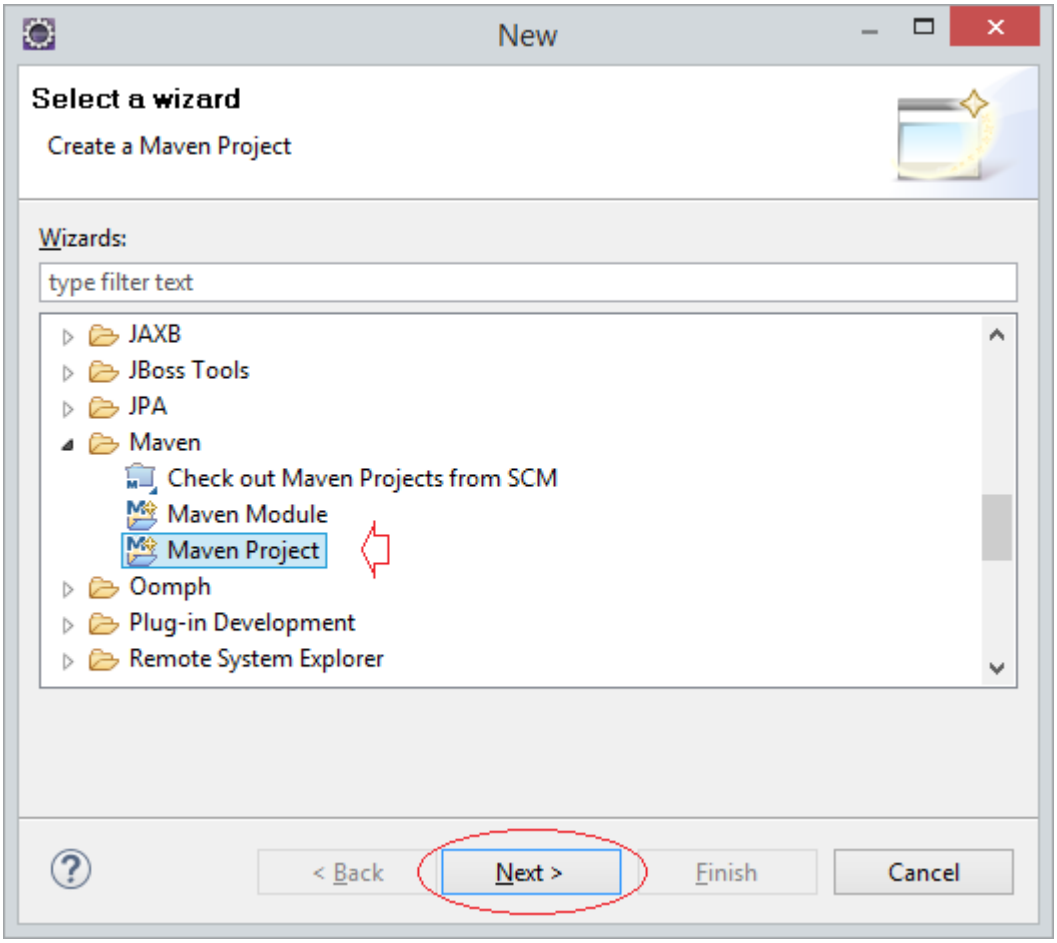
Try to **query** data in a table.

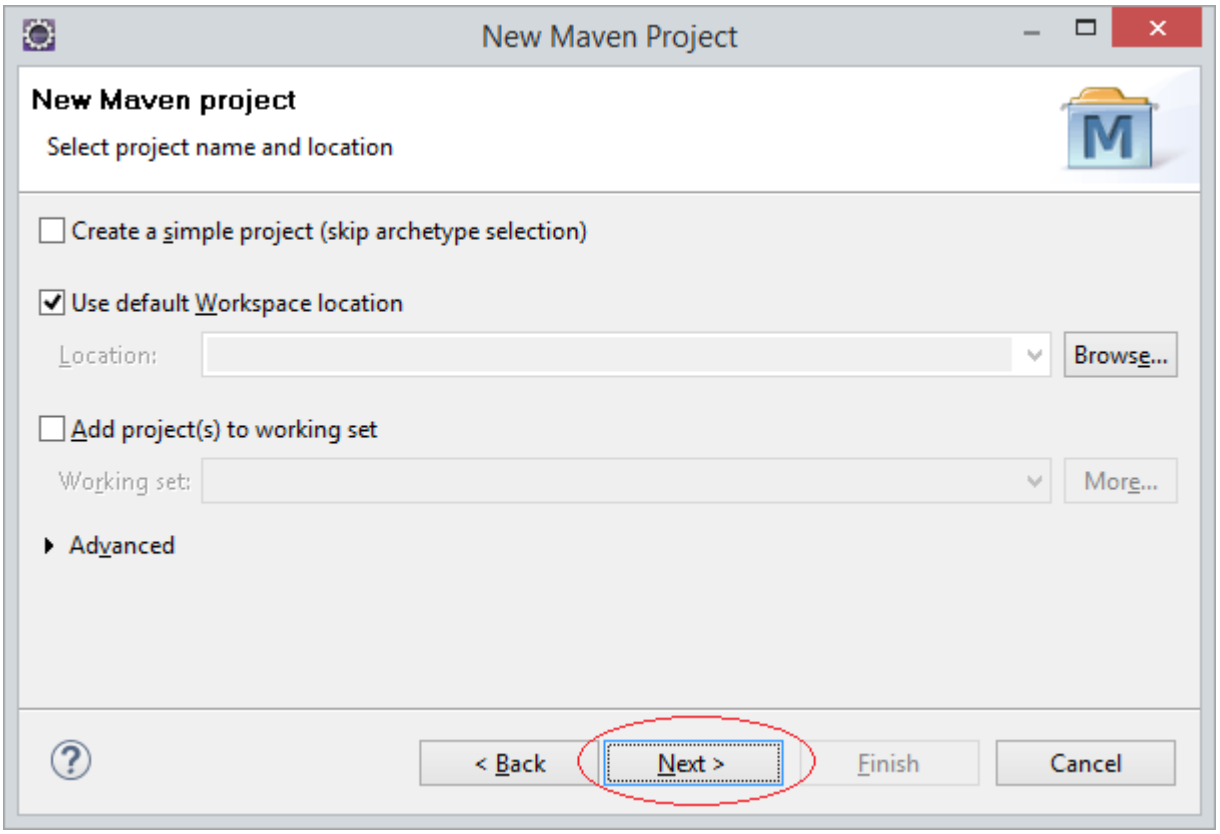


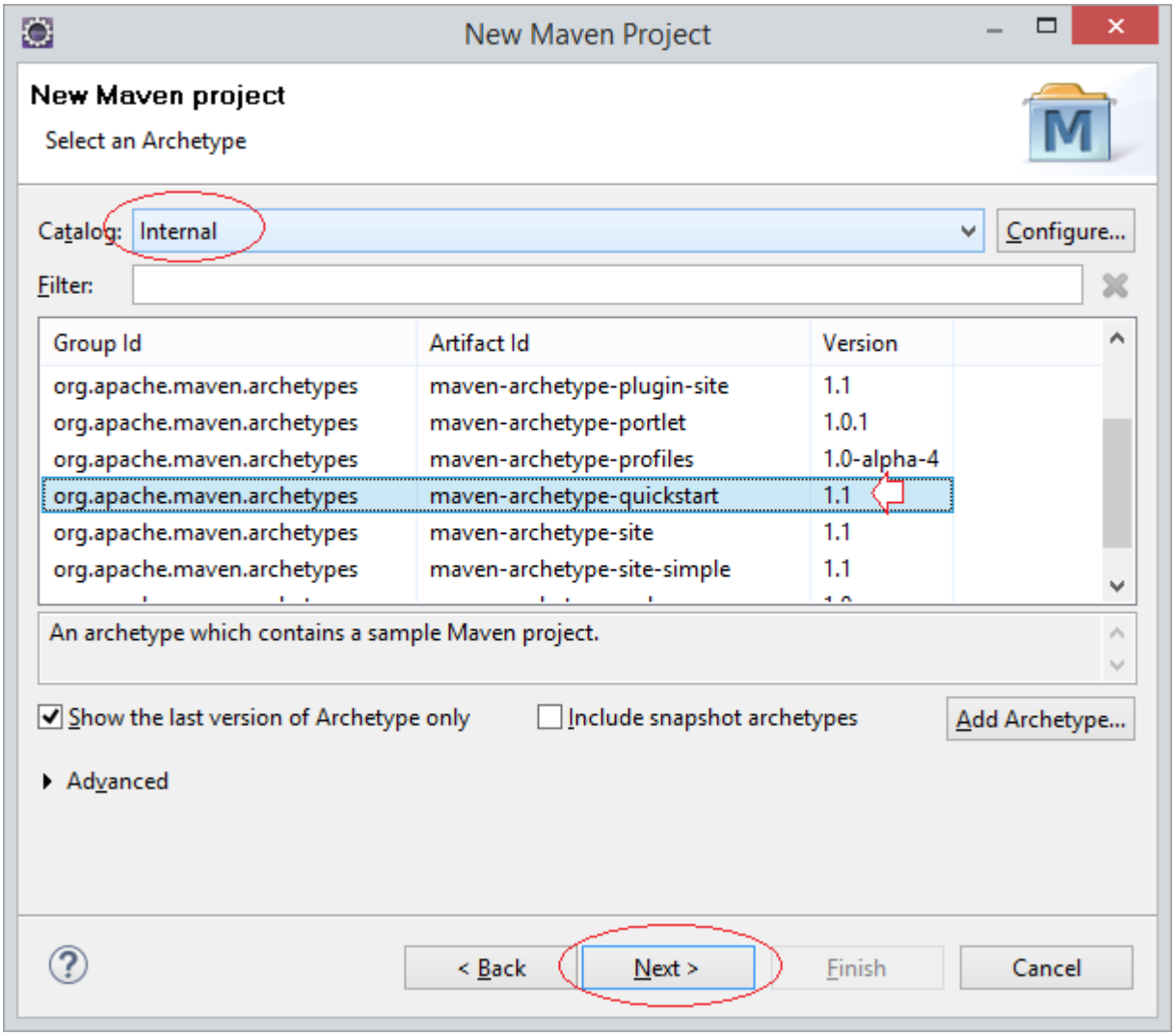
DEPARTMENT

DEPT_ID [NUMBER(10 , 0)]	DEPT_NAME [VARCHAR2(255)]	DEPT_NO [VARCHAR2(20)]	LOCATION [VARCHAR2(255)]
10	ACCOUNTING	D10	NEW YORK
20	RESEARCH	D20	DALLAS
30	SALES	D30	CHICAGO
40	OPERATIONS	D40	BOSTON
<new row>			

4- Create Project

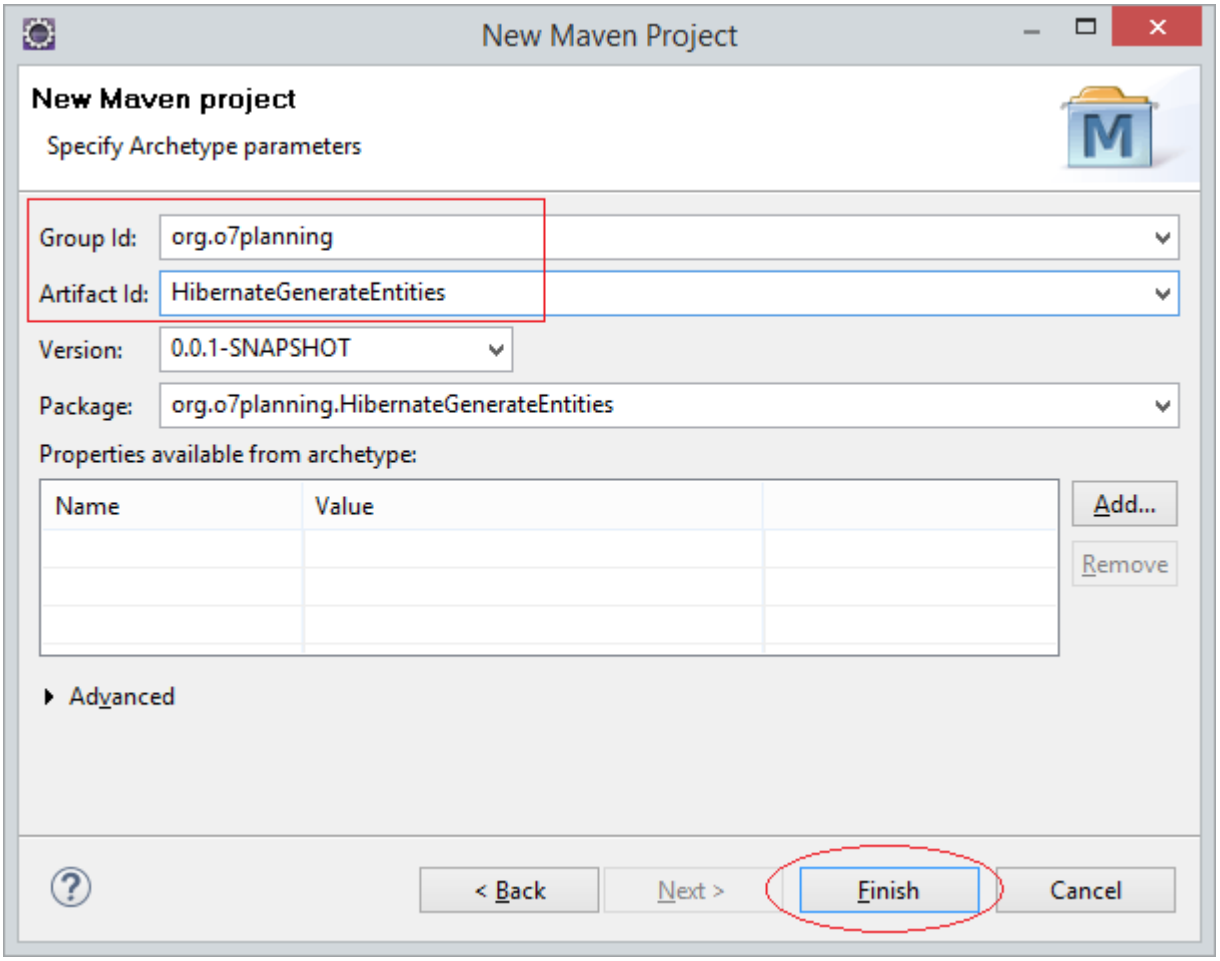

New
Select a wizard
Create a Maven Project
Wizards:
type filter text
JAXB
JBoss Tools
JPA
Maven
Check out Maven Projects from SCM
Maven Module
Maven Project
Oomph
Plug-in Development
Remote System Explorer
< Back
Next >
Finish
Cancel


New Maven Project
New Maven project
Select project name and location
Create a simple project (skip archetype selection)
Use default Workspace location
Location:
Browse...
Add project(s) to working set
Working set:
More...
Advanced
< Back
Next >
Finish
Cancel

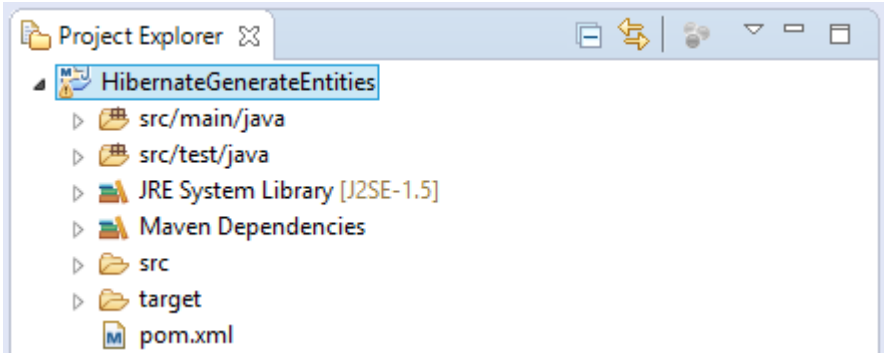


Enter:

- **Group Id:** org.o7planning
- **Artifact Id:** HibernateGenerateEntities



Project is created:



Declaring **Hibernate 5** library, and **JDBC Driver** for **Oracle, MySQL, SQL Server**:

pom.xml

```
<project xmlns="http://maven.apache.org/POM/4.0.0"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://maven.apache.org/POM/4.0.0
  http://maven.apache.org/xsd/maven-4.0.0.xsd">

  <modelVersion>4.0.0</modelVersion>

  <groupId>org.o7planning</groupId>
  <artifactId>HibernateGenerateEntities</artifactId>
  <version>0.0.1-SNAPSHOT</version>
  <packaging>jar</packaging>

```

```
 <name>HibernateGenerateEntities</name>
 <url>http://maven.apache.org</url>

 <properties>
   <project.build.sourceEncoding>UTF-8</project.build.sourceEncoding>
 </properties>

<repositories>
    <!-- Repository for ORACLE JDBC Driver -->
    <repository>
        <id>codelds</id>
        <url>https://code.lds.org/nexus/content/groups/main-repo</url>
    </repository>
</repositories>


 <dependencies>
   <dependency>
     <groupId>junit</groupId>
     <artifactId>junit</artifactId>
     <version>3.8.1</version>
     <scope>test</scope>
   </dependency>

  <!-- Hibernate -->
    <!-- http://mvnrepository.com/artifact/org.hibernate/hibernate-core%20-->
    <dependency>
        <groupId>org.hibernate</groupId>
        <artifactId>hibernate-core</artifactId>
        <version>5.1.0.Final</version>
    </dependency>

    <!-- http://mvnrepository.com/artifact/org.hibernate/hibernate-entitymanager%20-->
    <dependency>
        <groupId>org.hibernate</groupId>
        <artifactId>hibernate-entitymanager</artifactId>
        <version>5.1.0.Final</version>
    </dependency>


    <!-- http://mvnrepository.com/artifact/org.hibernate/hibernate-c3p0%20-->
    <dependency>
        <groupId>org.hibernate</groupId>
        <artifactId>hibernate-c3p0</artifactId>
        <version>5.1.0.Final</version>
    </dependency>


    <!-- MySQL JDBC driver -->
    <!-- http://mvnrepository.com/artifact/mysql/mysql-connector-java%20-->
    <dependency>
        <groupId>mysql</groupId>
        <artifactId>mysql-connector-java</artifactId>
        <version>5.1.34</version>
    </dependency>

    <!-- Oracle JDBC driver -->
    <dependency>
        <groupId>com.oracle</groupId>
        <artifactId>ojdbc6</artifactId>
        <version>11.2.0.3</version>
    </dependency>

  <!-- SQLServer JDBC driver (JTDS) -->
  <!-- http://mvnrepository.com/artifact/net.sourceforge.jtds/jtds%20-->
```

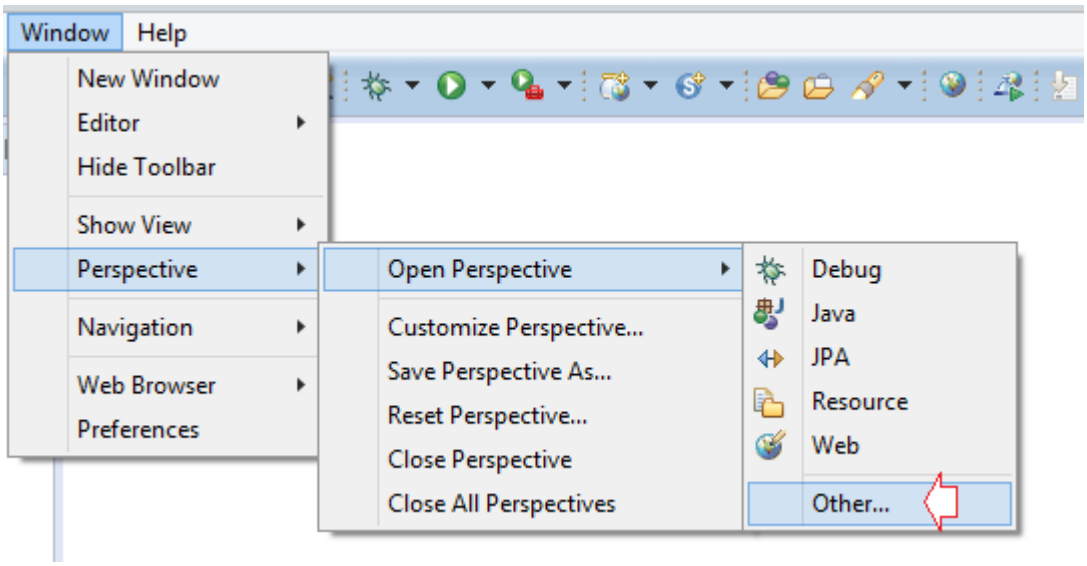
```
78      <dependency>
79          <groupId>net.sourceforge.jtds</groupId>
80          <artifactId>jtds</artifactId>
81          <version>1.3.1</version>
82      </dependency>
83
84    </dependencies>
85
86  </project>
```

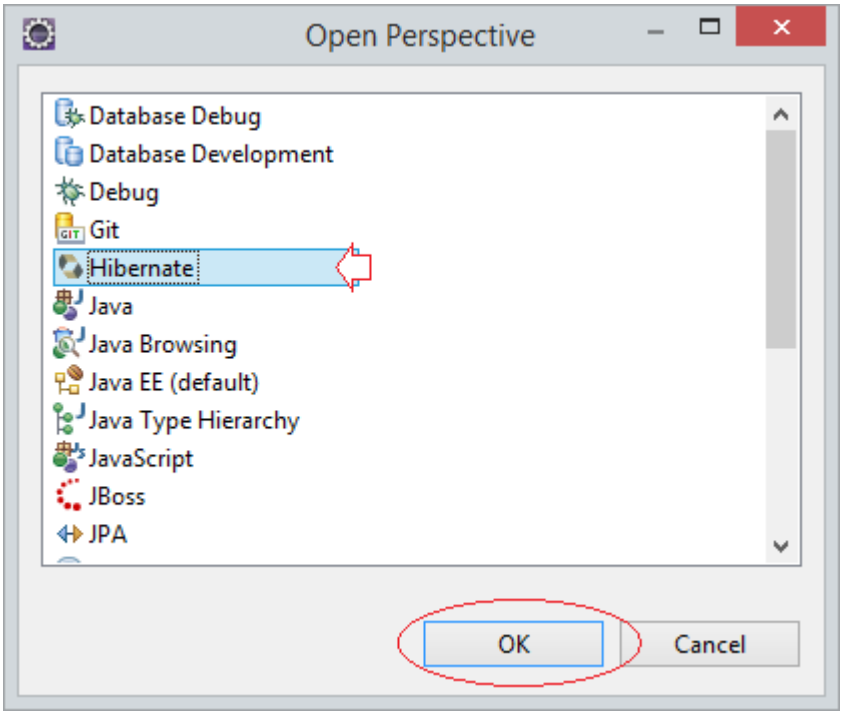
5- Configuring Hibenate

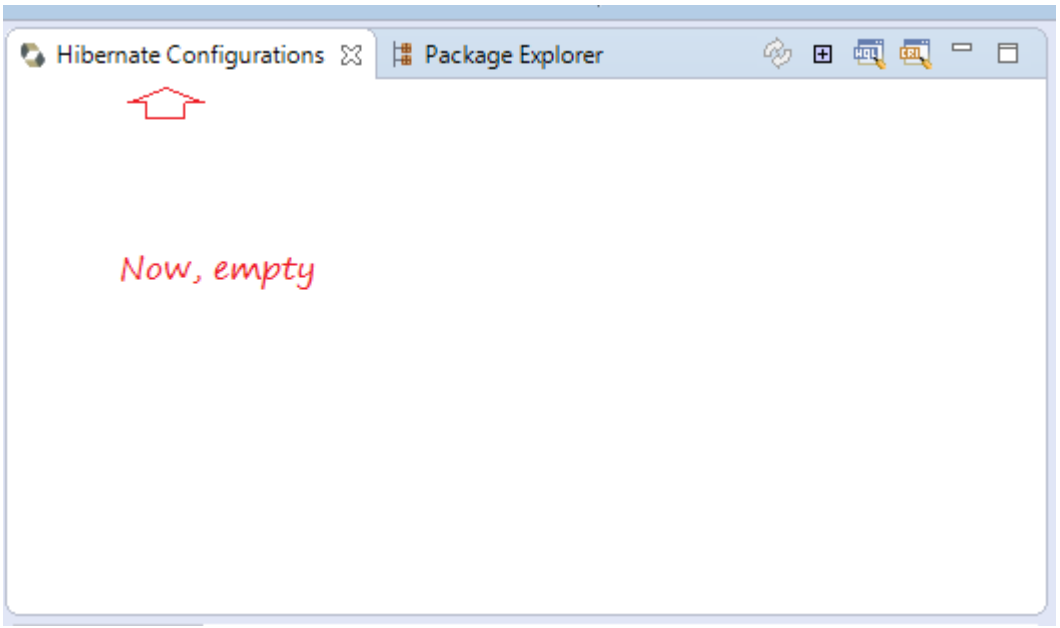
"Hibernate Tools" allows create configuration file. And now we will create the file **"hibernate.cfg.xml"** using this tool.

In **Eclipse**, select:

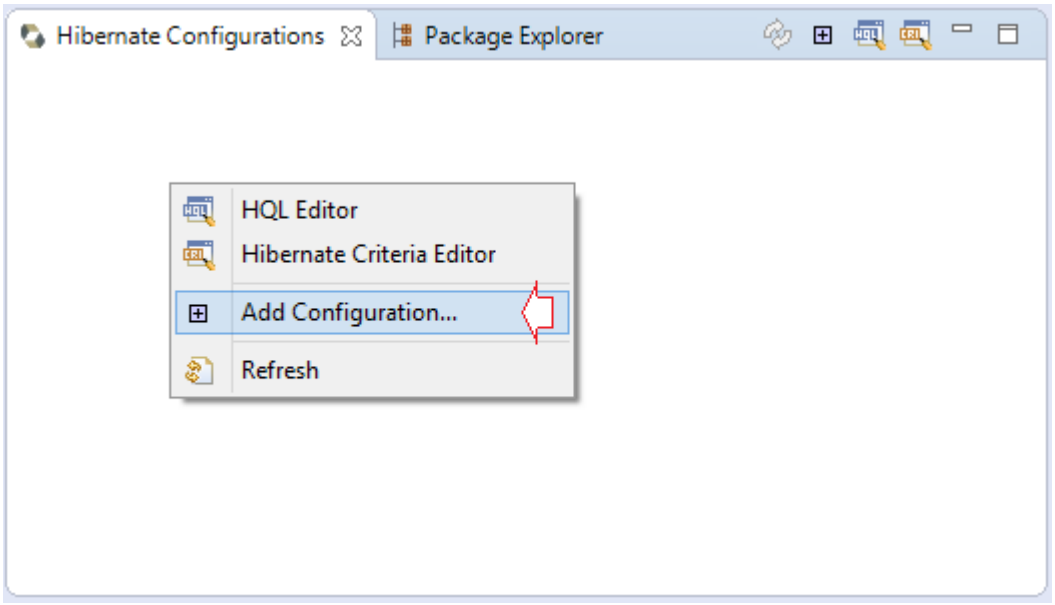
- **Window/Perspective/Open Perspective/Other...**

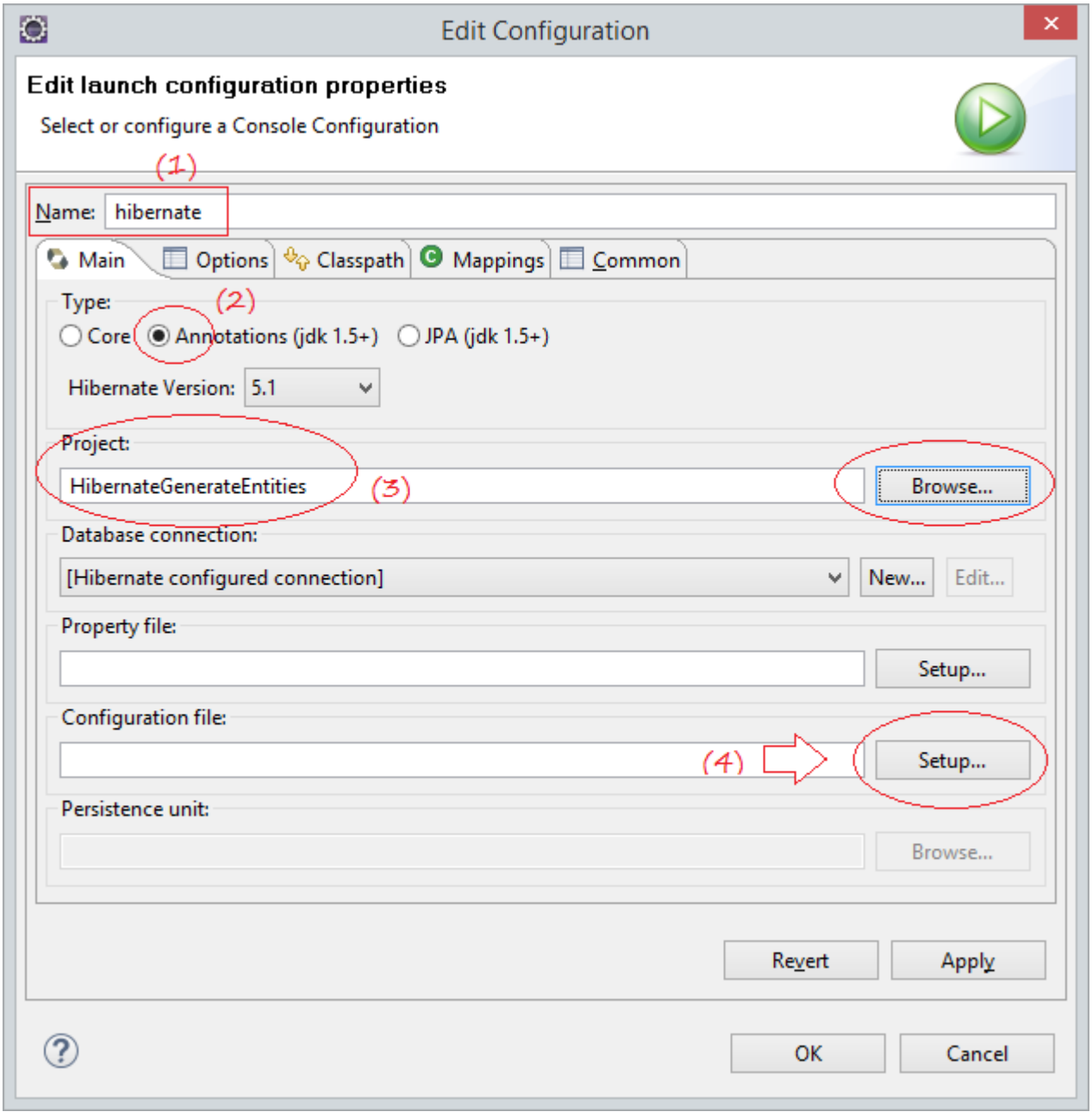


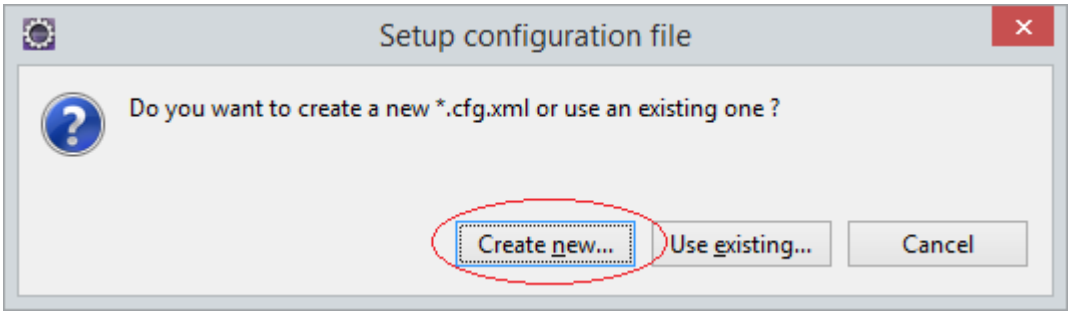




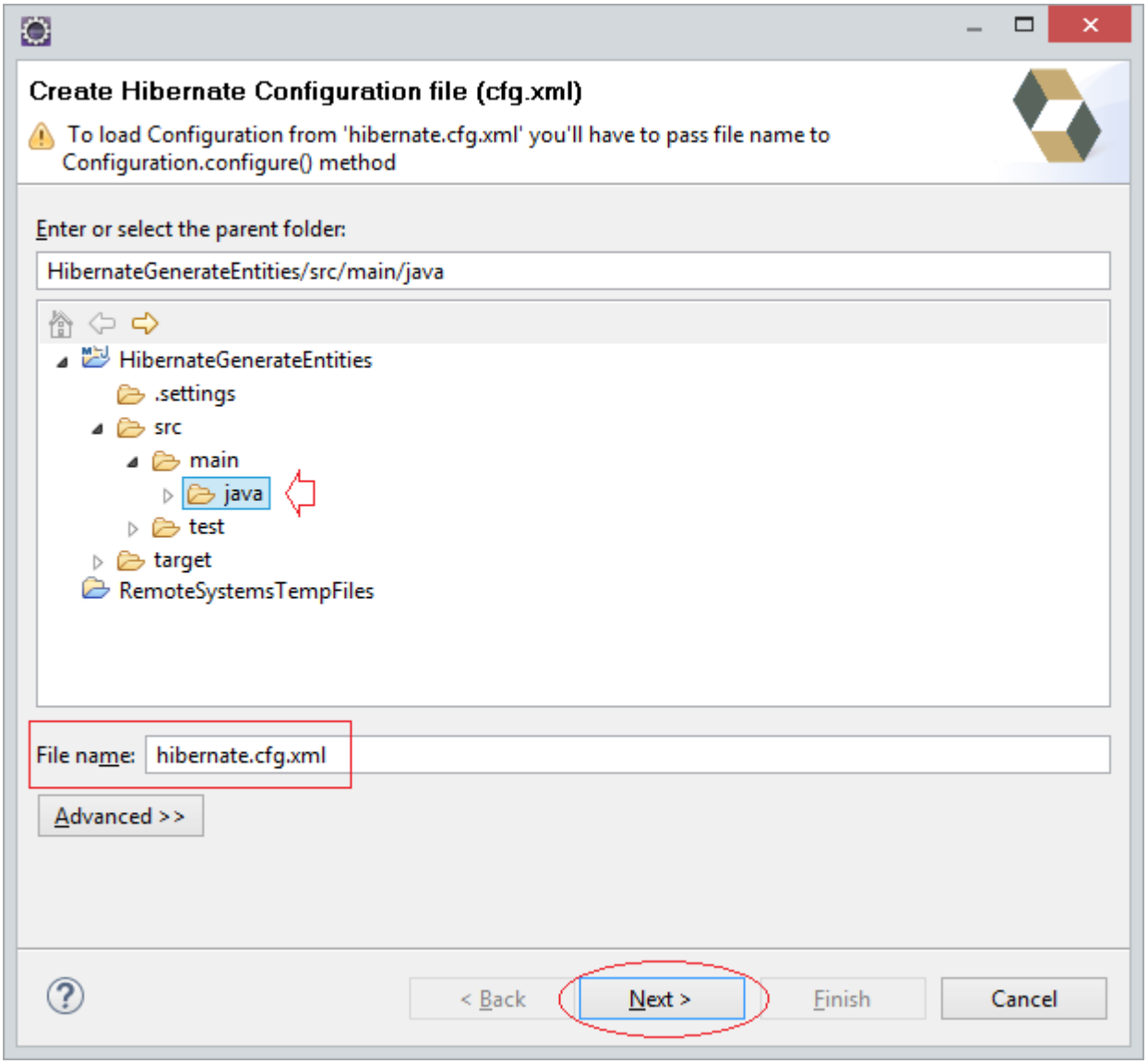
Right-Click, and select *"Add Configuration .."* to create **Hibernate** configuration file.


Hibernate Configurations
Package Explorer
HQL Editor
Hibernate Criteria Editor
Add Configuration...
Refresh

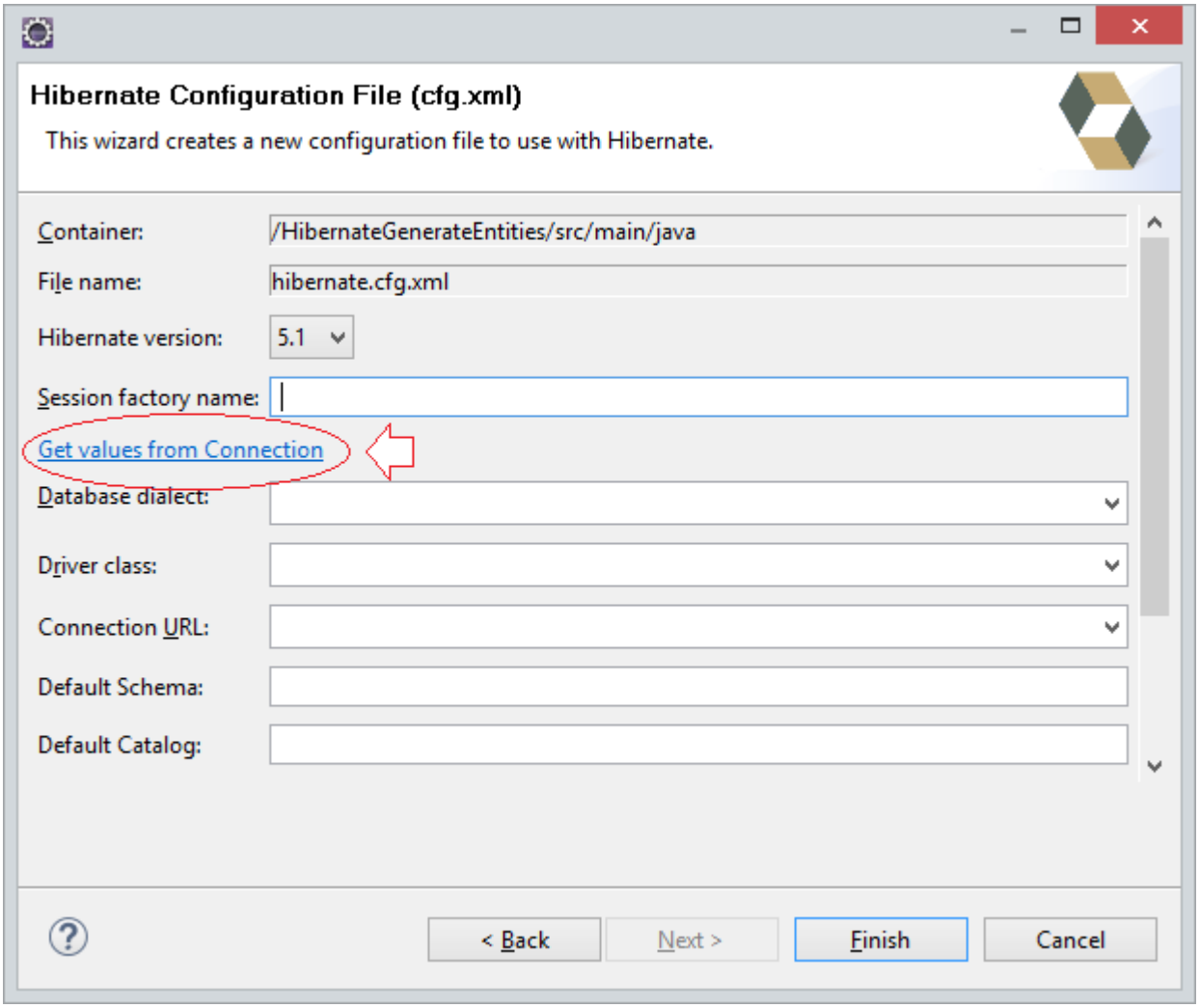

Edit Configuration
Edit launch configuration properties
Select or configure a Console Configuration
(1)
Name: hibernate
Main
Options
Classpath
Mappings
Common
Type:
(2)
Core
Annotations (jdk 1.5+)
JPA (jdk 1.5+)
Hibernate Version: 5.1
Project:
HibernateGenerateEntities
(3)
Browse...
Database connection:
[Hibernate configured connection]
New...
Edit...
Property file:
Setup...
Configuration file:
(4)
Setup...
Persistence unit:
Browse...
Revert
Apply
OK
Cancel



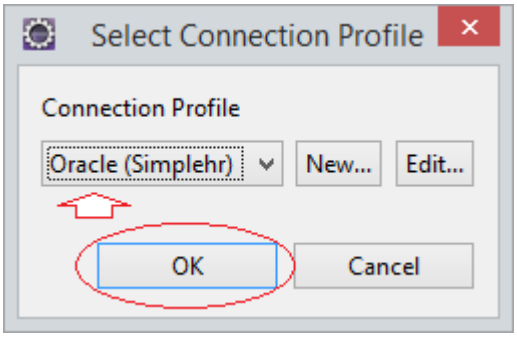
Enter the file name ***"hibernate.cfg.xml"***, and put it into the **"src/main/java"** folder of the Project.

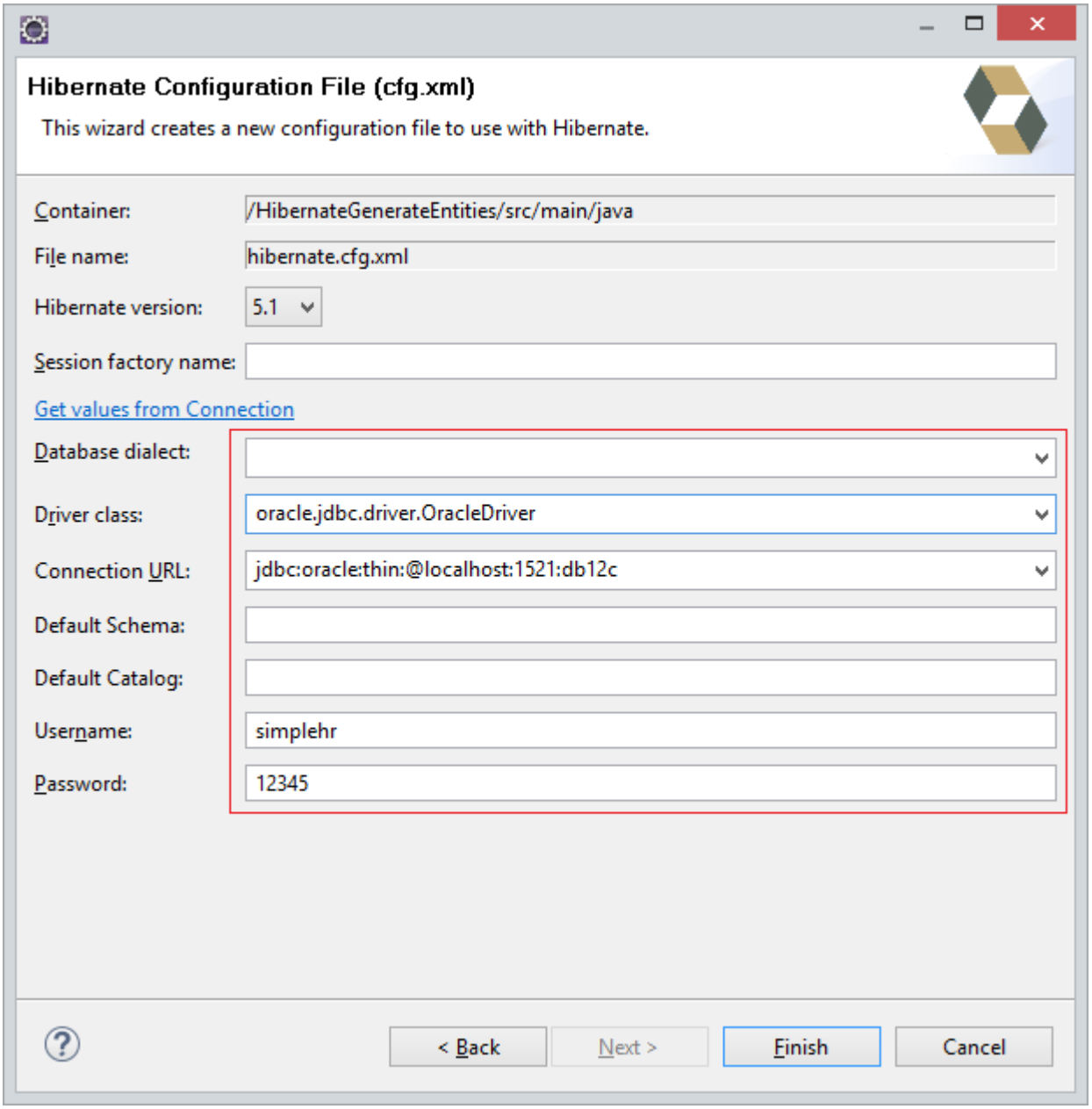


You can type the information into a database connection or retrieve the connection information that you have previously declared. Click on ***"Get values from Connection"***.

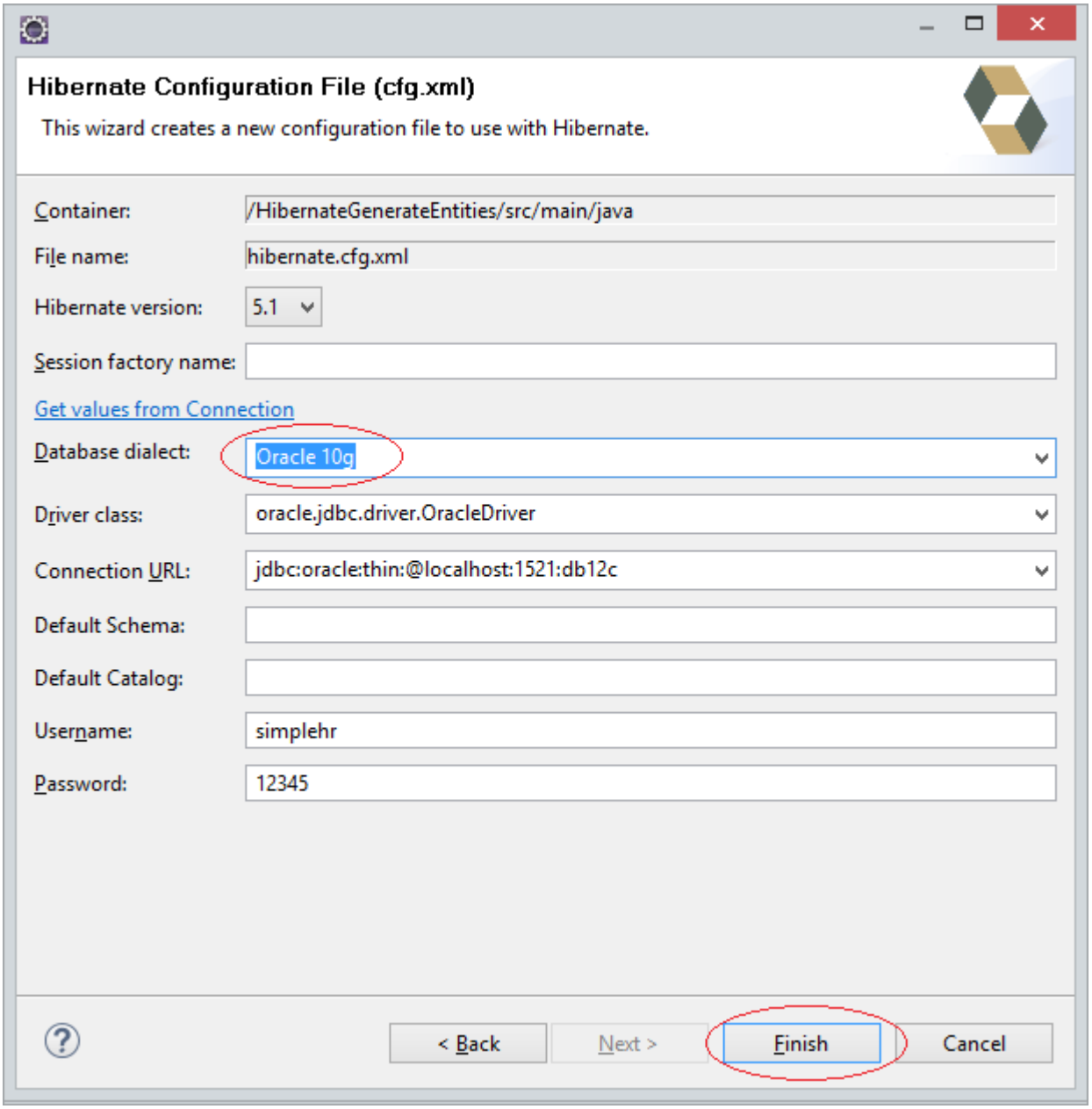


Select Connection **"Oracle (Simplehr)"**, which you have created above. Click OK to continue.

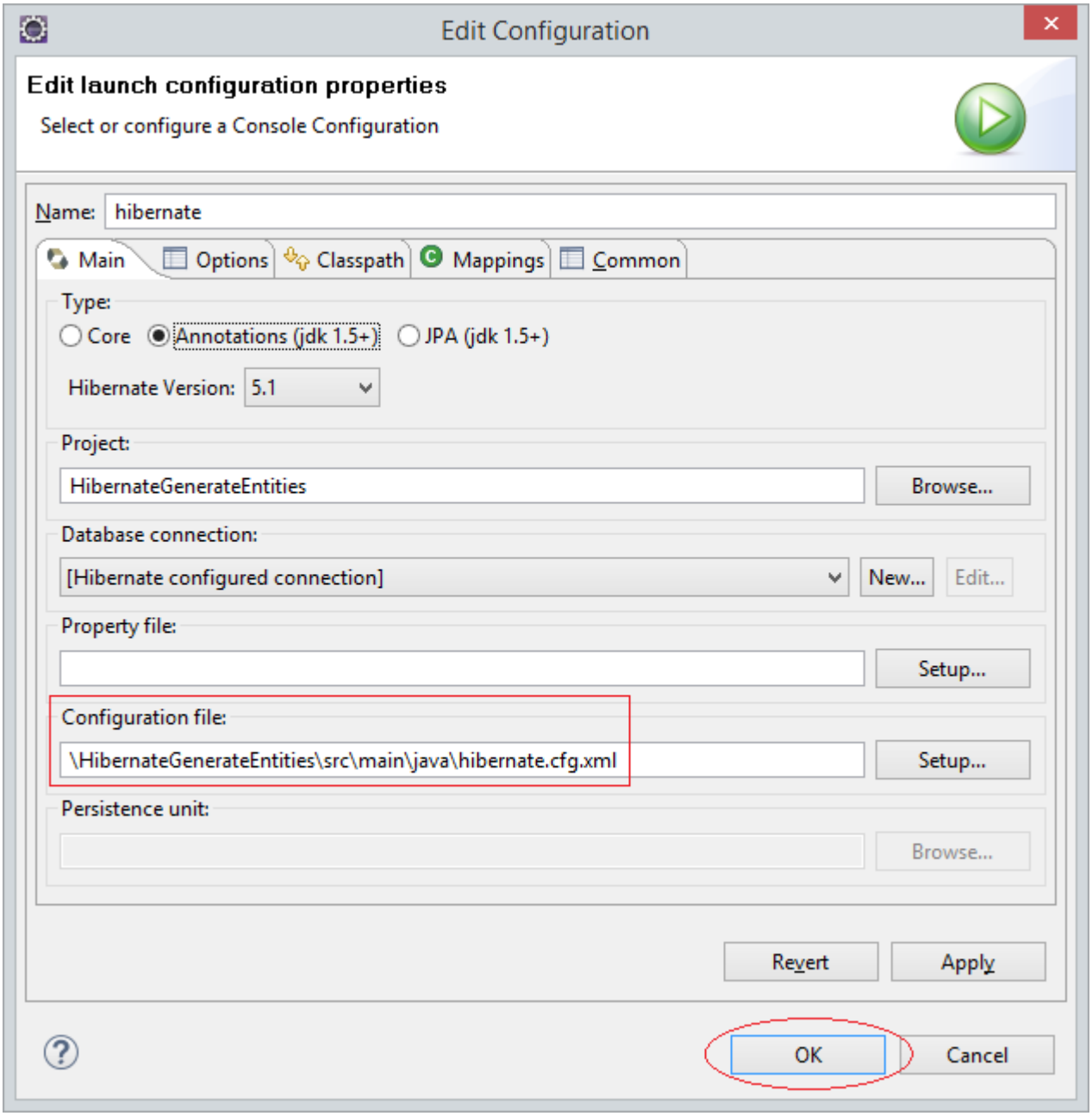




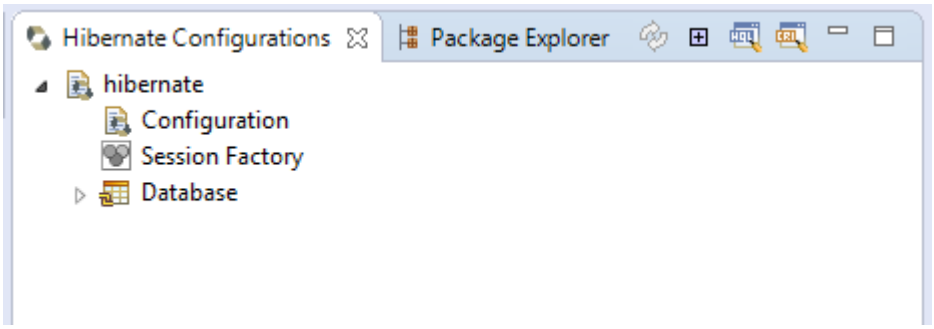
Next select the class **"dialect"** that corresponds to your database type. With **Oracle** is **Oracle10g**, attention dialect class **"Oracle10g"** is used for both versions 10 and 11 of **Oracle**.



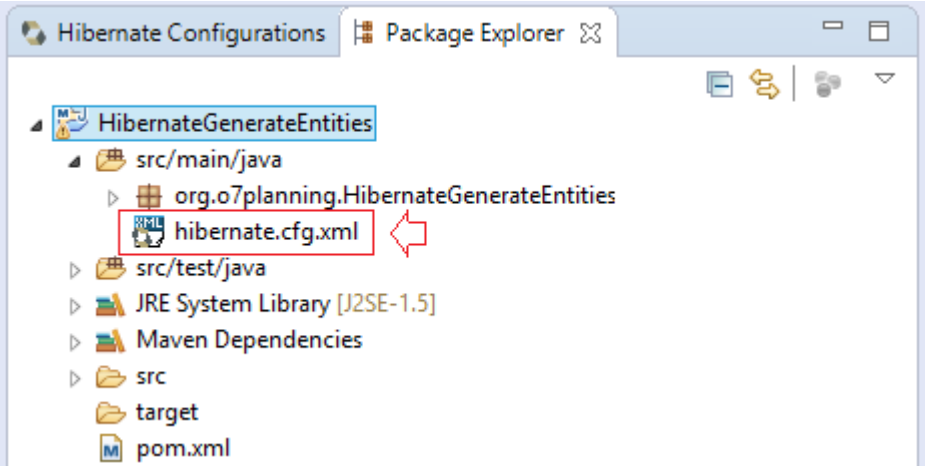
Click OK to complete the configuration. After this step will file ***"hibernate.cfg.xml"*** was created in the ***src/main/java*** folder of your Project.



Hibernate Configuration is created. (See in **Hibernate Configurations view**)



See in **"Package Explorer"**:



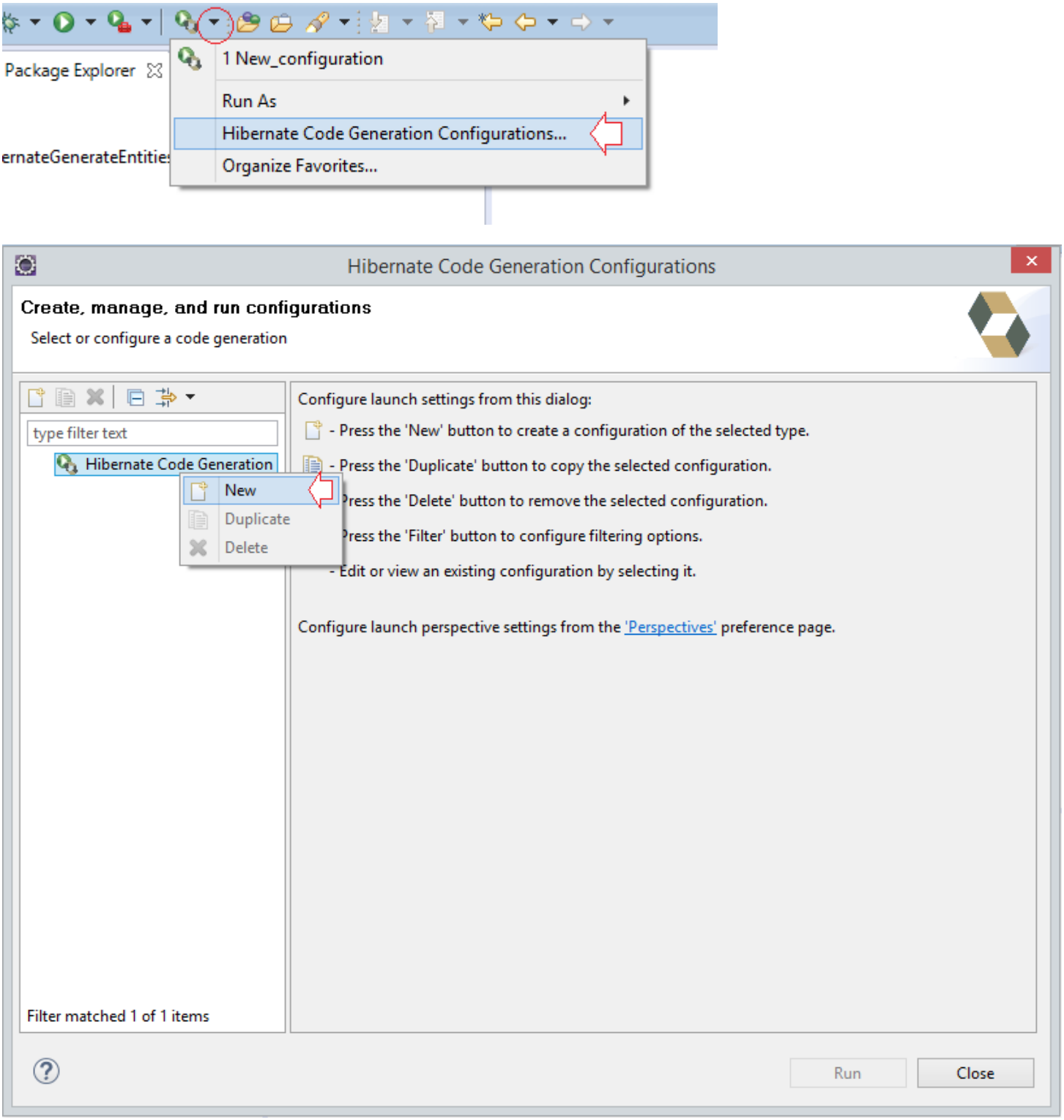
- *hibernate.cfg.xml*

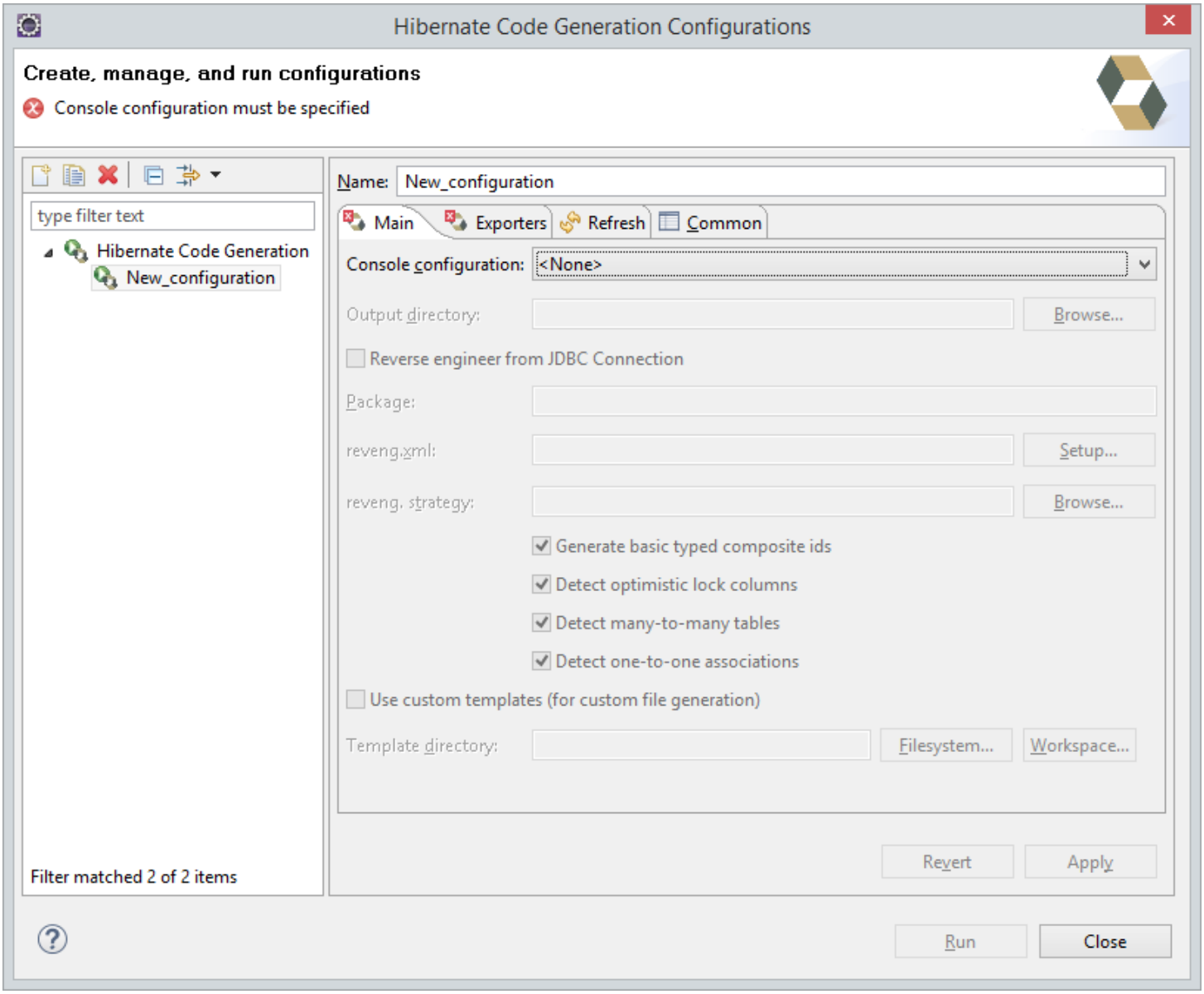
hibernate.cfg.xml

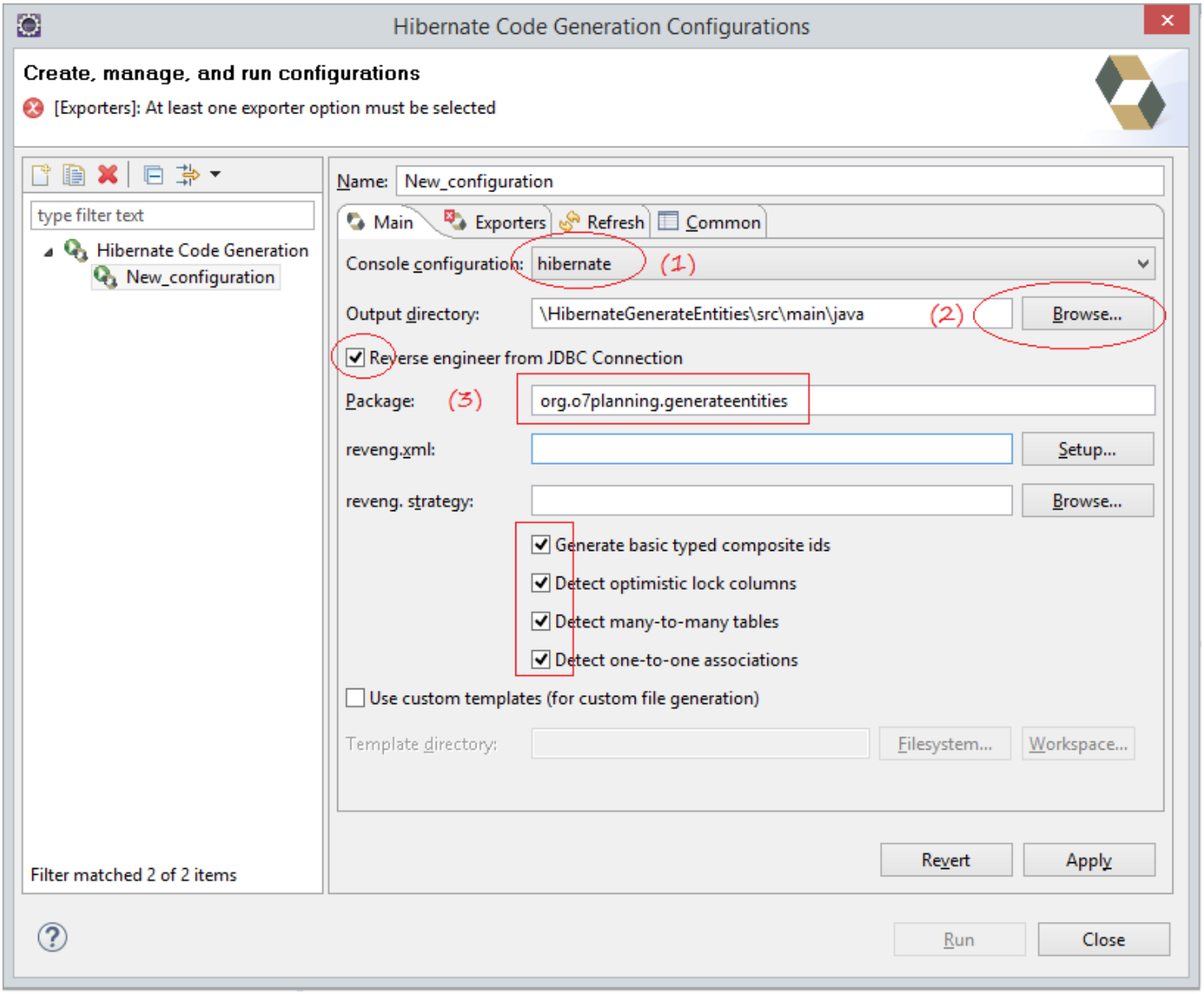
```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE hibernate-configuration PUBLIC
      "-//Hibernate/Hibernate Configuration DTD 3.0//EN"
      "http://www.hibernate.org/dtd/hibernate-configuration-3.0.dtd">
<hibernate-configuration>
   <session-factory>
      <property name="hibernate.connection.driver_class">oracle.jdbc.OracleDriver</property>
      <property name="hibernate.connection.password">12345</property>
      <property name="hibernate.connection.url">jdbc:oracle:thin:@localhost:1521:db12c</property>
      <property name="hibernate.connection.username">simplehr</property>
      <property name="hibernate.dialect">org.hibernate.dialect.Oracle10gDialect</property>
   </session-factory>

</hibernate-configuration>
```

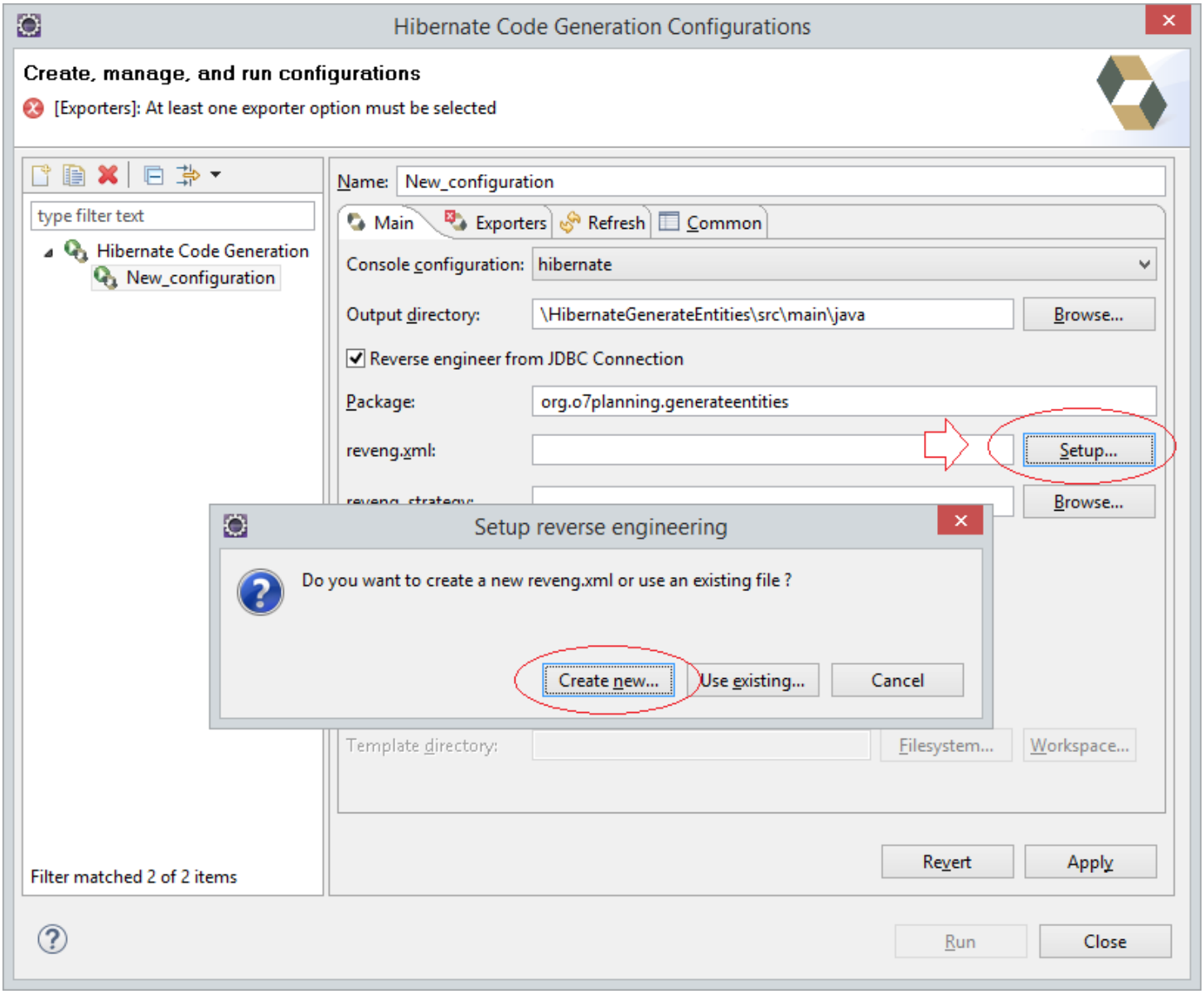
Next we will configure, how to read the table structure and generate to the **entity** class

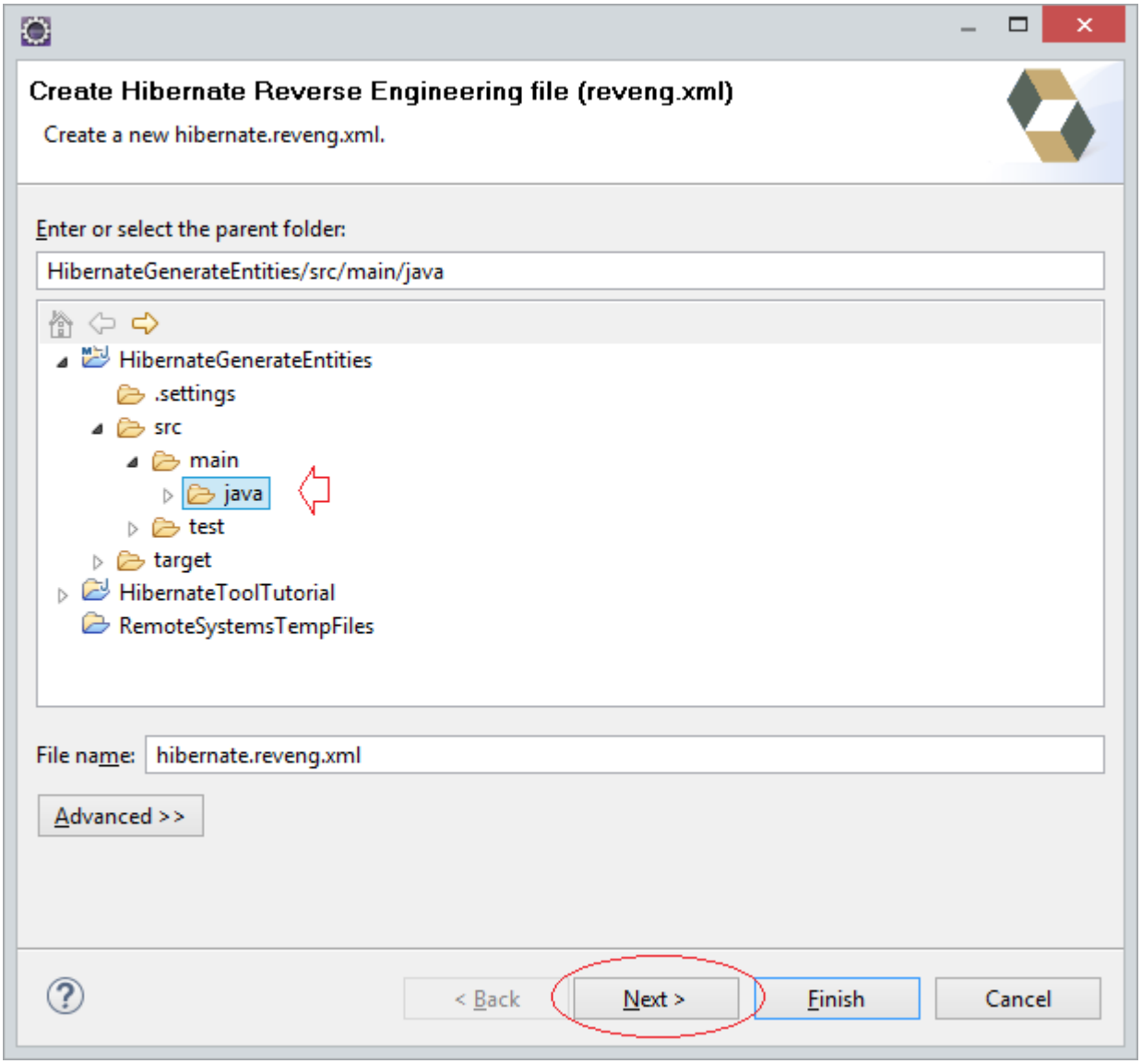
- Window/Perspective/Open Perspective/Hibernate

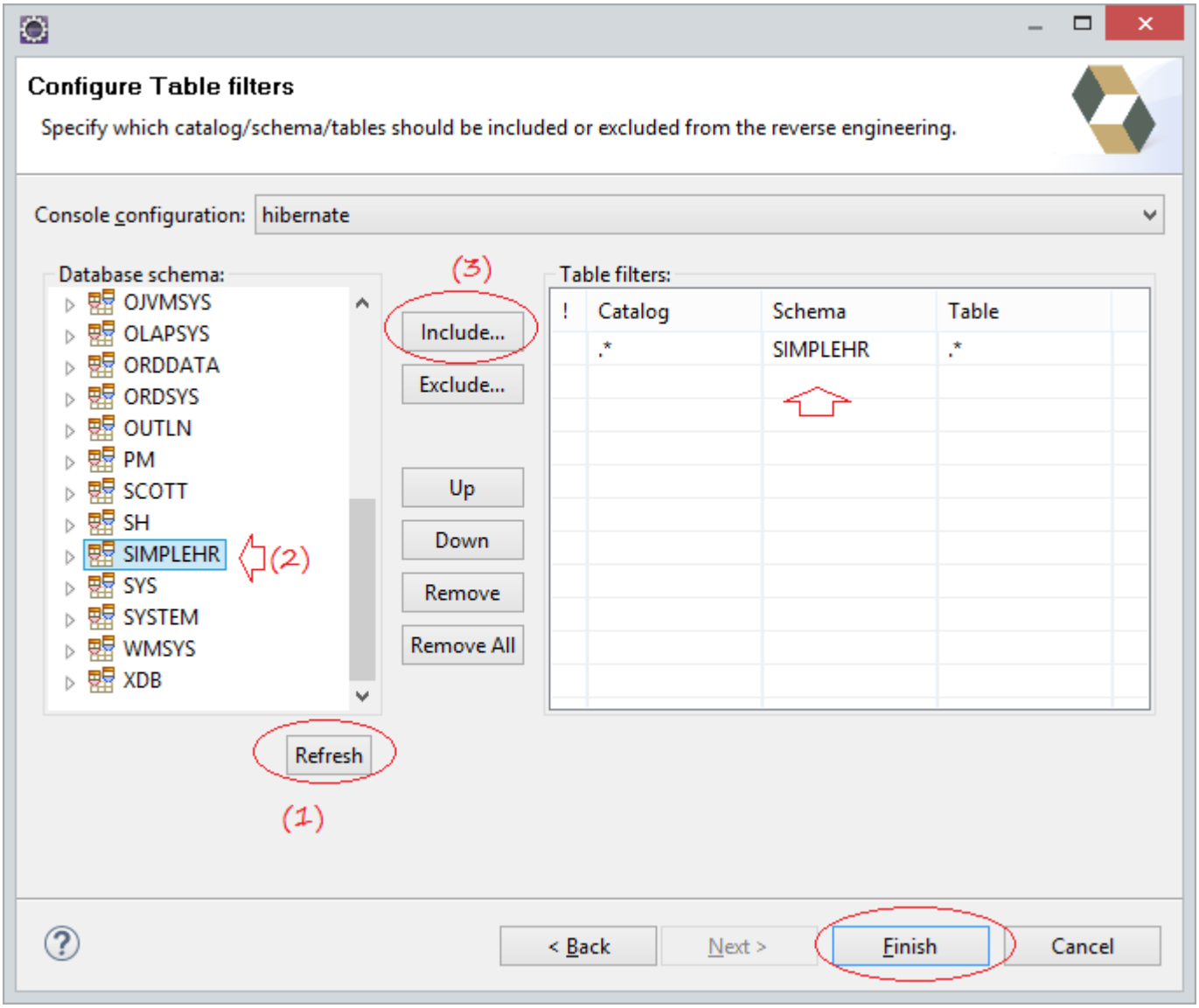

Package Explorer
ernateGenerateEntities
1 New_configuration
Run As
Hibernate Code Generation Configurations...
Organize Favorites...
Hibernate Code Generation Configurations
Create, manage, and run configurations
Select or configure a code generation
type filter text
Hibernate Code Generation
New
Duplicate
Delete
Filter matched 1 of 1 items
Configure launch settings from this dialog:
- Press the 'New' button to create a configuration of the selected type.
- Press the 'Duplicate' button to copy the selected configuration.
ress the 'Delete' button to remove the selected configuration.
ress the 'Filter' button to configure filtering options.
- Edit or view an existing configuration by selecting it.
Configure launch perspective settings from the 'Perspectives' preference page.
Run
Close

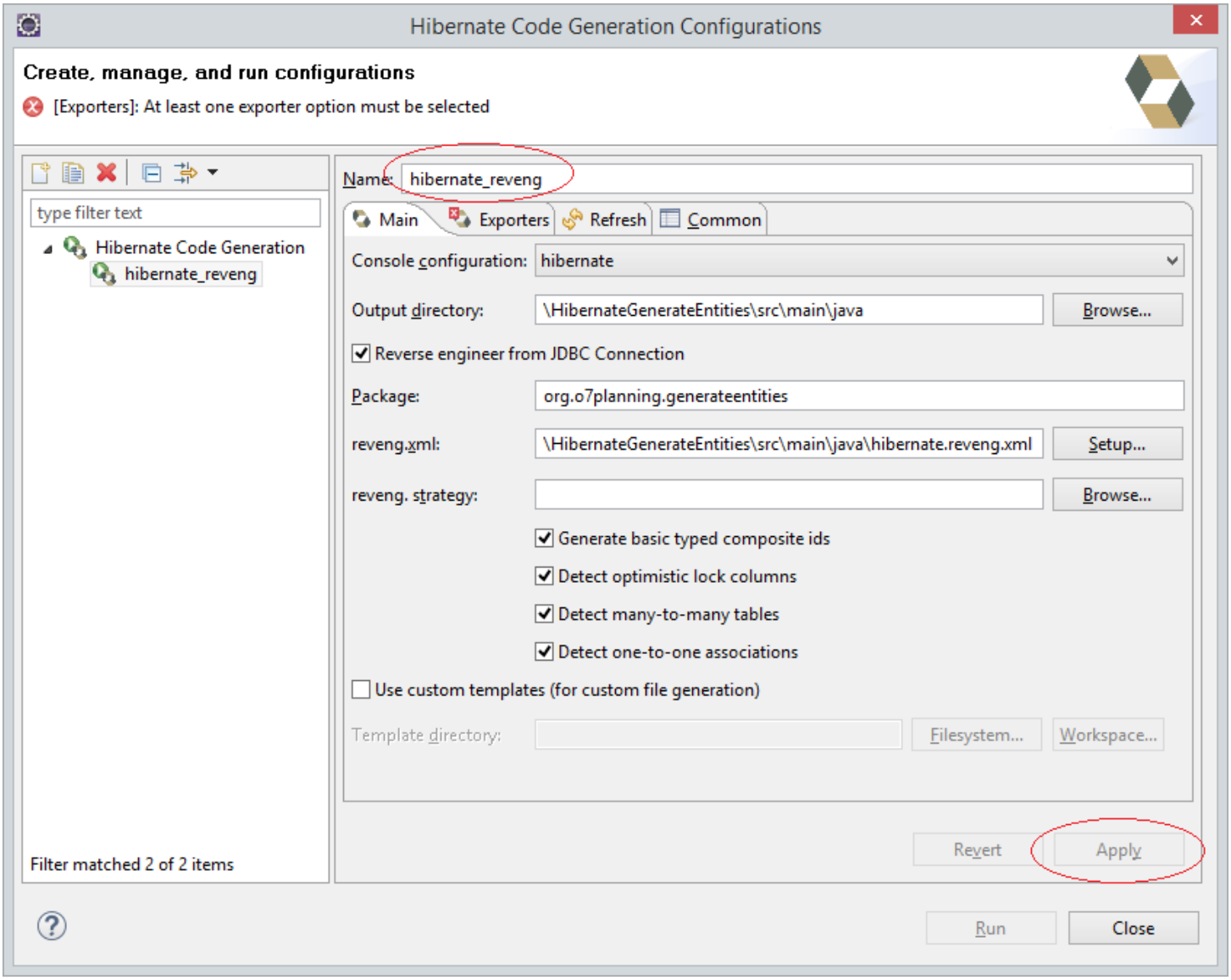

Hibernate Code Generation Configurations
Create, manage, and run configurations
Console configuration must be specified
type filter text
Hibernate Code Generation
New_configuration
Filter matched 2 of 2 items
Name: New_configuration
Main
Exporters
Refresh
Common
Console configuration: <None>
Output directory:
Browse...
Reverse engineer from JDBC Connection
Package:
reveng.xml:
Setup...
reveng. strategy:
Browse...
Generate basic typed composite ids
Detect optimistic lock columns
Detect many-to-many tables
Detect one-to-one associations
Use custom templates (for custom file generation)
Template directory:
Filesystem...
Workspace...
Revert
Apply
Run
Close

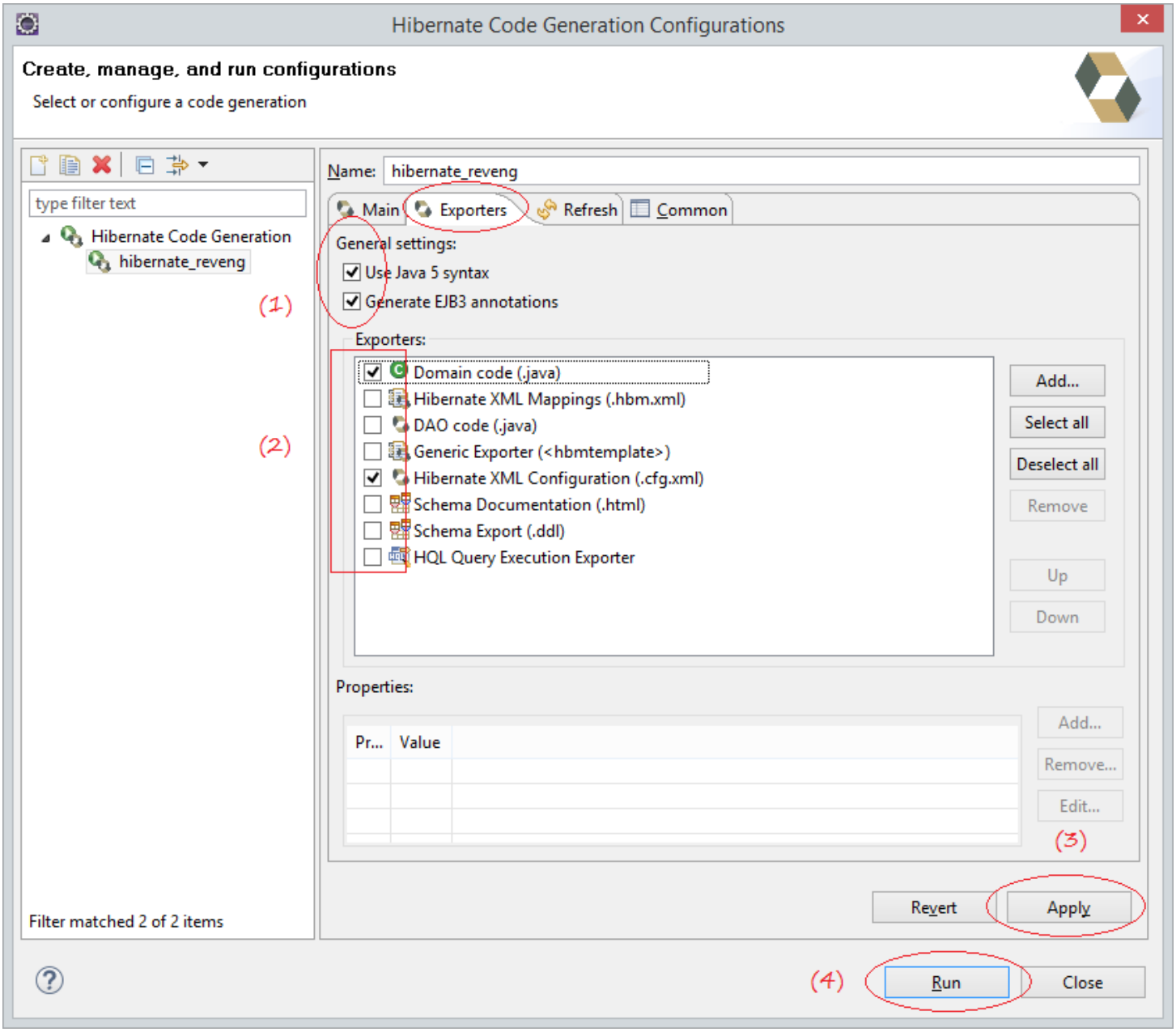

Hibernate Code Generation Configurations
Create, manage, and run configurations
[Exporters]: At least one exporter option must be selected
type filter text
Hibernate Code Generation
New_configuration
Filter matched 2 of 2 items
Name: New_configuration
Main
Exporters
Refresh
Common
Console configuration: hibernate
(1)
Output directory: \HibernateGenerateEntities\src\main\java
(2)
Browse...
Reverse engineer from JDBC Connection
Package:
(3)
org.o7planning.generateentities
reveng.xml:
Setup...
reveng. strategy:
Browse...
Generate basic typed composite ids
Detect optimistic lock columns
Detect many-to-many tables
Detect one-to-one associations
Use custom templates (for custom file generation)
Template directory:
Filesystem...
Workspace...
Revert
Apply
Run
Close


Hibernate Code Generation Configurations
Create, manage, and run configurations
[Exporters]: At least one exporter option must be selected
type filter text
Hibernate Code Generation
New_configuration
Filter matched 2 of 2 items
Name: New_configuration
Main
Exporters
Refresh
Common
Console configuration: hibernate
Output directory: \HibernateGenerateEntities\src\main\java
Browse...
Reverse engineer from JDBC Connection
Package: org.o7planning.generateentities
reveng.xml:
Setup...
Browse...
Setup reverse engineering
Do you want to create a new reveng.xml or use an existing file ?
Create new...
Use existing...
Cancel
Template directory:
Filesystem...
Workspace...
Revert
Apply
Run
Close

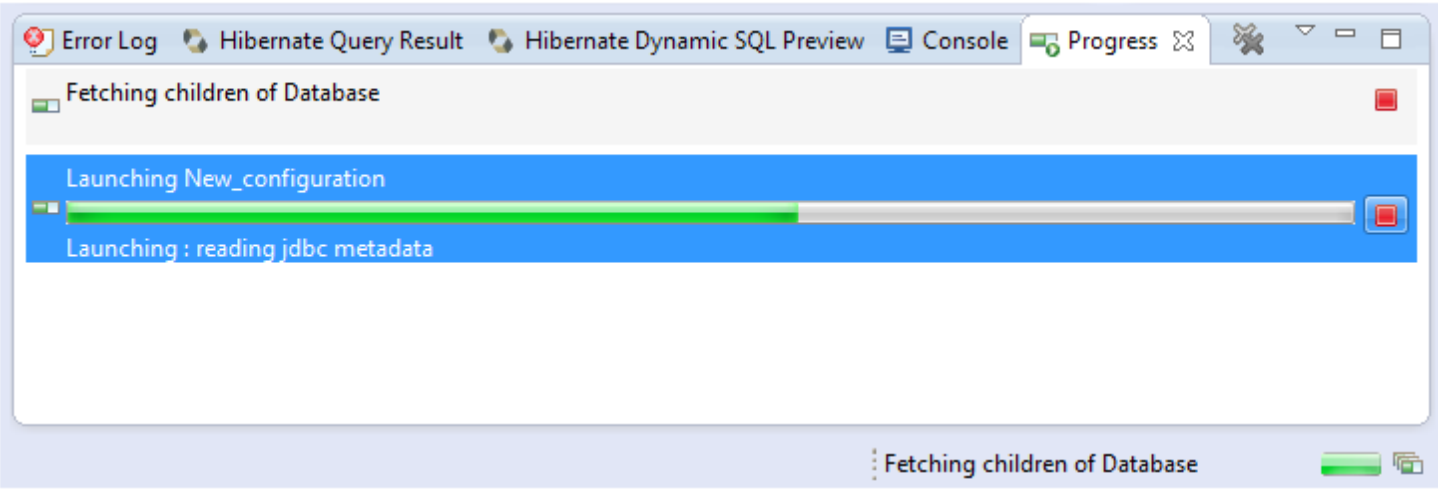

Create Hibernate Reverse Engineering file (reveng.xml)
Create a new hibernate.reveng.xml.
Enter or select the parent folder:
HibernateGenerateEntities/src/main/java
HibernateGenerateEntities
.settings
src
main
java
test
target
HibernateToolTutorial
RemoteSystemsTempFiles
File name:
hibernate.reveng.xml
Advanced >>
< Back
Next >
Finish
Cancel

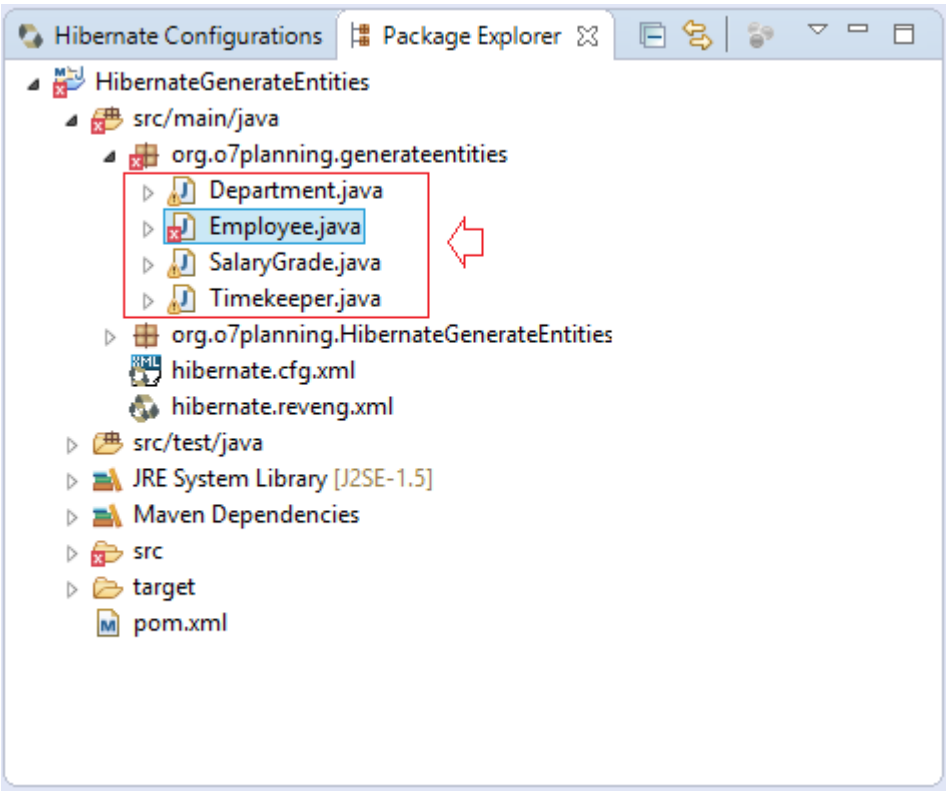

Configure Table filters
Specify which catalog/schema/tables should be included or excluded from the reverse engineering.
Console configuration:
hibernate
Database schema:
OJVMSYS
OLAPSYS
ORDDATA
ORDSYS
OUTLN
PM
SCOTT
SH
SIMPLEHR
SYS
SYSTEM
WMSYS
XDB
(2)
Refresh
(1)
(3)
Include...
Exclude...
Up
Down
Remove
Remove All
Table filters:
! Catalog Schema Table
.* SIMPLEHR .*
< Back
Next >
Finish
Cancel


Hibernate Code Generation Configurations
Create, manage, and run configurations
[Exporters]: At least one exporter option must be selected
type filter text
Hibernate Code Generation
hibernate_reveng
Filter matched 2 of 2 items
Name: hibernate_reveng
Main
Exporters
Refresh
Common
Console configuration: hibernate
Output directory: \HibernateGenerateEntities\src\main\java
Browse...
Reverse engineer from JDBC Connection
Package: org.o7planning.generateentities
reveng.xml: \HibernateGenerateEntities\src\main\java\hibernate.reveng.xml
Setup...
reveng. strategy:
Browse...
Generate basic typed composite ids
Detect optimistic lock columns
Detect many-to-many tables
Detect one-to-one associations
Use custom templates (for custom file generation)
Template directory:
Filesystem...
Workspace...
Revert
Apply
Run
Close



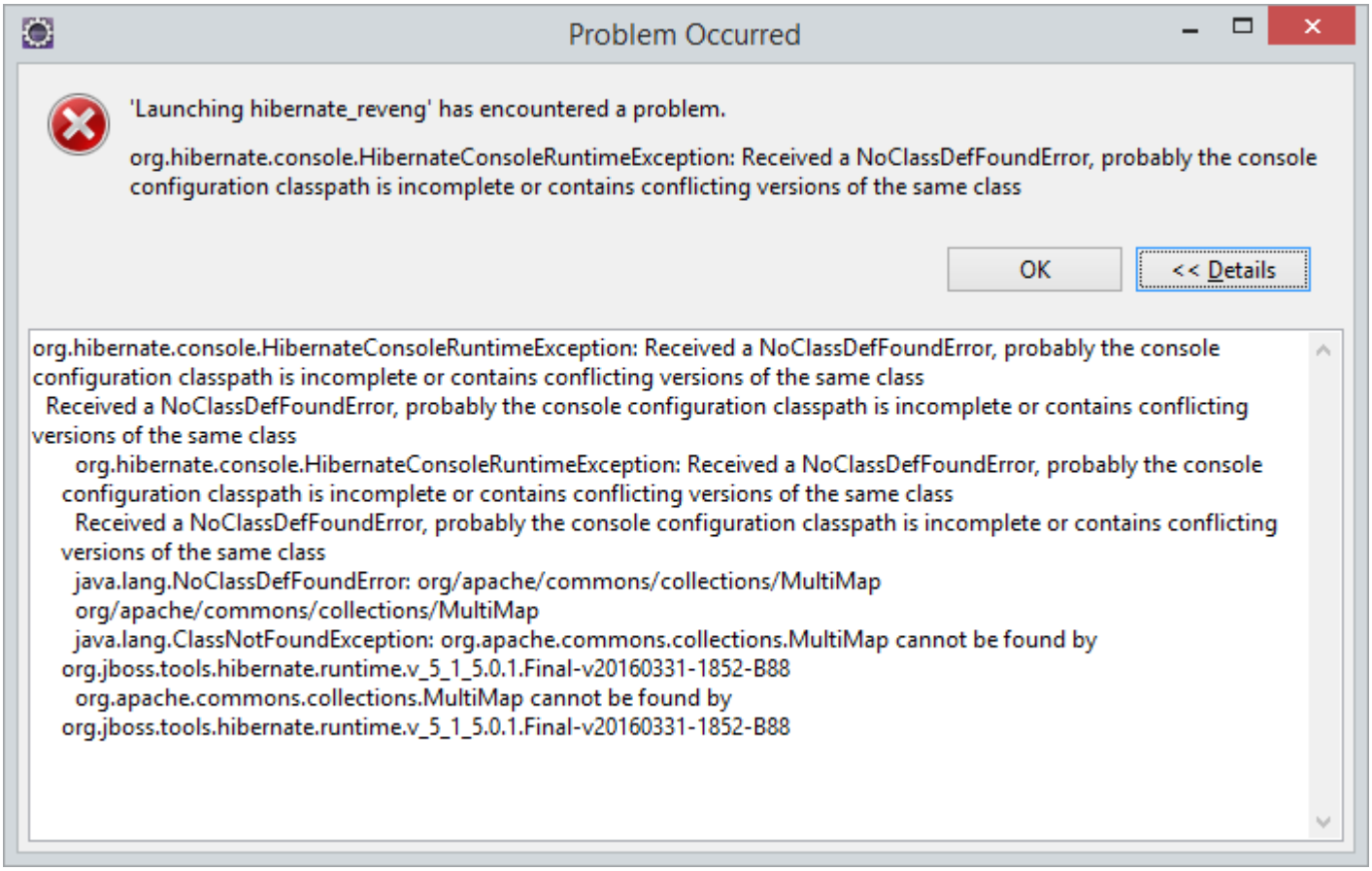
> *“*
>
> *Note: If the process of generating the **entities** fails, you can see how to solve in the appendix.*





6- Appendix: Error while generating the entities

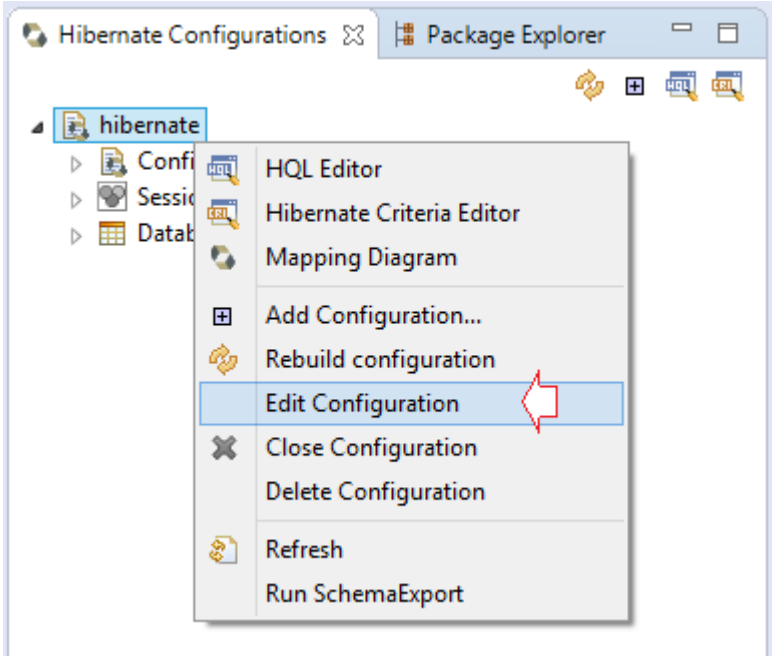
Maybe when generating the **entities** you get an error as follows:

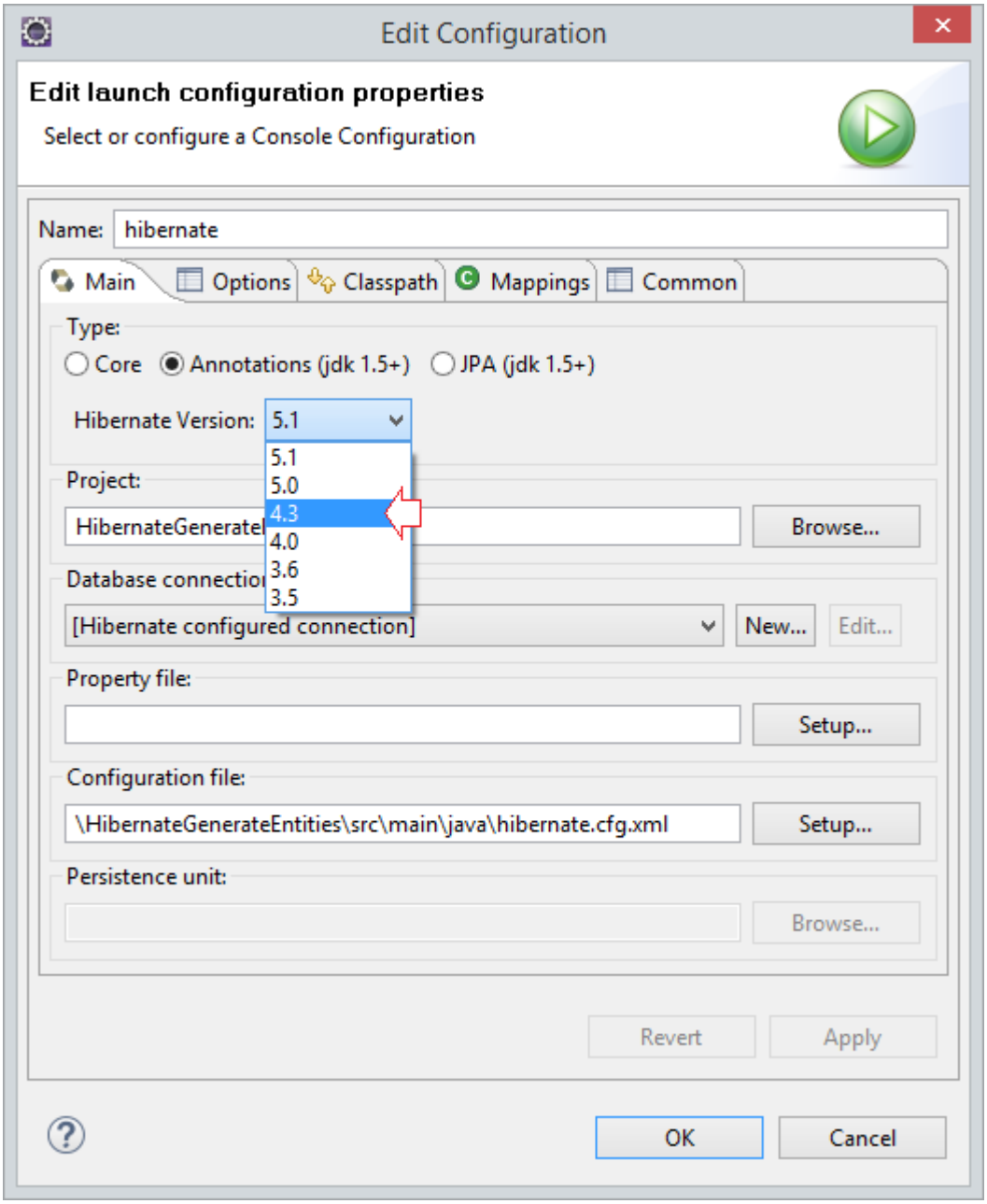


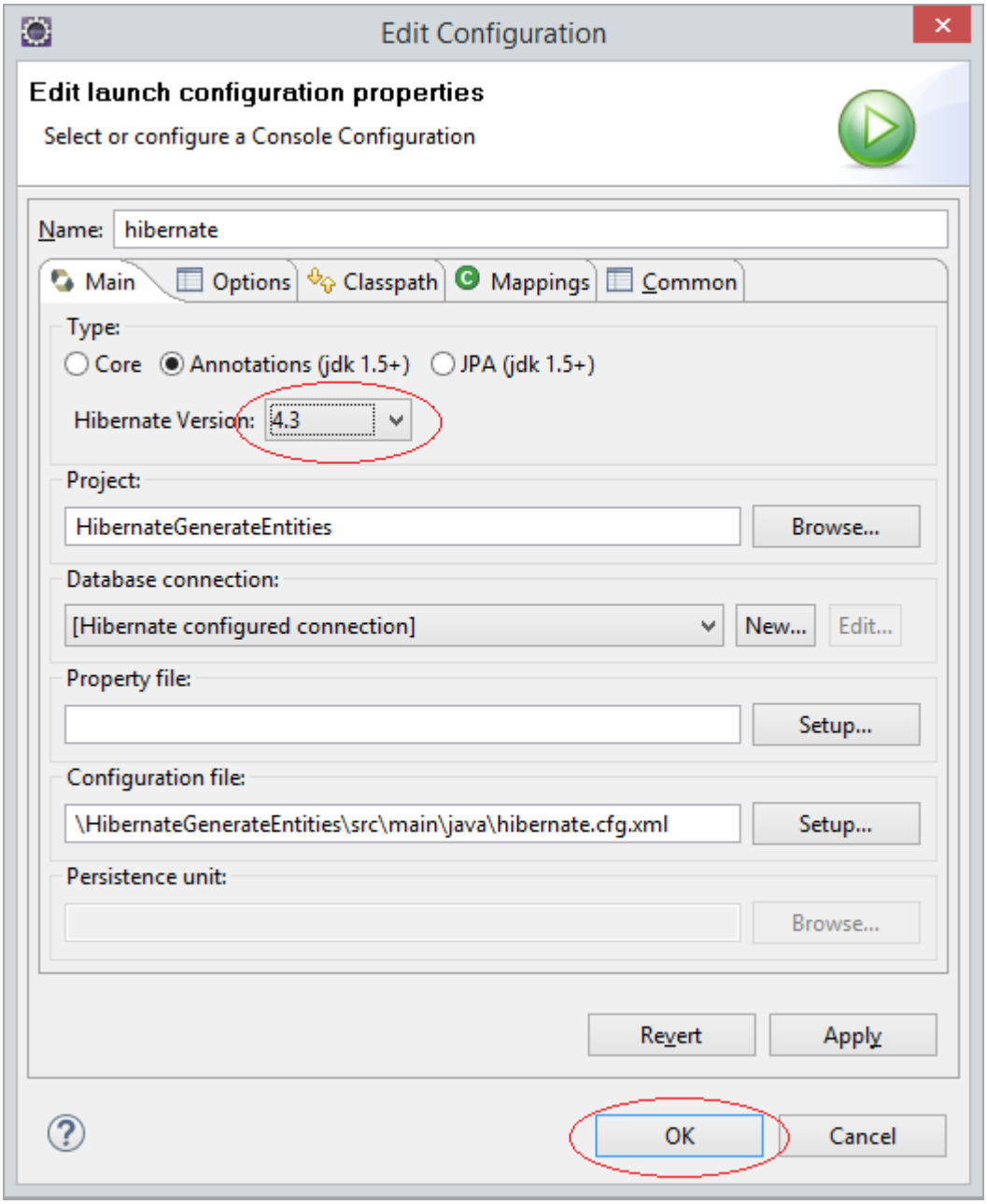
** NoClassDefFoundError **

```
1  org.hibernate.console.HibernateConsoleRuntimeException: Received a NoClassDefFoundError,
2  probably the console configuration classpath is incomplete or contains conflicting versions of the same class
3  Received a NoClassDefFoundError, probably the console configuration classpath is incomplete or contains conflicting ver
4  org.hibernate.console.HibernateConsoleRuntimeException:
5  Received a NoClassDefFoundError, probably the console configuration classpath is incomplete or contains conflicting ver
6  Received a NoClassDefFoundError, probably the console configuration classpath is incomplete or contains conflicting ver
7  java.lang.NoClassDefFoundError: org/apache/commons/collections/MultiMap
8  org/apache/commons/collections/MultiMap
9  java.lang.ClassNotFoundException: org.apache.commons.collections.MultiMap cannot be found by org.jboss.tools.hiber
10 org.apache.commons.collections.MultiMap cannot be found by org.jboss.tools.hibernate.runtime.v_5_1_5.0.1.Final-v20
```

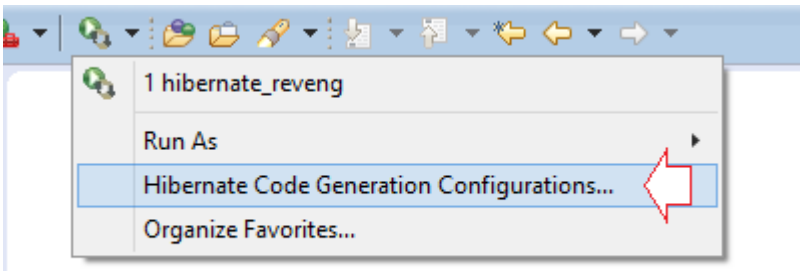
You need to configure to use an older version of **Hibernate**.

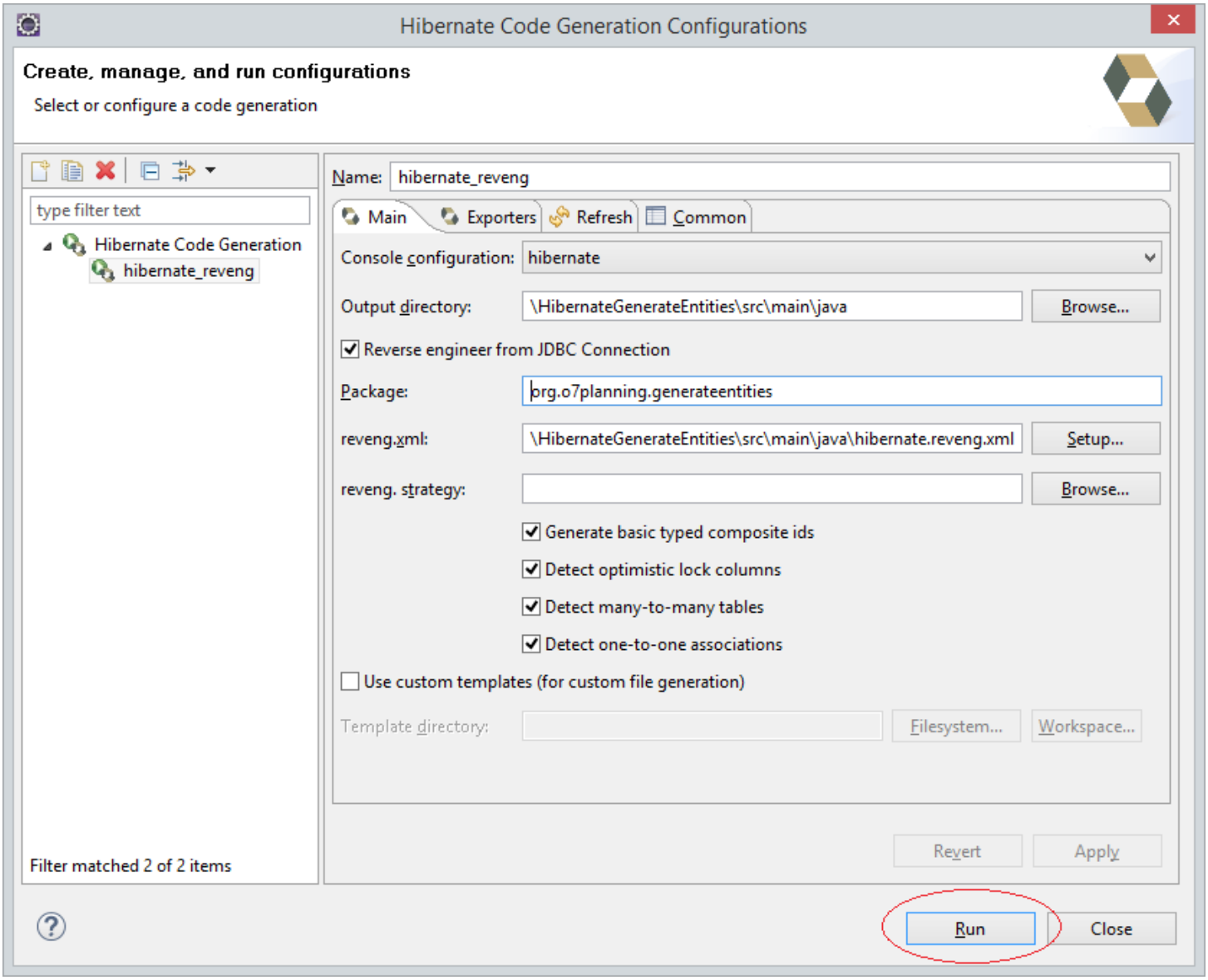

Hibernate Configurations
Package Explorer
hibernate
HQL Editor
Hibernate Criteria Editor
Mapping Diagram
Add Configuration...
Rebuild configuration
Edit Configuration
Close Configuration
Delete Configuration
Refresh
Run SchemaExport


Edit Configuration
Edit launch configuration properties
Select or configure a Console Configuration
Name: hibernate
Main
Options
Classpath
Mappings
Common
Type:
Core
Annotations (jdk 1.5+)
JPA (jdk 1.5+)
Hibernate Version: 5.1
5.1
5.0
4.3
4.0
3.6
3.5
Project:
HibernateGenerateE
Browse...
Database connectio
[Hibernate configured connection]
New...
Edit...
Property file:
Setup...
Configuration file:
\HibernateGenerateEntities\src\main\java\hibernate.cfg.xml
Setup...
Persistence unit:
Browse...
Revert
Apply
OK
Cancel



And rerun to generate the **entities**:





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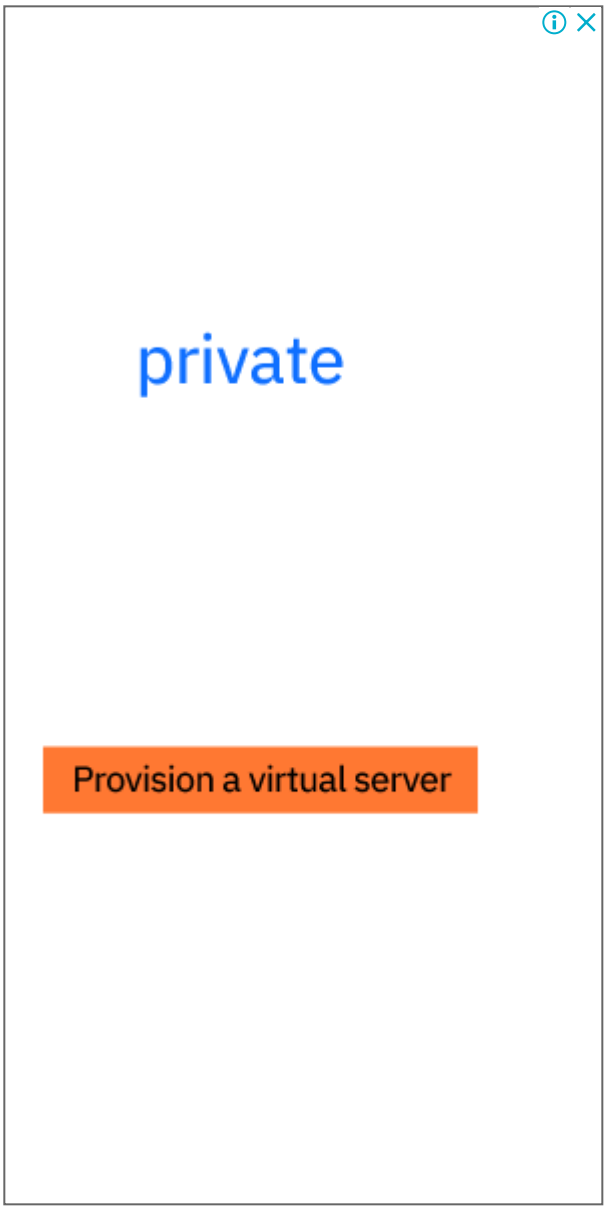

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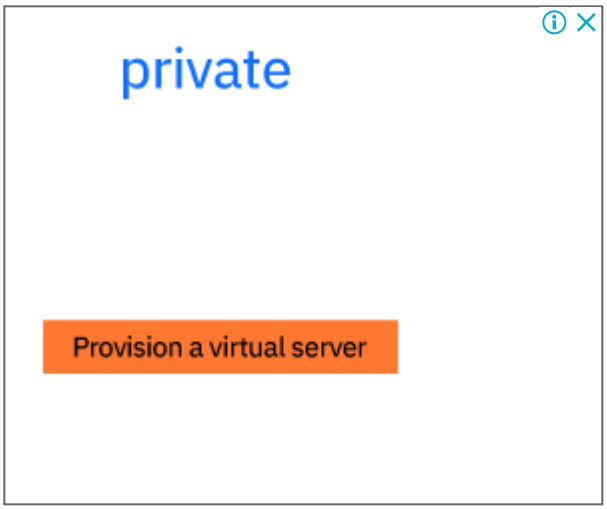
- Java Hibernate reference
- Install JBoss Tools into Eclipse
- Using Hibernate Tools generate entity classes from Tables
- Pagination in Java Hibernate



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