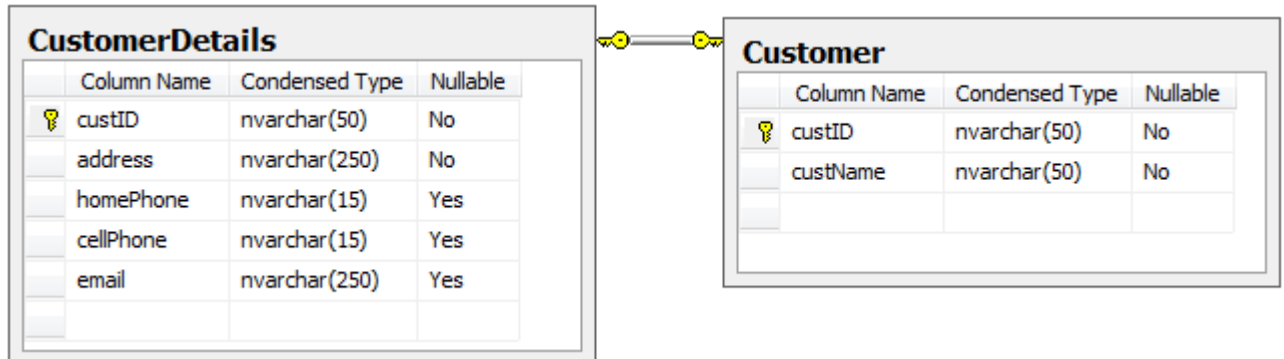


## CMR – One-to-One

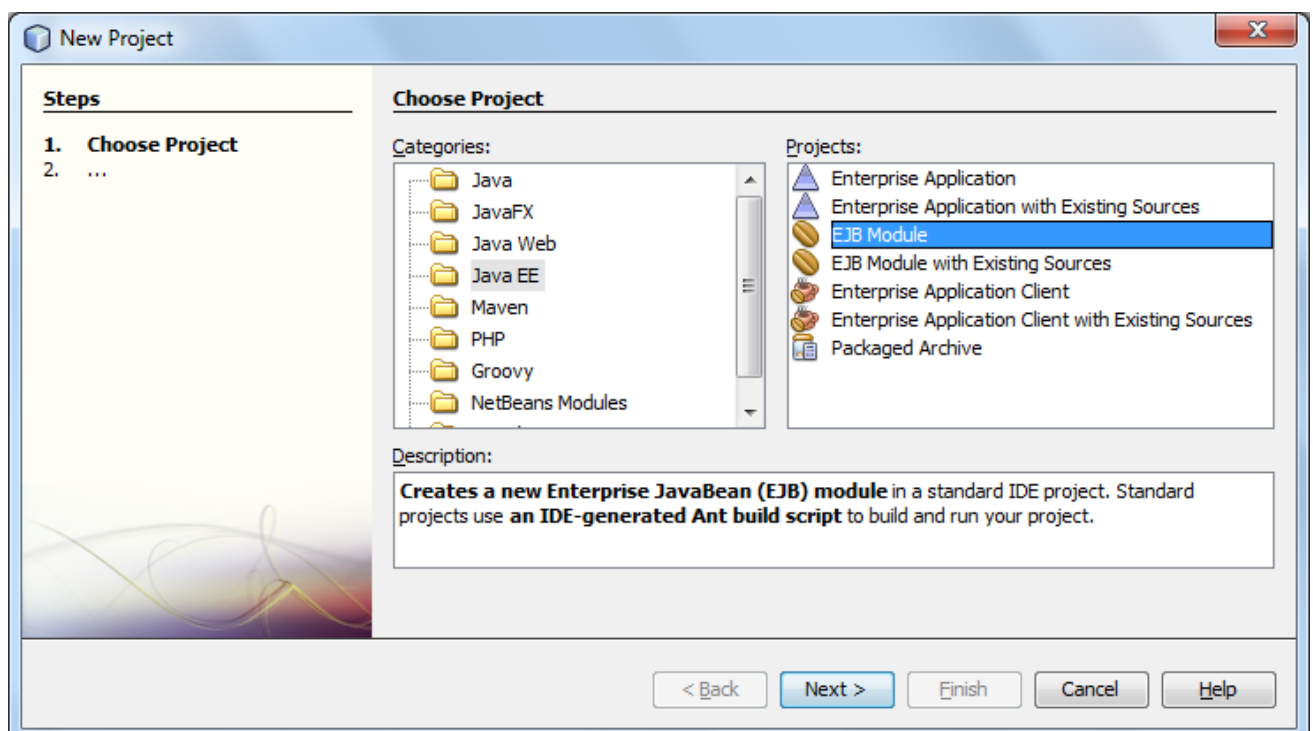
Trong phần này chúng ta làm các bài demo liên quan đến CMR loại 1-1

1. Tạo database có tên CMR\_EJB\_Demos. Tạo 2 bảng Customer và CustomerDetails có cấu trúc như hình sau.

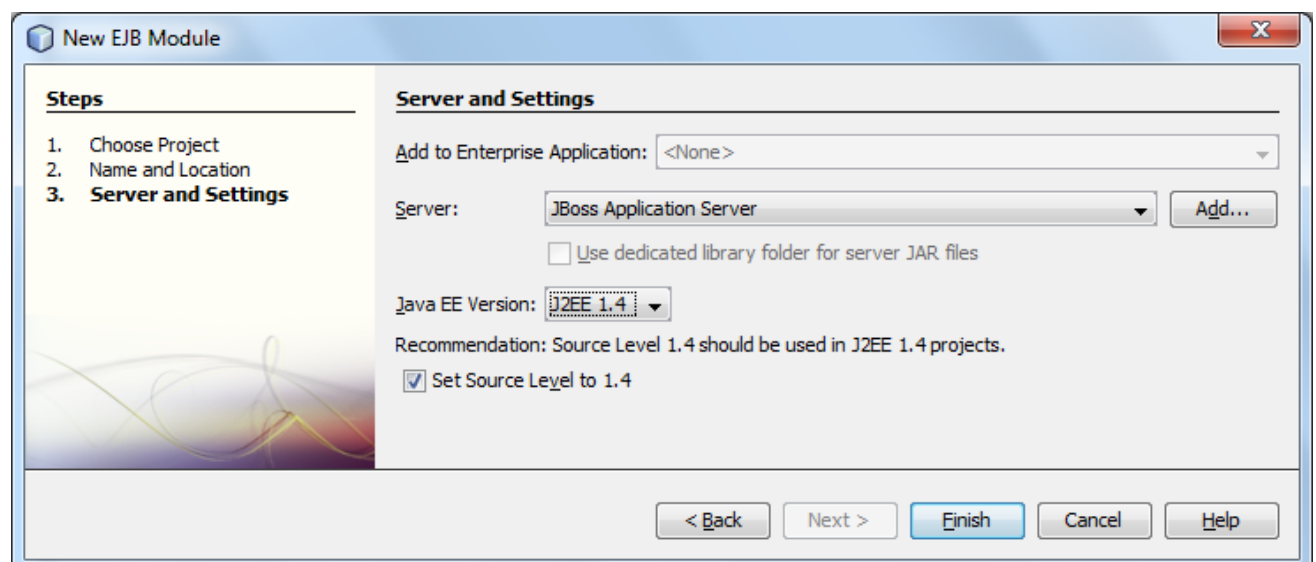
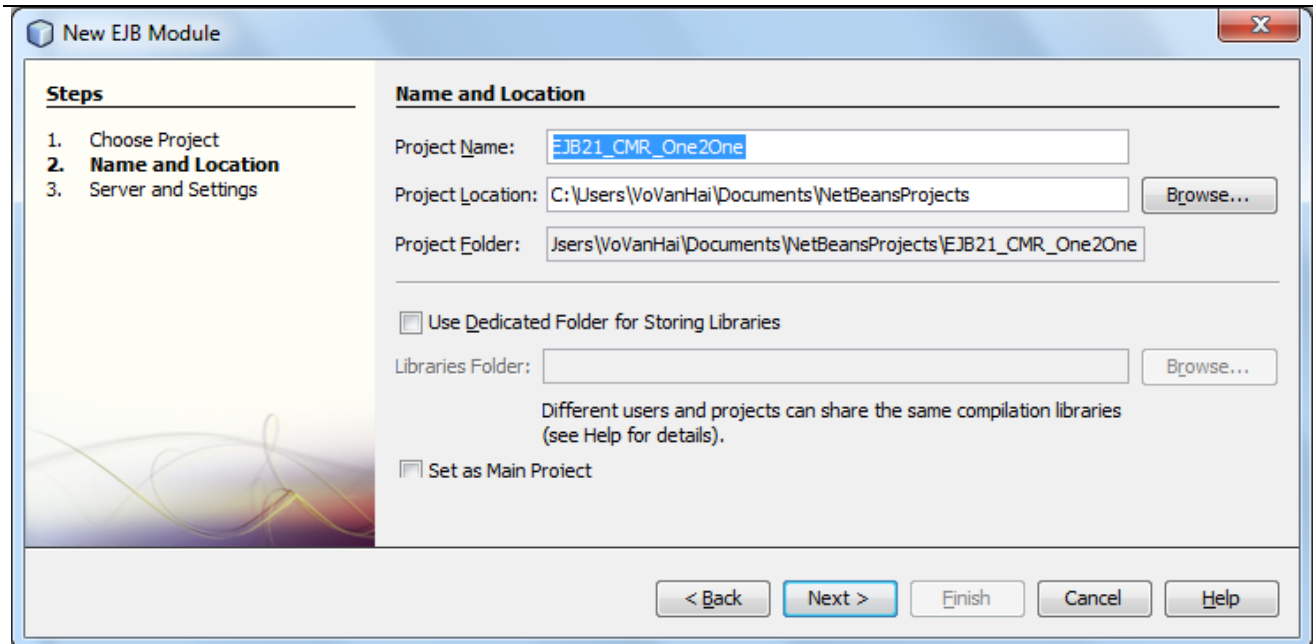


Nhập liệu 1 số mẫu tin thử nghiệm.

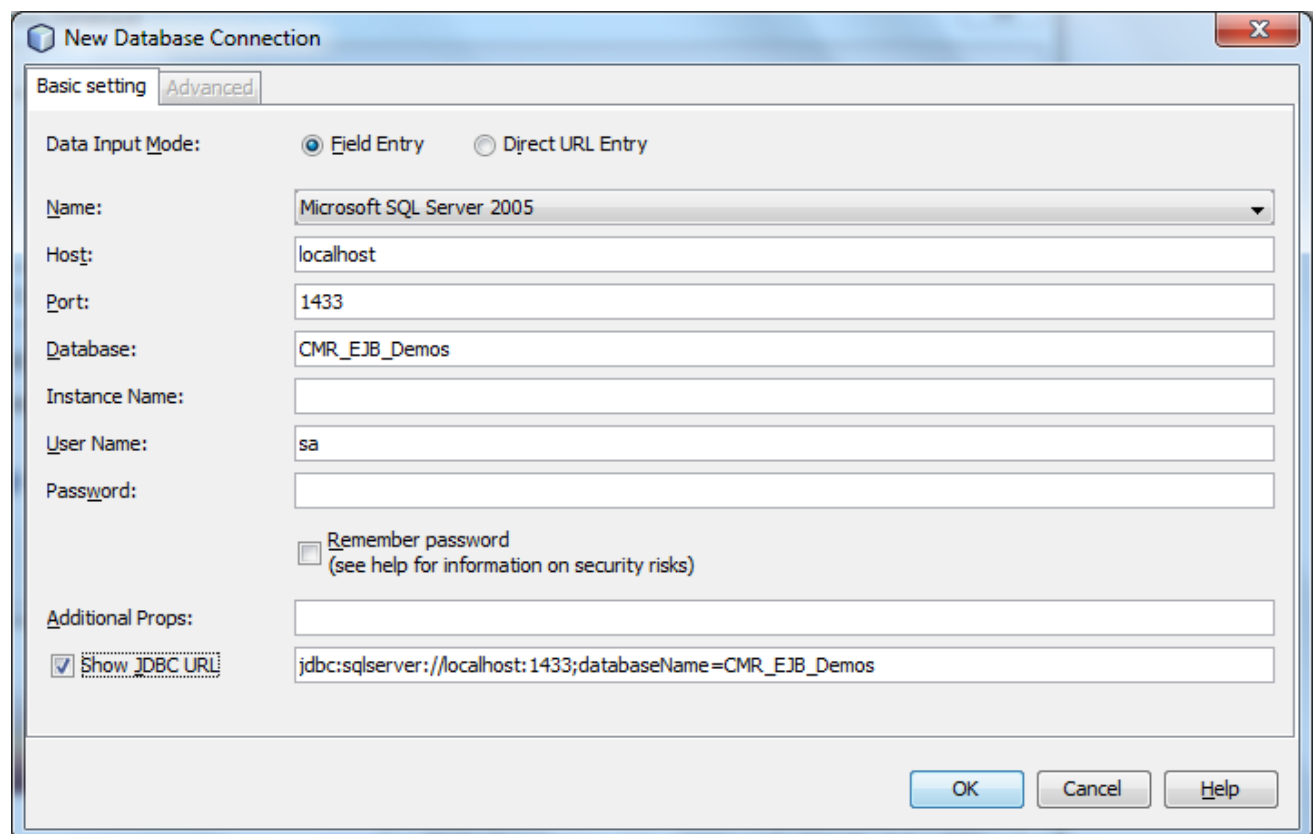
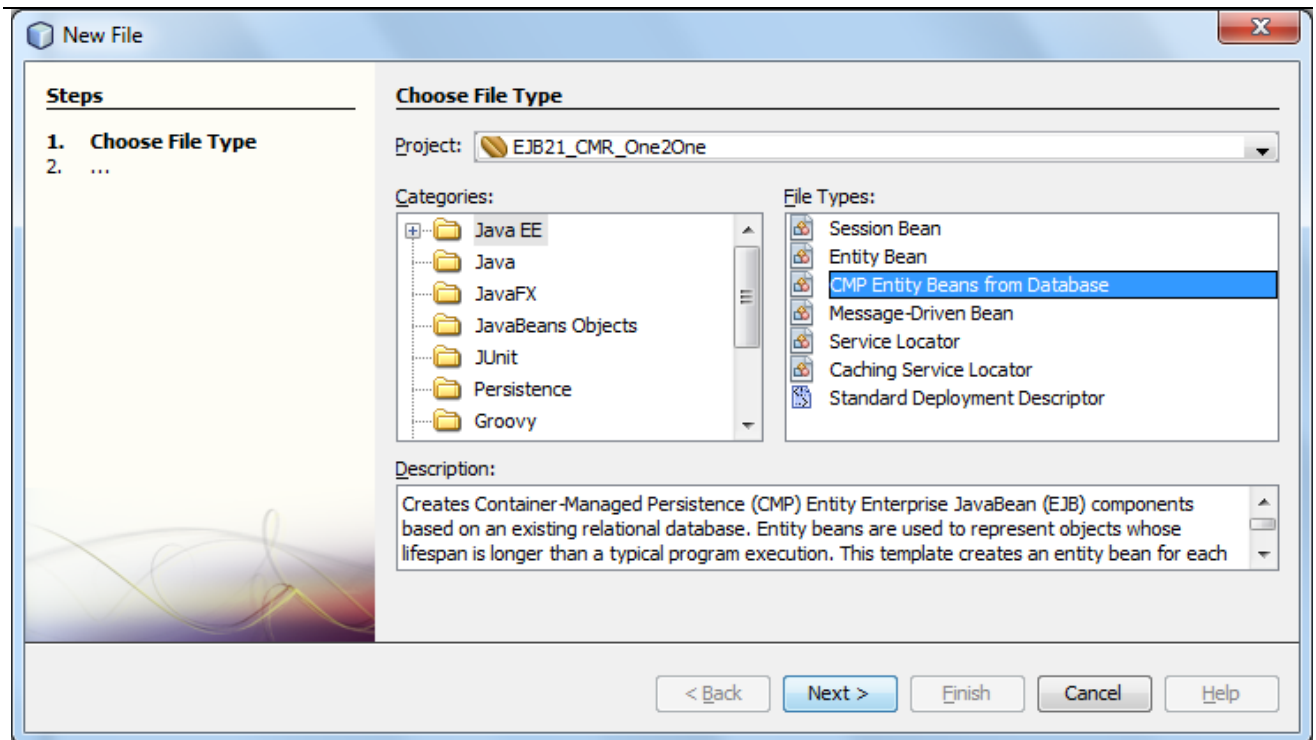
2. Tạo project trong netbeans

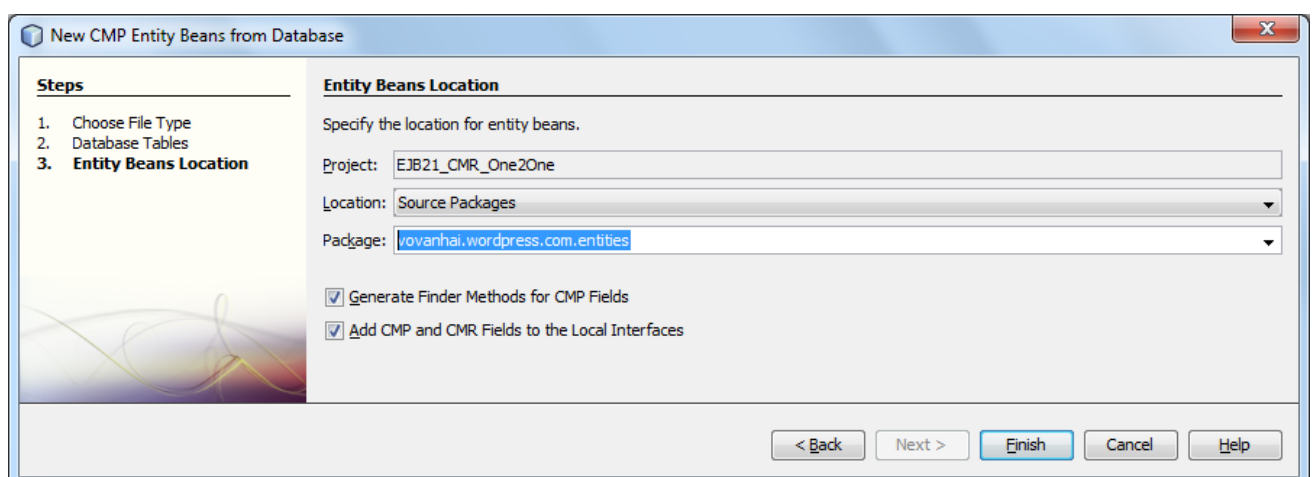
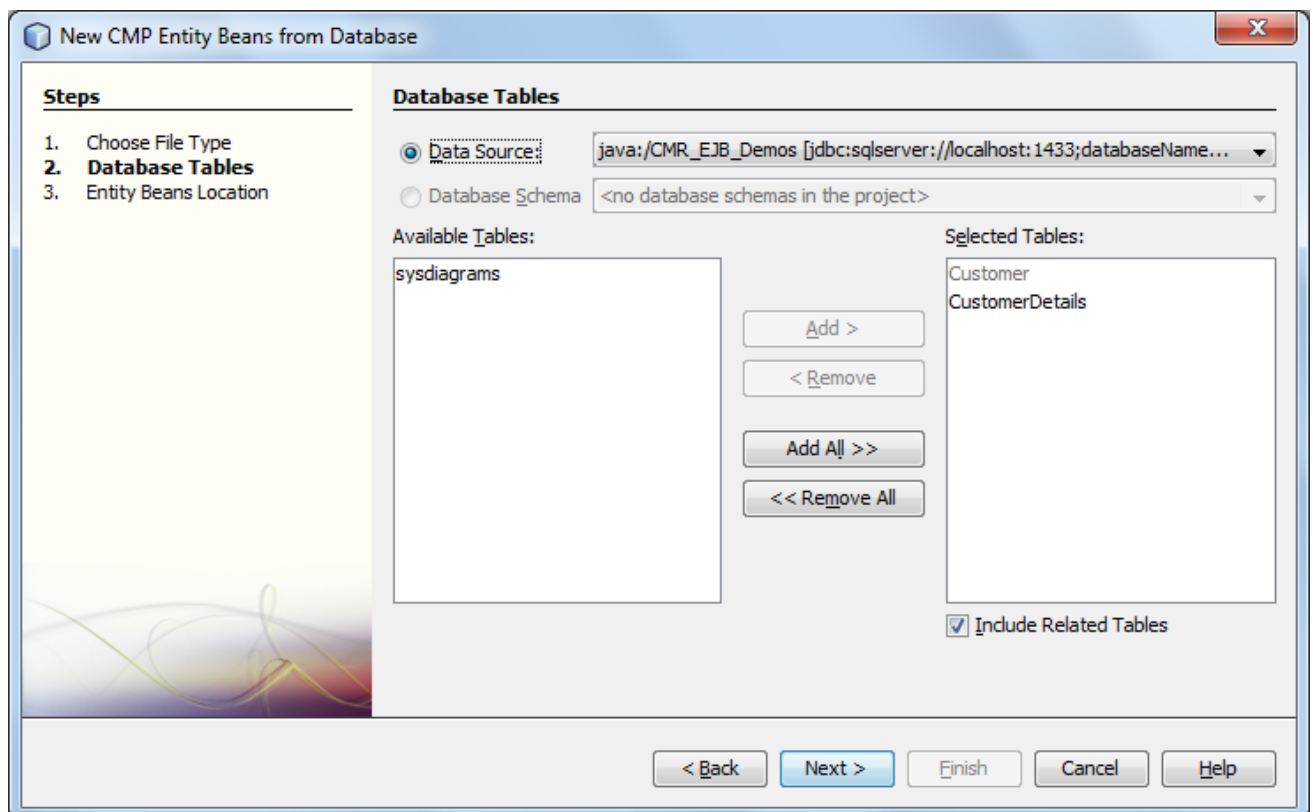
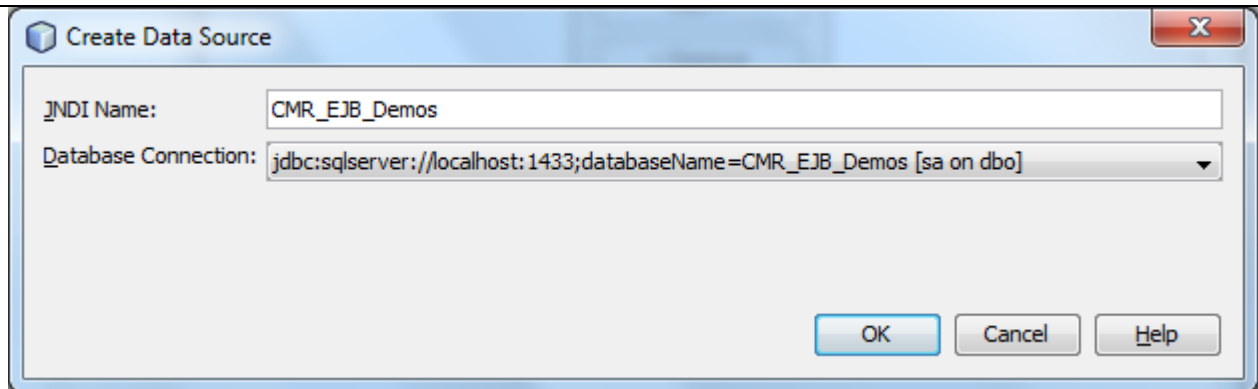


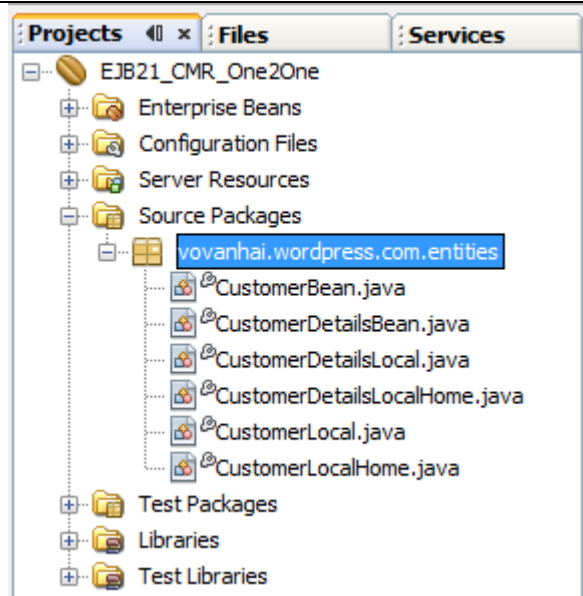
Đặt tên project là: EJB21\_CMR\_One2One



Thêm vào project "CMP Entities Beans from Database" như hình







Ở đây các entity đều là Local nên việc truy xuất nó từ client là không được. Ta tiến hành thay đổi nó về Remote.

Code cho các lớp

Lớp **CustomerHome.java**

```
package vovanhai.wordpress.com.entities;

import java.rmi.RemoteException;
import java.util.Collection;
import javax.ejb.CreateException;
import javax.ejb.EJBHome;
import javax.ejb.FinderException;

/**
 *
 * @author VoVanHai
 */
public interface CustomerHome extends EJBHome {

    vovanhai.wordpress.com.entities.Customer findByPrimaryKey(java.lang.String key) throws
    FinderException, RemoteException;

    vovanhai.wordpress.com.entities.Customer create(String custID, String custName,
    CustomerDetails details) throws CreateException, RemoteException;

    vovanhai.wordpress.com.entities.Customer create(String custID, String custName) throws
    CreateException, RemoteException;

    Collection findByCustID(String custID) throws FinderException, RemoteException;

    Collection findByCustName(String custName) throws FinderException, RemoteException;
}
```

Lớp CustomerBean.java, thêm và sửa code tương ứng trong file này

```
...
public java.lang.String ejbCreate(String custID, String custName) throws CreateException {
```

By Võ Văn Hải – <http://vovanhai.wordpress.com>

```

        if (custID == null) {
            throw new CreateException("The field \"custID\" must not be null");
        }
        setCustID(custID);
        setCustName(custName);
        return custID;
    }

    public java.lang.String ejbCreate(String custID, String custName, CustomerDetails details) throws
    CreateException {
        if (custID == null) {
            throw new CreateException("The field \"custID\" must not be null");
        }
        setCustID(custID);
        setCustName(custName);
        return custID;
    }

    public void ejbPostCreate(String custID, String custName) {
        // TODO populate relationships here if appropriate
    }

    public void ejbPostCreate(String custID, String custName, CustomerDetails details) {
        // TODO populate relationships here if appropriate
        setCustomerDetails(details);
    }
    ...

```

#### Lớp CustomerDetailsHome.java

```

package vovanhai.wordpress.com.entities;

import java.rmi.RemoteException;
import java.util.Collection;
import javax.ejb.CreateException;
import javax.ejb.EJBHome;
import javax.ejb.FinderException;

/**
 *
 * @author VoVanHai
 */
public interface CustomerDetailsHome extends EJBHome {

    CustomerDetails findByPrimaryKey(java.lang.String key) throws FinderException,
    RemoteException;

    CustomerDetails create(String custID, String address,
        String homePhone, String cellPhone, String email) throws CreateException,
    RemoteException;
    //CustomerDetails create(String custID, String address,String homePhone, String cellPhone,
    String email,Customer cust) throws CreateException, RemoteException;

    Collection findByCustID(String custID) throws FinderException, RemoteException;

    Collection findByAddress(String address) throws FinderException, RemoteException;

```

```

Collection findByHomePhone(String homePhone) throws FinderException, RemoteException;

Collection findByCellPhone(String cellPhone) throws FinderException, RemoteException;

Collection findByEmail(String email) throws FinderException, RemoteException;
}

```

### Lớp CustomerDetailsBean.java

```

...
public String ejbCreate(String custID, String address,
    String homePhone, String cellPhone, String email) throws CreateException {
    if (custID == null) {
        throw new CreateException("The field \"key\" must not be null");
    }

    setCustID(custID);
    setAddress(address);
    setHomePhone(homePhone);
    setCellPhone(cellPhone);
    setEmail(email);
    return custID;
}

public String ejbCreate(String custID, String address,
    String homePhone, String cellPhone, String email, Customer cust) throws CreateException {
    if (custID == null) {
        throw new CreateException("The field \"key\" must not be null");
    }

    setCustID(custID);
    setAddress(address);
    setHomePhone(homePhone);
    setCellPhone(cellPhone);
    setEmail(email);

    return custID;
}

public void ejbPostCreate(String custID, String address,
    String homePhone, String cellPhone, String email) {

}

public void ejbPostCreate(String custID, String address,
    String homePhone, String cellPhone, String email, Customer cust) {
    //chú ý chỗ này
    //A CMR field cannot be set in ejbCreate; this should be done in the ejbPostCreate method
    instead
    setCustomer(cust);
}
...

```

### File ejb-jar.xml

```
<?xml version="1.0" encoding="UTF-8"?>
```

```

<ejb-jar version="2.1" xmlns="http://java.sun.com/xml/ns/j2ee"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://java.sun.com/xml/ns/j2ee http://java.sun.com/xml/ns/j2ee/ebj-
jar_2_1.xsd">
  <enterprise-beans>
    <entity>
      <description>jdbc:sqlserver://localhost:1433;databaseName=CMR_EJB_Demos [sa on
dbo]</description>
      <display-name>CustomerEB</display-name>
      <ejb-name>CustomerBean</ejb-name>
      <home>vovanhai.wordpress.com.entities.CustomerHome</home>
      <remote>vovanhai.wordpress.com.entities.Customer</remote>
      <ejb-class>vovanhai.wordpress.com.entities.CustomerBean</ejb-class>
      <persistence-type>Container</persistence-type>
      <prim-key-class>java.lang.String</prim-key-class>
      <reentrant>false</reentrant>
      <abstract-schema-name>Customer</abstract-schema-name>
      <cmp-field>
        <field-name>custID</field-name>
      </cmp-field>
      <cmp-field>
        <field-name>custName</field-name>
      </cmp-field>
      <primkey-field>custID</primkey-field>
      <query>
        <query-method>
          <method-name>findByCustID</method-name>
          <method-params>
            <method-param>java.lang.String</method-param>
          </method-params>
        </query-method>
        <ejb-ql>SELECT OBJECT(c) FROM Customer AS c WHERE c.custID = ?1</ejb-ql>
      </query>
      <query>
        <query-method>
          <method-name>findByCustName</method-name>
          <method-params>
            <method-param>java.lang.String</method-param>
          </method-params>
        </query-method>
        <ejb-ql>SELECT OBJECT(c) FROM Customer AS c WHERE c.custName = ?1</ejb-ql>
      </query>
    </entity>
    <entity>
      <description>jdbc:sqlserver://localhost:1433;databaseName=CMR_EJB_Demos [sa on
dbo]</description>
      <display-name>CustomerDetailsEB</display-name>
      <ejb-name>CustomerDetailsBean</ejb-name>
      <home>vovanhai.wordpress.com.entities.CustomerDetailsHome</home>
      <remote>vovanhai.wordpress.com.entities.CustomerDetails</remote>
      <ejb-class>vovanhai.wordpress.com.entities.CustomerDetailsBean</ejb-class>
      <persistence-type>Container</persistence-type>
      <prim-key-class>java.lang.String</prim-key-class>
      <reentrant>false</reentrant>
      <abstract-schema-name>CustomerDetails</abstract-schema-name>
      <cmp-field>
        <field-name>custID</field-name>
      </cmp-field>

```



```

    <cmp-field>
      <field-name>address</field-name>
    </cmp-field>
    <cmp-field>
      <field-name>homePhone</field-name>
    </cmp-field>
    <cmp-field>
      <field-name>cellPhone</field-name>
    </cmp-field>
    <cmp-field>
      <field-name>email</field-name>
    </cmp-field>
    <primkey-field>custID</primkey-field>
    <query>
      <query-method>
        <method-name>findByCustID</method-name>
        <method-params>
          <method-param>java.lang.String</method-param>
        </method-params>
      </query-method>
      <ejb-ql>SELECT OBJECT(c) FROM CustomerDetails AS c WHERE c.custID = ?1</ejb-
ql>
    </query>
    <query>
      <query-method>
        <method-name>findByAddress</method-name>
        <method-params>
          <method-param>java.lang.String</method-param>
        </method-params>
      </query-method>
      <ejb-ql>SELECT OBJECT(c) FROM CustomerDetails AS c WHERE c.address = ?1</ejb-
ql>
    </query>
    <query>
      <query-method>
        <method-name>findByHomePhone</method-name>
        <method-params>
          <method-param>java.lang.String</method-param>
        </method-params>
      </query-method>
      <ejb-ql>SELECT OBJECT(c) FROM CustomerDetails AS c WHERE c.homePhone =
?1</ejb-ql>
    </query>
    <query>
      <query-method>
        <method-name>findByCellPhone</method-name>
        <method-params>
          <method-param>java.lang.String</method-param>
        </method-params>
      </query-method>
      <ejb-ql>SELECT OBJECT(c) FROM CustomerDetails AS c WHERE c.cellPhone =
?1</ejb-ql>
    </query>
    <query>
      <query-method>
        <method-name>findByEmail</method-name>
        <method-params>
          <method-param>java.lang.String</method-param>

```

```

        </method-params>
    </query-method>
    <ejb-ql>SELECT OBJECT(c) FROM CustomerDetails AS c WHERE c.email = ?1</ejb-ql>
</query>
</entity>
</enterprise-beans>
<relationships>
    <ejb-relation>
        <ejb-relation-name>CustomerDetails-Customer</ejb-relation-name>
        <ejb-relationship-role>
            <ejb-relationship-role-name>CustomerDetails</ejb-relationship-role-name>
            <multiplicity>One</multiplicity>
            <relationship-role-source>
                <ejb-name>CustomerDetailsBean</ejb-name>
            </relationship-role-source>
            <cmr-field>
                <cmr-field-name>customer</cmr-field-name>
            </cmr-field>
        </ejb-relationship-role>
        <ejb-relationship-role>
            <ejb-relationship-role-name>Customer</ejb-relationship-role-name>
            <multiplicity>One</multiplicity>
            <cascade-delete/>
            <relationship-role-source>
                <ejb-name>CustomerBean</ejb-name>
            </relationship-role-source>
            <cmr-field>
                <cmr-field-name>customerDetails</cmr-field-name>
            </cmr-field>
        </ejb-relationship-role>
    </ejb-relation>
</relationships>
<assembly-descriptor>
    <container-transaction>
        <method>
            <ejb-name>CustomerBean</ejb-name>
            <method-name>*</method-name>
        </method>
        <trans-attribute>Required</trans-attribute>
    </container-transaction>
    <container-transaction>
        <method>
            <ejb-name>CustomerDetailsBean</ejb-name>
            <method-name>*</method-name>
        </method>
        <trans-attribute>Required</trans-attribute>
    </container-transaction>
</assembly-descriptor>
</ejb-jar>

```

File jbosscmp-jdbc.xml

```

<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE jbosscmp-jdbc PUBLIC "-//JBoss//DTD JBOSSCMP-JDBC 4.0//EN"
"http://www.jboss.org/j2ee/dtd/jbosscmp-jdbc_4_0.dtd">
<jbosscmp-jdbc>

```

```

<defaults>
  <datasource>java:/CMR_EJB_Demos</datasource>
  <datasource-mapping>MS SQLSERVER</datasource-mapping>
  <create-table>false</create-table>
  <remove-table>false</remove-table>
</defaults>
<enterprise-beans>
  <entity>
    <ejb-name>CustomerBean</ejb-name>
    <datasource>java:/CMR_EJB_Demos</datasource>
    <datasource-mapping>MS SQLSERVER</datasource-mapping>
    <create-table>false</create-table>
    <table-name>Customer</table-name>
    <cmp-field>
      <field-name>custID</field-name>
      <column-name>custID</column-name>
    </cmp-field>
    <cmp-field>
      <field-name>custName</field-name>
      <column-name>custName</column-name>
    </cmp-field>
  </entity>
  <entity>
    <ejb-name>CustomerDetailsBean</ejb-name>
    <datasource>java:/CMR_EJB_Demos</datasource>
    <datasource-mapping>MS SQLSERVER</datasource-mapping>
    <create-table>false</create-table>
    <table-name>CustomerDetails</table-name>
    <cmp-field>
      <field-name>custID</field-name>
      <column-name>custID</column-name>
    </cmp-field>
    <cmp-field>
      <field-name>address</field-name>
      <column-name>address</column-name>
    </cmp-field>
    <cmp-field>
      <field-name>homePhone</field-name>
      <column-name>homePhone</column-name>
    </cmp-field>
    <cmp-field>
      <field-name>cellPhone</field-name>
      <column-name>cellPhone</column-name>
    </cmp-field>
    <cmp-field>
      <field-name>email</field-name>
      <column-name>email</column-name>
    </cmp-field>
  </entity>
</enterprise-beans>
<relationships>
  <ejb-relation>
    <ejb-relation-name>CustomerDetails-Customer</ejb-relation-name>
    <ejb-relationship-role>
      <ejb-relationship-role-name>CustomerDetails</ejb-relationship-role-name>
      <key-fields>
        <key-field>
          <field-name>custID</field-name>

```

```

        <column-name>custID</column-name>
      </key-field>
    </key-fields>
  </ejb-relationship-role>
<ejb-relationship-role>
  <ejb-relationship-role-name>Customer</ejb-relationship-role-name>
  <key-fields>
    <key-field>
      <field-name>custID</field-name>
      <column-name>custID</column-name>
    </key-field>
  </key-fields>
</ejb-relationship-role>
</ejb-relation>
</relationships>
</jbosscmp-jdbc>

```

File jboss.xml

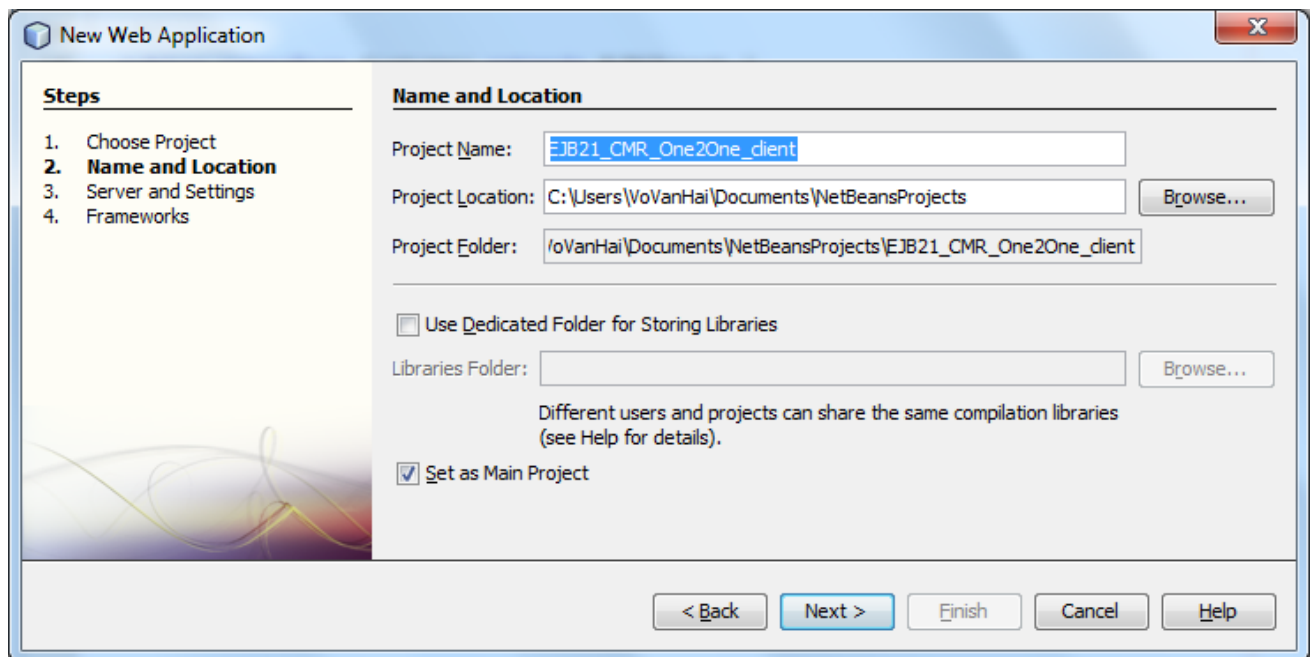
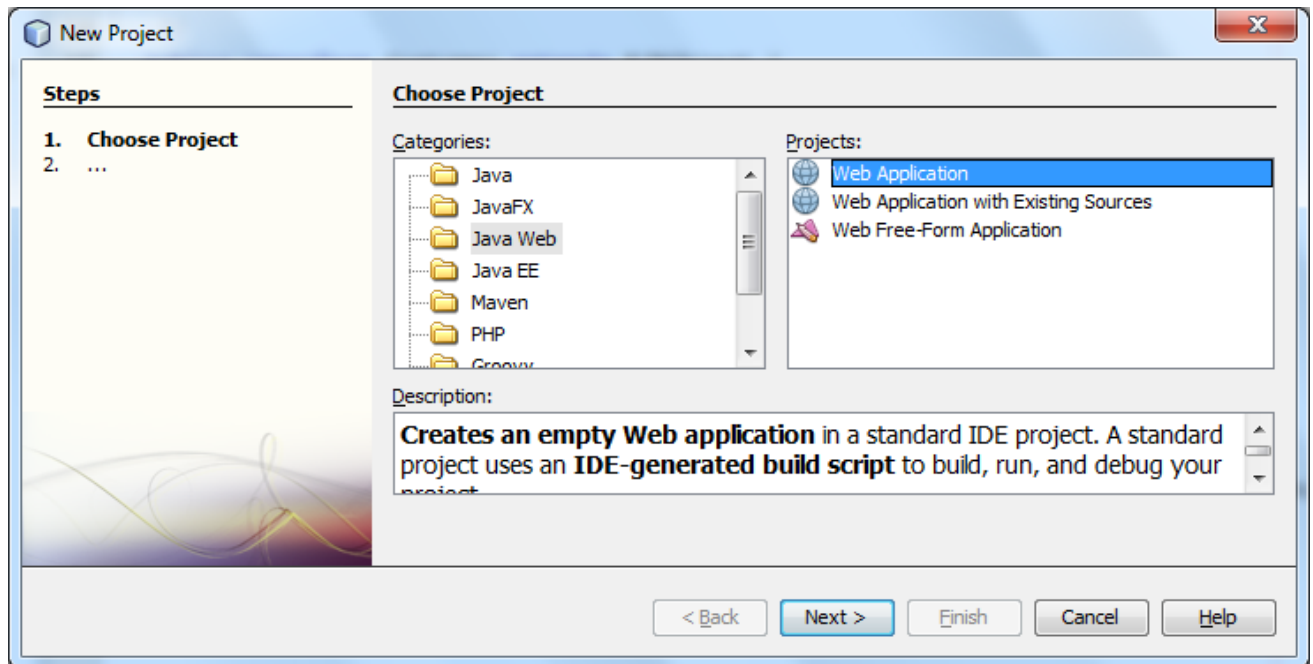
```

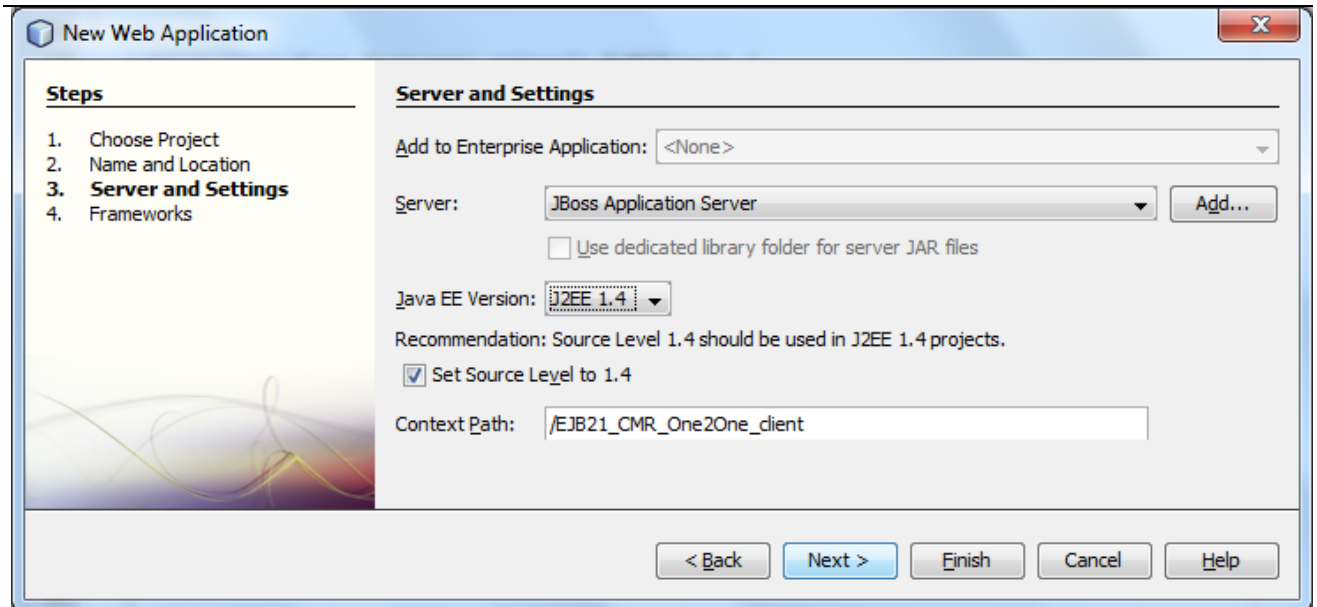
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE jboss PUBLIC "-//JBoss//DTD JBOSS 4.0//EN"
"http://www.jboss.org/j2ee/dtd/jboss_4_0.dtd">
<jboss>
  <enterprise-beans>
    <entity>
      <ejb-name>CustomerBean</ejb-name>
      <jndi-name>CustomerBean</jndi-name>
    </entity>
    <entity>
      <ejb-name>CustomerDetailsBean</ejb-name>
      <jndi-name>CustomerDetailsBean</jndi-name>
    </entity>
  </enterprise-beans>
  <container-configurations>
    <container-configuration extends="Standard CMP 2.x EntityBean">
      <container-name>INSERT after ejbPostCreate Container</container-name>
      <insert-after-ejb-post-create>true</insert-after-ejb-post-create>
    </container-configuration>
  </container-configurations>
</jboss>

```

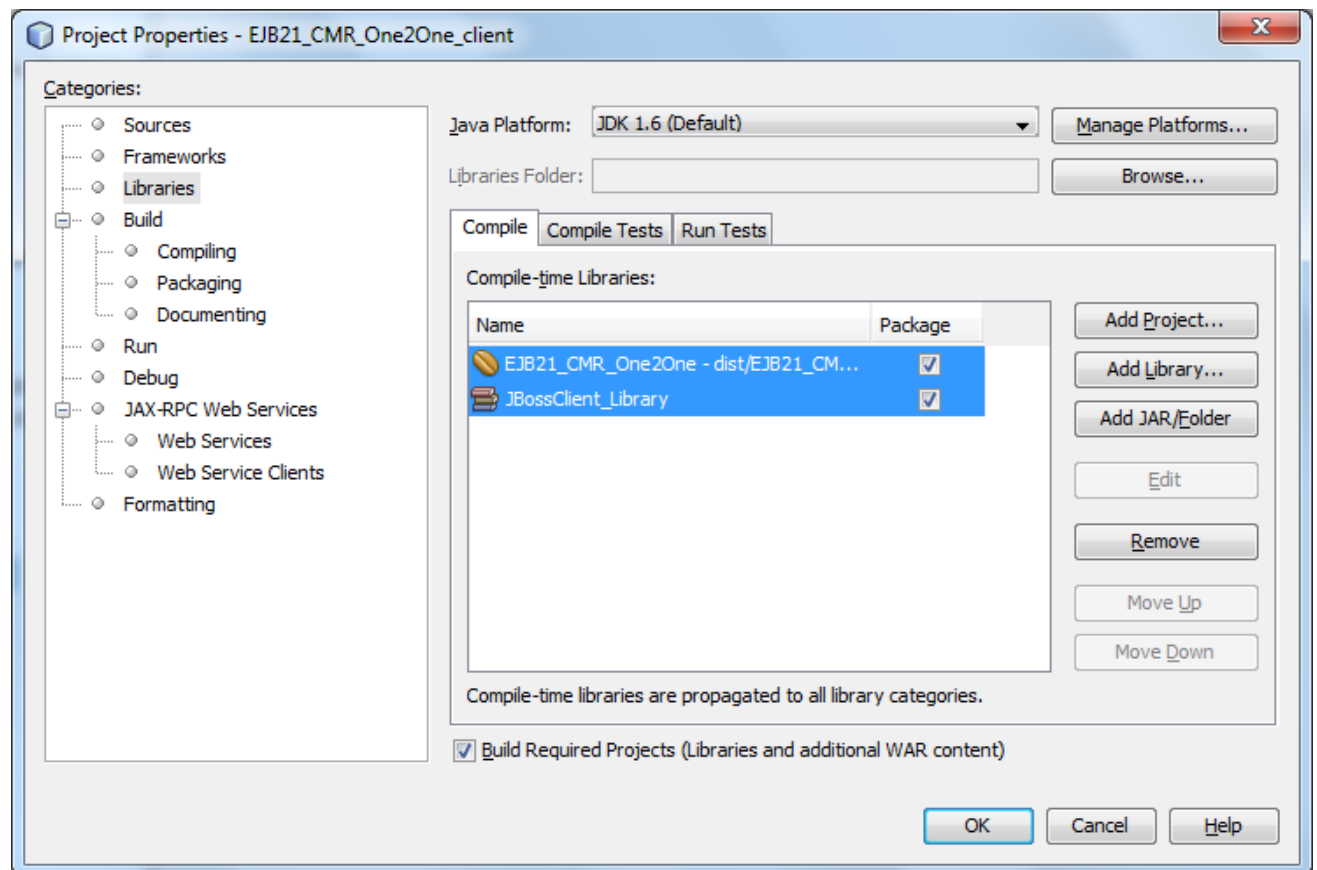
Bây giờ triển khai.

## Tạo client

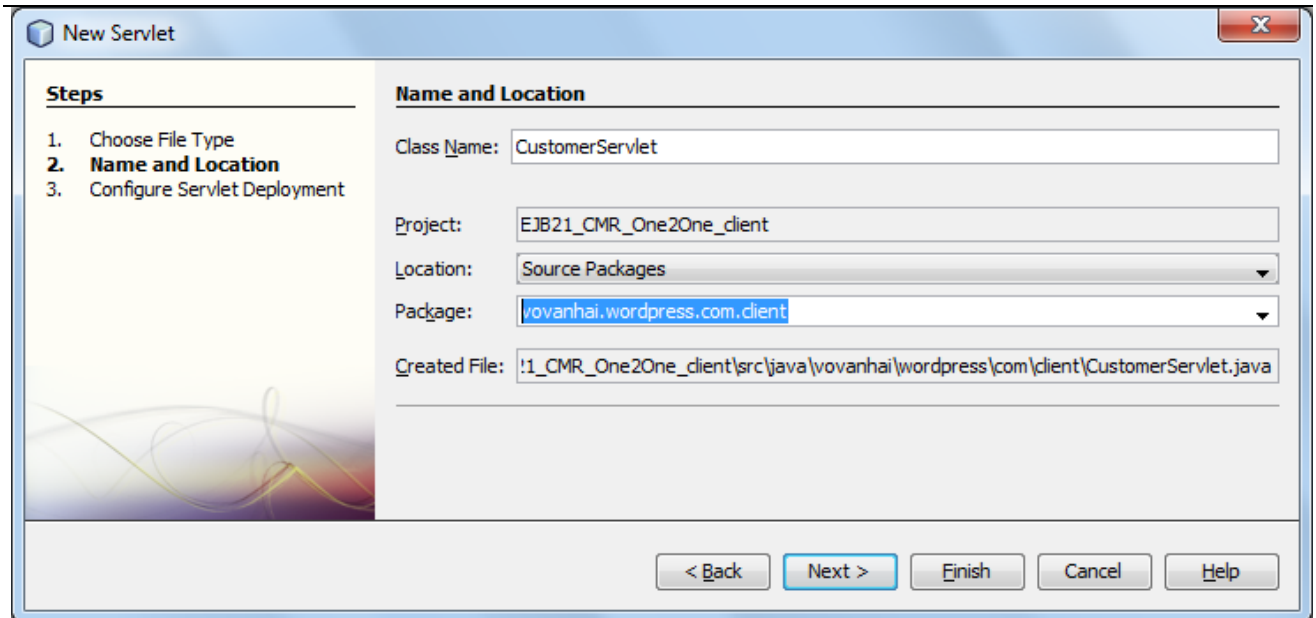




Thêm tham chiếu



Thêm 1 servlet như sau:



Code đoạn xử lý:

```
protected void processRequest(HttpServletRequest request, HttpServletResponse response)
    throws ServletException, IOException {
    response.setContentType("text/html;charset=UTF-8");
    PrintWriter out = response.getWriter();
    try {
        System.setProperty(Context.INITIAL_CONTEXT_FACTORY,
            "org.jnp.interfaces.NamingContextFactory");
        System.setProperty(Context.PROVIDER_URL, "localhost:1099");
        InitialContext ctx = new InitialContext();
        Object obj1 = ctx.lookup("CustomerBean");
        Object obj2=ctx.lookup("CustomerDetailsBean");
        CustomerHome home1=(CustomerHome)obj1;
        CustomerDetailsHome home2=(CustomerDetailsHome)obj2;

        Customer cust=home1.create("cust001", "Nguyễn Văn tèo");
        CustomerDetails details=home2.create("cust001", "7 Nam Quốc Cang",
            "081234567", "09037654321", "teo@yahoo.com");

        System.out.println(cust);
    } catch (Exception ex) {
        out.println(ex.getMessage());
    } finally {
        out.close();
    }
}
```

Chúc thành công!