

# Phát triển ứng dụng Webservice JAX-WS trên MyEclipse



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# Nội dung

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- 1. Mô tả bài toán
- 2. Cài đặt server
- 3. Cài đặt client



# 1. Mô tả bài toán

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- Có 1 kho sách-Book. Mỗi Book có các thuộc tính:
  - String ISBN;
  - ArrayList<Author> authors;
  - int noOfPages;
- Trong đó, lớp Author chỉ có thuộc tính:
  - int age;
  - String name;
- Cần cung cấp dịch vụ:
  - Lấy ra tất cả các quyển sách viết bởi 1 tác giả:
    - Input: String authorName
    - Output: ArrayList<Book> books



## 2. Cài đặt server - Các bước thực hiện

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- **Step 1:** Tạo Project mới, viết package data
  - Lớp Author
  - Lớp Book
  - Lớp BookStores
  - **Bắt buộc phải có constructor mặc định cho Author, Book**
    - **Tổng quát: Cho tất cả các đối tượng truyền trên service**
- **Step 2:** Viết Java bean class cung cấp service
- **Step 3:** Triển khai thành dịch vụ
- **Step 4:** Thử nghiệm
- **Step 5:** Cài đặt trên server Tomcat

## 2.1. Bước 1

- Tạo 1 web service project, chọn loại jax-ws

**New Web Services Project**

A project with that name already exists in the workspace.

**Web Project Details**

Project Name:

Location: ☒ Use default location

Directory:

Source folder:

Web root folder:

Context root URL:

**Maven**

☐ Add Maven support

[Learn more about Maven4MyEclipse...](#)

**Web Service & J2EE Details**

Framework: ☒ JAX-WS ☐ XFire ([deprecated](#))

J2EE specification: ☒ Java EE 5.0 ☐ J2EE 1.4 ☐ J2EE 1.3



## 2.1. Bước 1 (2)

---

```
package data;
```

```
public class Author {  
    private int age;  
    private String name;  
    public Author() {  
        super();  
    }
```

```
    public Author(int age, String name) {  
        this.age = age;  
        this.name = name;  
    }  
    public String getName() {  
        return name;  
    }  
}
```



## 2.1. Bước 1 (2)

---

```
public class Book {
    private String ISBN;
    private ArrayList<Author> authors;
    private int noOfPages;
    public Book() {
        super();
    }
    public Book(String isbn, int noOfPages, ArrayList<Author> authors) {
        ISBN = isbn;
        this.authors = authors;
        this.noOfPages = noOfPages;
    }
    public Boolean checkAuthor(String authorName)
    {
        for (Author author : authors) {
            if (author.getName().equals(authorName))
                return true;
        }
        return false;
    }
    public String getISBN() {return ISBN;}
    public void setISBN(String isbn) {ISBN = isbn;}
}
```

## 2.1. Bước 1 (3)

```
public class BookStores {
    private static BookStores bookStores;
    private ArrayList<Book> books;

    private void init()
    {
        Author peter= new Author(40, "Peter");
        Author tom= new Author(46, "Tom");
        Author bob = new Author(56, "Bob");
        Author alice = new Author(56, "Alice");
        ArrayList<Author> javaAuthors
            = new ArrayList<Author>();
        javaAuthors.add(peter);
        javaAuthors.add(tom);
        javaAuthors.add(bob);
        ArrayList<Author> phpAuthors
            = new ArrayList<Author>();
        phpAuthors.add(alice);
        phpAuthors.add(tom);
        phpAuthors.add(bob);
        ArrayList<Author> csharpAuthors =
            new ArrayList<Author>();
        csharpAuthors.add(peter);
        csharpAuthors.add(alice);
        csharpAuthors.add(bob);
        this.books = new ArrayList<Book>();
        this.books.add(new Book("456789IN", 304, javaAuthors));
        this.books.add(new Book("567891IN", 304, phpAuthors));
        this.books.add(new Book("576098IN", 304, csharpAuthors));
    }
}
```

```
public static BookStores getInstance()
{
    if (BookStores.bookStores == null)
    {
        BookStores.bookStores = new BookStores();
        BookStores.bookStores.init();
    }
    return BookStores.bookStores;
}

public ArrayList<Book> getBooksOfAuthor(String
    authorName)
{
    ArrayList<Book> result = new ArrayList<Book>();
    for (Book book : books) {
        if (book.checkAuthor(authorName))
            result.add(book);
    }
    return result;
}
}
```





## 2.2. Bước 2

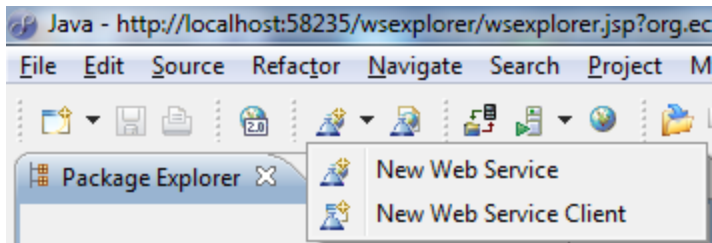
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- Bước 2: Viết Java bean class cung cấp service

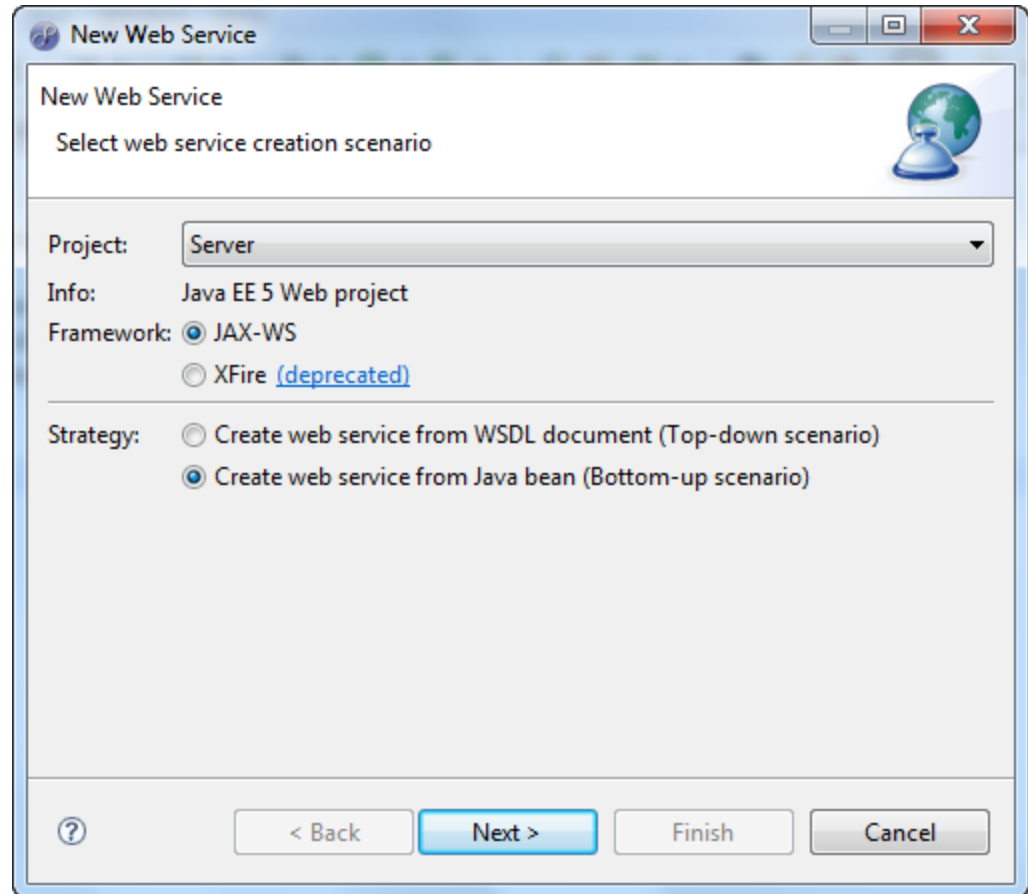
```
public class BookService {  
    public ArrayList<Book> getBooksOfAnAuthor(String authorName) {  
        return BookStores.getInstance().getBooksOfAuthor(authorName);  
    }  
}
```

## 2.3. Bước 3 - Triển khai thành dịch vụ

- Chọn new web service

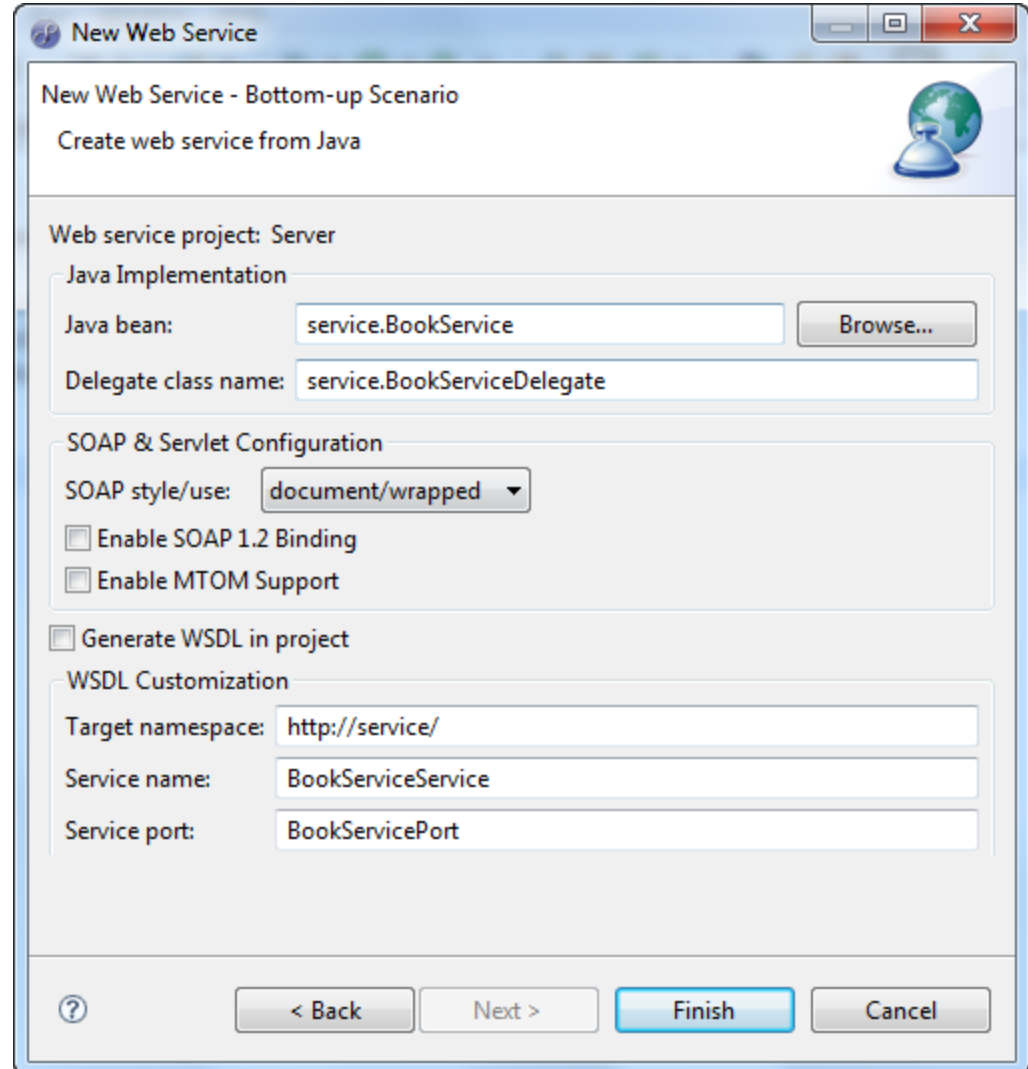


- Sử dụng cách bottom-up



## 2.3. Bước 3 - Triển khai thành dịch vụ (2)

- Chọn đến lớp java bean BookService, nhấn finish
- Run project



The screenshot shows the 'New Web Service' dialog box with the title 'New Web Service - Bottom-up Scenario'. The subtitle is 'Create web service from Java'. The 'Web service project' is set to 'Server'. Under 'Java Implementation', the 'Java bean' is 'service.BookService' and the 'Delegate class name' is 'service.BookServiceDelegate'. There is a 'Browse...' button next to the Java bean field. Under 'SOAP & Servlet Configuration', the 'SOAP style/use' is set to 'document/wrapped'. There are checkboxes for 'Enable SOAP 1.2 Binding' and 'Enable MTOM Support', both of which are unchecked. There is also a checkbox for 'Generate WSDL in project', which is unchecked. Under 'WSDL Customization', the 'Target namespace' is 'http://service/', the 'Service name' is 'BookServiceService', and the 'Service port' is 'BookServicePort'. At the bottom, there are buttons for '< Back', 'Next >', 'Finish', and 'Cancel'. A help icon (?) is also present.

## 2.4. Thử nghiệm với uddi của myeclipse

- Mở Web Services Explorer, nhập vào địa chỉ:
  - <http://localhost:8080/Server/BookServicePort?WSDL>

The screenshot shows the MyEclipse IDE with the Web Services Explorer plugin open. The top toolbar includes icons for back, forward, and other navigation functions. The main window is divided into several panes:

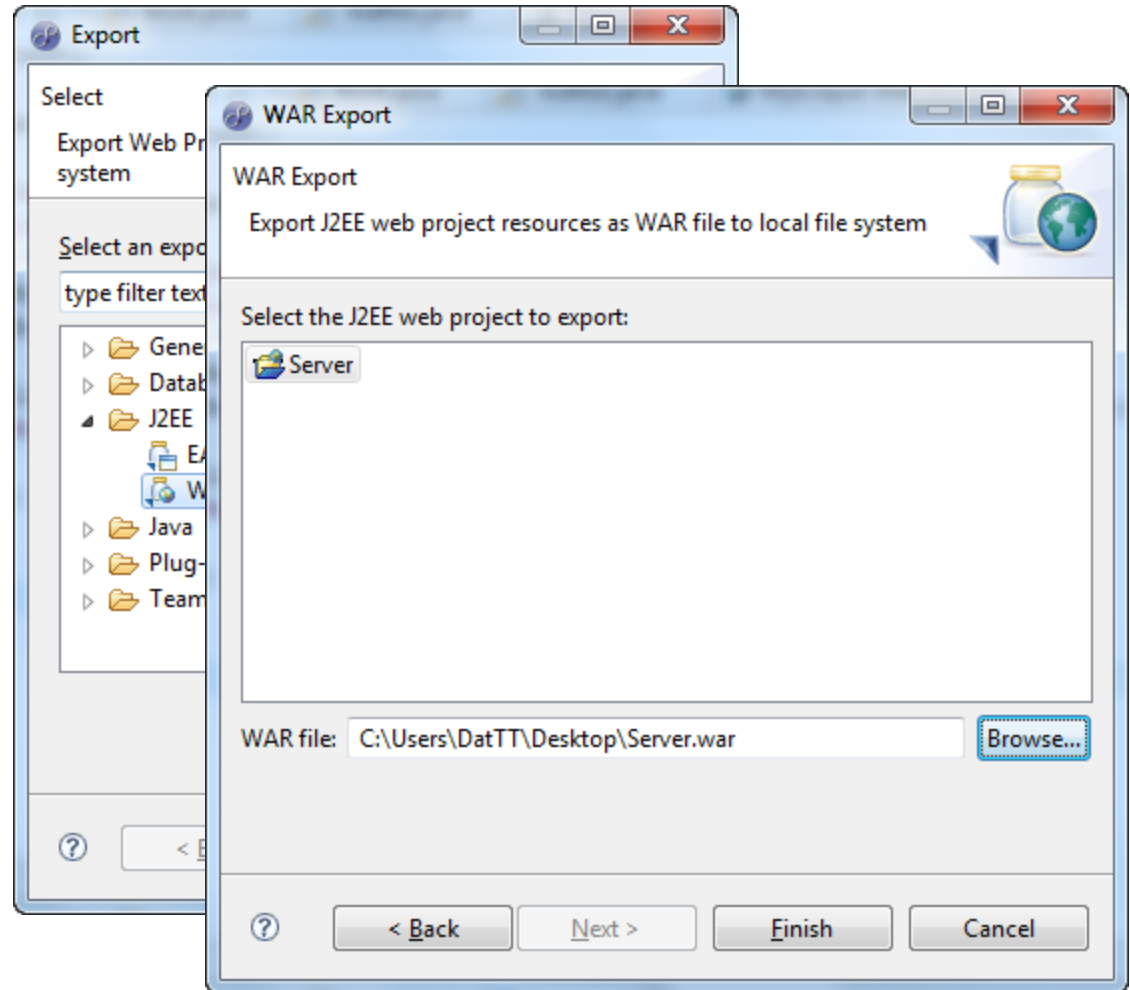
- Navigator:** Displays the project structure. The tree shows 'WSDL Main' expanded, with 'http://localhost:8080/Server/BookServicePort?WSDL' selected. Below it, 'BookServiceService' is expanded, and 'BookServicePortBinding' is selected.
- Actions:** Contains the 'WSDL Binding Details' section. It includes a description: 'Shown below are the details for this SOAP <binding> element. Click on an operation to fill in its parameters and invoke it or specify additional endpoints.' Below this is an 'Operations' section with a table:

Name	Documentation
<a href="#">getBooksOfAnAuthor</a>	--

- Below the table is an 'Endpoints' section with 'Add' and 'Remove' links. The 'Endpoints' list is currently empty.
- Status:** At the bottom, a status bar shows the message: 'IWAB0381I http://localhost:8080/Server/BookServicePort?WSDL was successfully opened.'

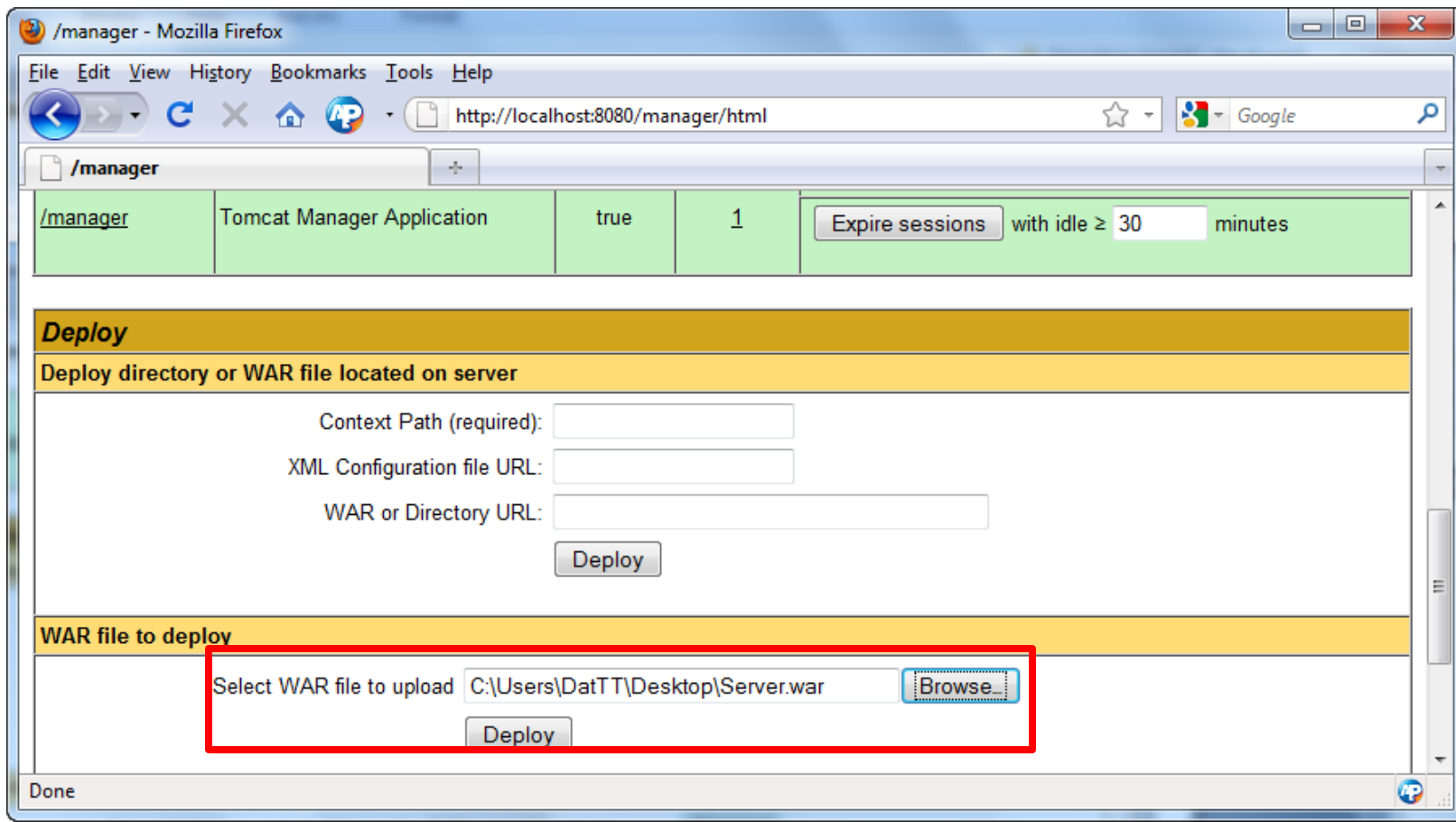
## 2.5. Triển khai trên server tomcat

- Export ra file war:
  - Từ popup menu chuột phải ở project server, chọn export
  - Chọn đường dẫn lưu trữ file war



## 2.5. Triển khai trên server tomcat (2)

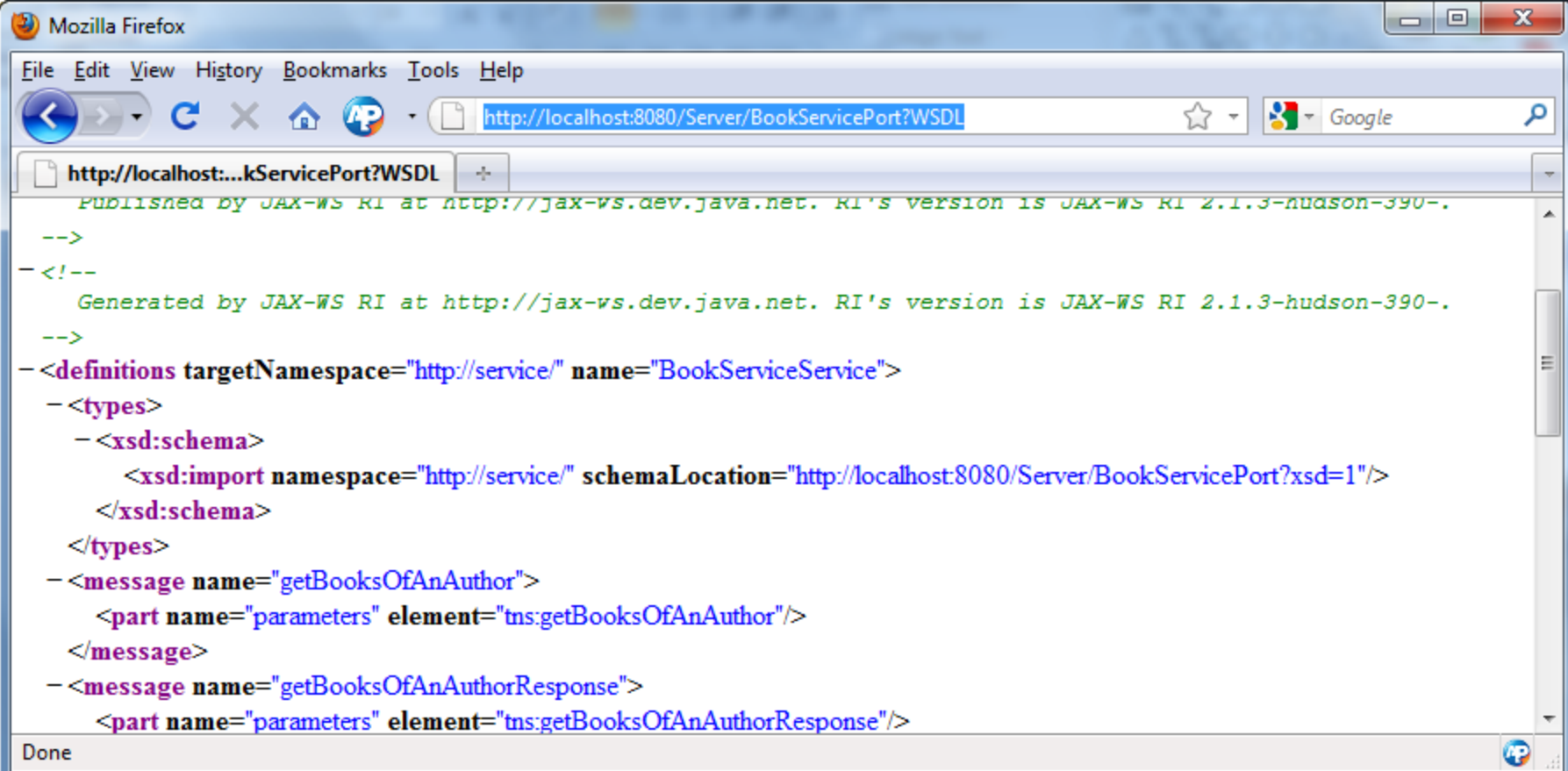
- Cài đặt tomcat, vào tomcat manager
- Deploy file war vừa export



## 2.5. Triển khai trên server tomcat (3)

- Test thử WSDL:

<http://localhost:8080/Server/BookServicePort?WSDL>

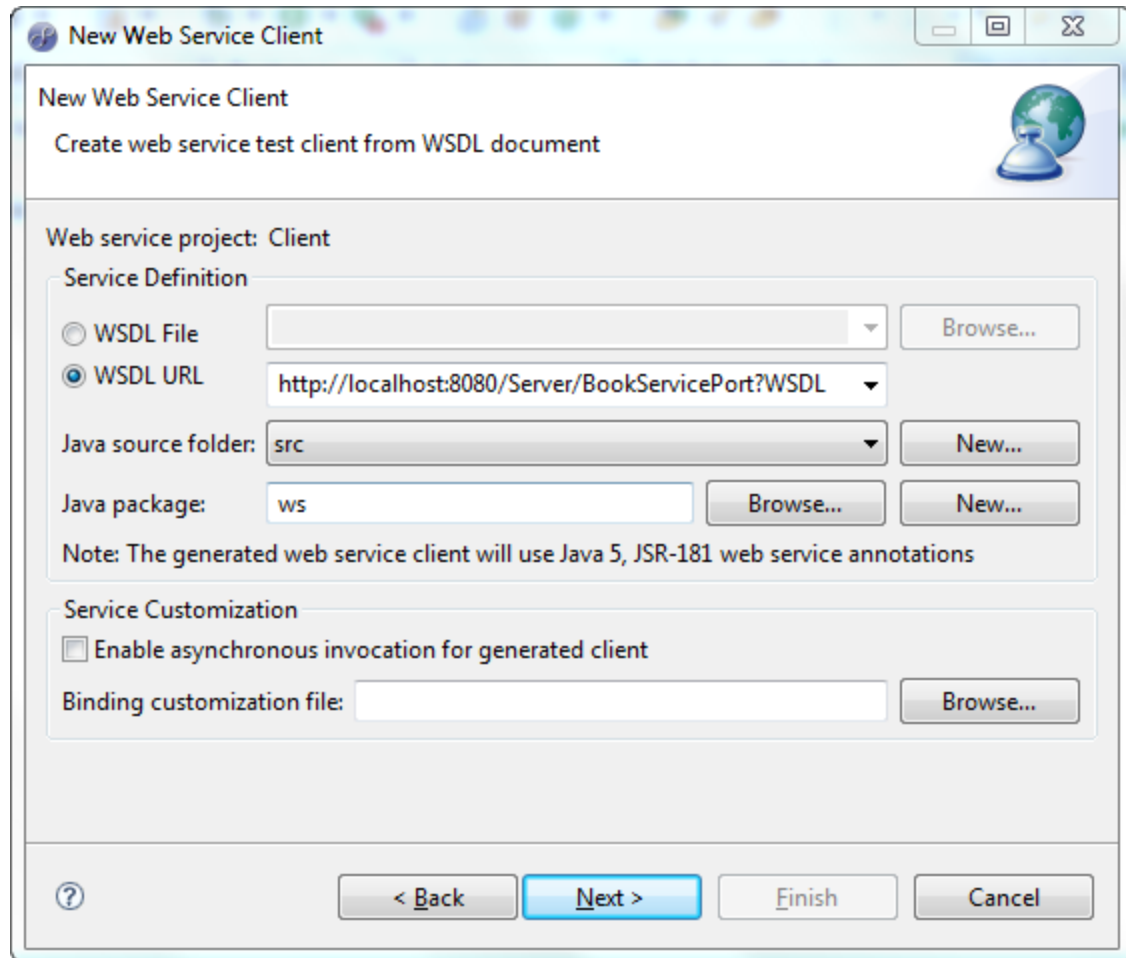
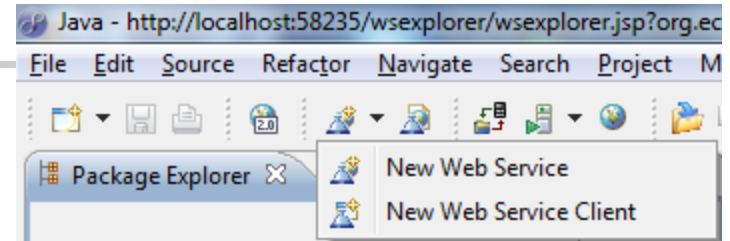


```
Published by JAX-WS RI at http://jax-ws.dev.java.net. RI's version is JAX-WS RI 2.1.3-hudson-390-.
-->
- <!--
  Generated by JAX-WS RI at http://jax-ws.dev.java.net. RI's version is JAX-WS RI 2.1.3-hudson-390-.
-->
- <definitions targetNamespace="http://service/" name="BookServiceService">
- <types>
- <xsd:schema>
- <xsd:import namespace="http://service/" schemaLocation="http://localhost:8080/Server/BookServicePort?xsd=1"/>
- </xsd:schema>
- </types>
- <message name="getBooksOfAnAuthor">
- <part name="parameters" element="tns:getBooksOfAnAuthor"/>
- </message>
- <message name="getBooksOfAnAuthorResponse">
- <part name="parameters" element="tns:getBooksOfAnAuthorResponse"/>
- </message>
- </definitions>
```

Done

# 3. Cài đặt client

- Bước 1: Tạo Client project, tạo web service client
  - New → Web service client, chọn JAX-WS, nhập <http://localhost:8080/Server/BookServicePort?WSDL>, chọn package client sẽ deploy service
  - (Chú ý server phải được start)







## 3. Cài đặt client (2)

- Bước 2: Viết code thử nghiệm ở client

```
public class TestServer {  
    public static void main(String[] args) {  
        BookServiceService service = new BookServiceService();  
        BookServiceDelegate delegate = service.getBookServicePort();  
  
        List<Book> books= delegate.getBooksOfAnAuthor("Peter");  
        for (Book book : books) {  
            System.out.println(book.getISBN());  
        }  
    }  
}
```

- Kết quả:

```
456789IN  
576098IN
```