STRUTS FRAMEWORK COURSE

INTERNATIONALIZATION WITH STRUTS 2 FRAMEWORK

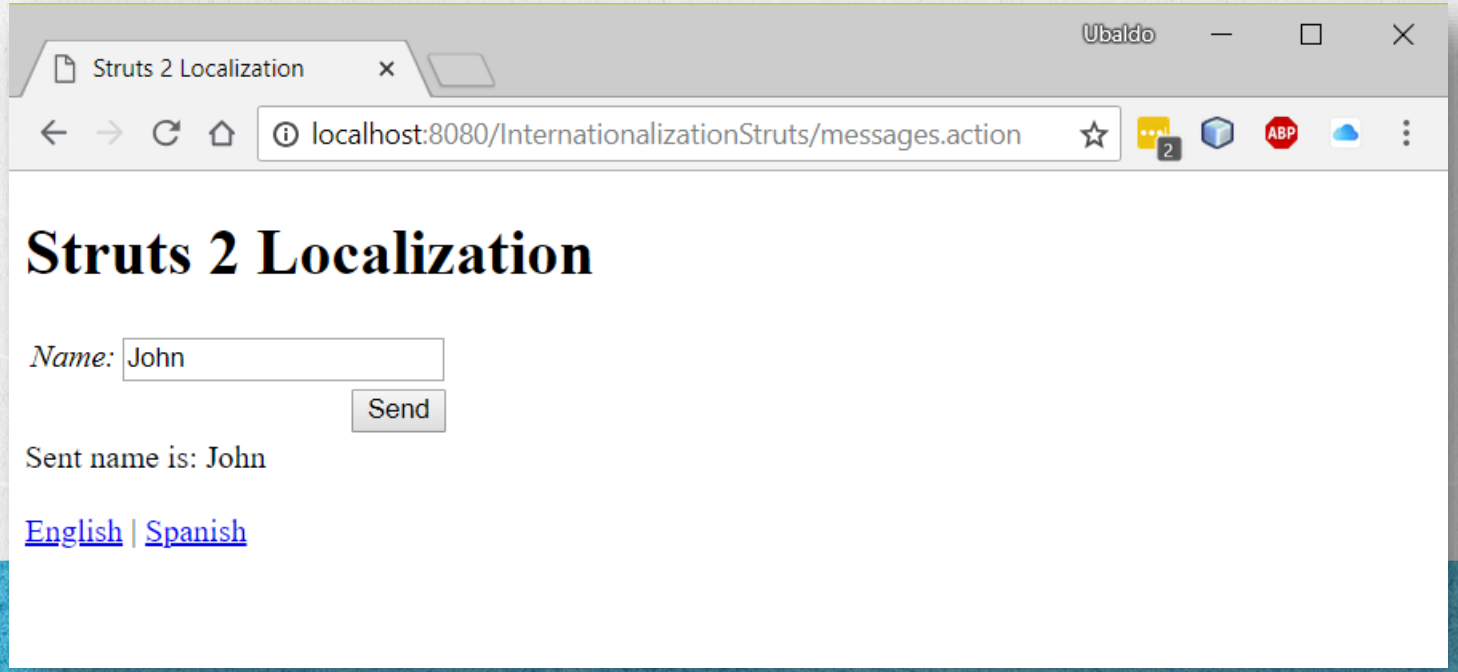
By the expert: Ubaldo Acosta

Global Mentoring

JAVA ONLINE COURSES UNIVERSITY

EXERCISE OBJECTIVE

Create an application to implement the use of internationalization with Struts 2. At the end we must observe the following:



EXERCISE REQUIREMENT

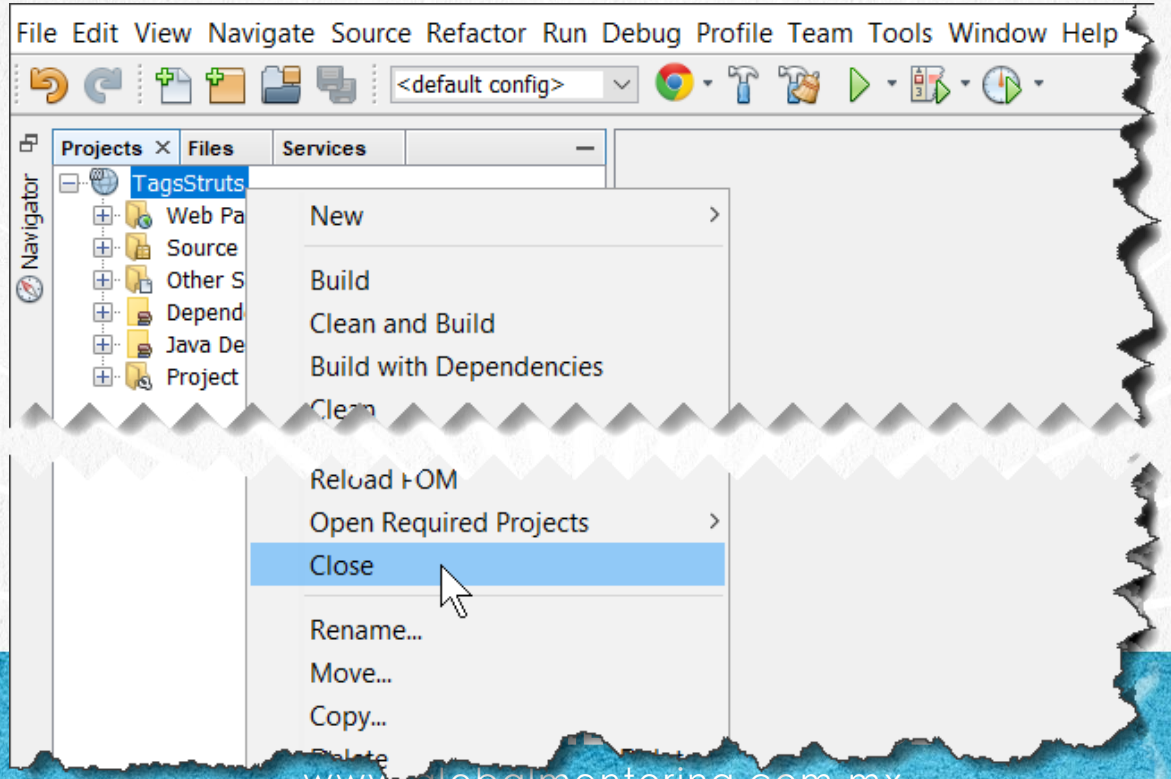
In this project we are going to put into practice the concept of Internationalization in Struts 2.

Although we have already used the concept of message handling, in this exercise we will see how to handle different languages, using the concept of internationalization or localization.

Let's see how our exercise is:

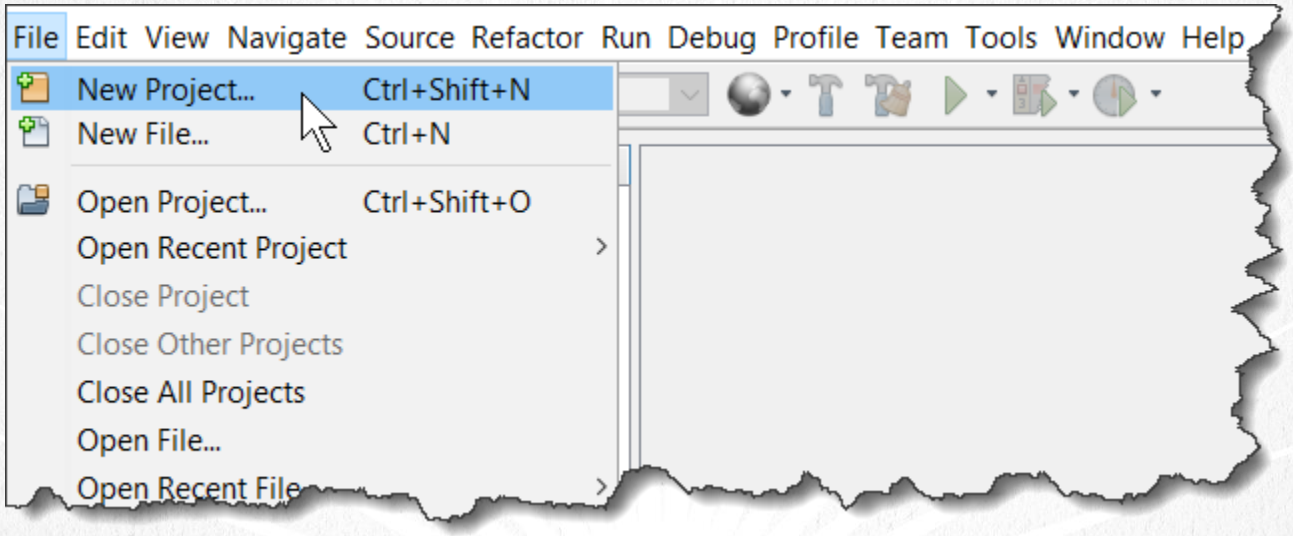
CLOSE PROJECTS THAT WE NO LONGER USE

- We close any other project that we no longer use, if we wish :



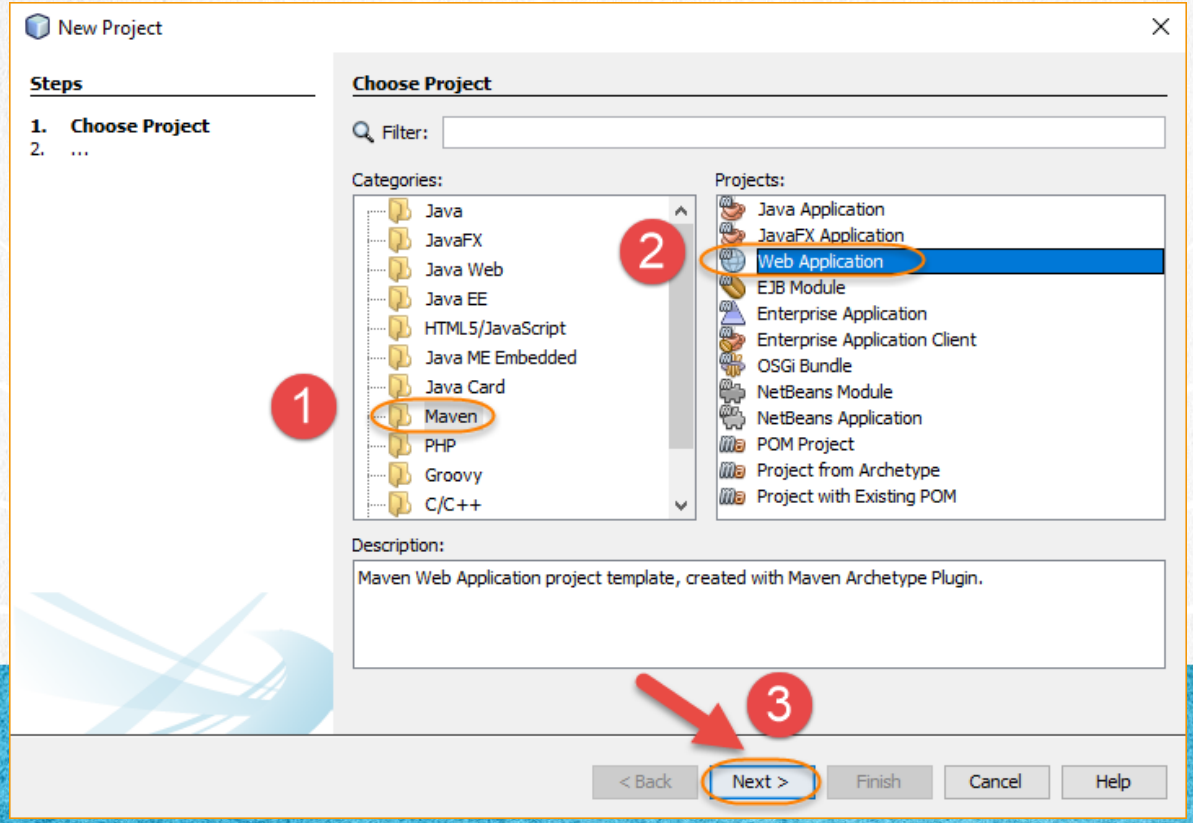
1. CREATE A NEW PROJECT

- We create the new project as shown below:



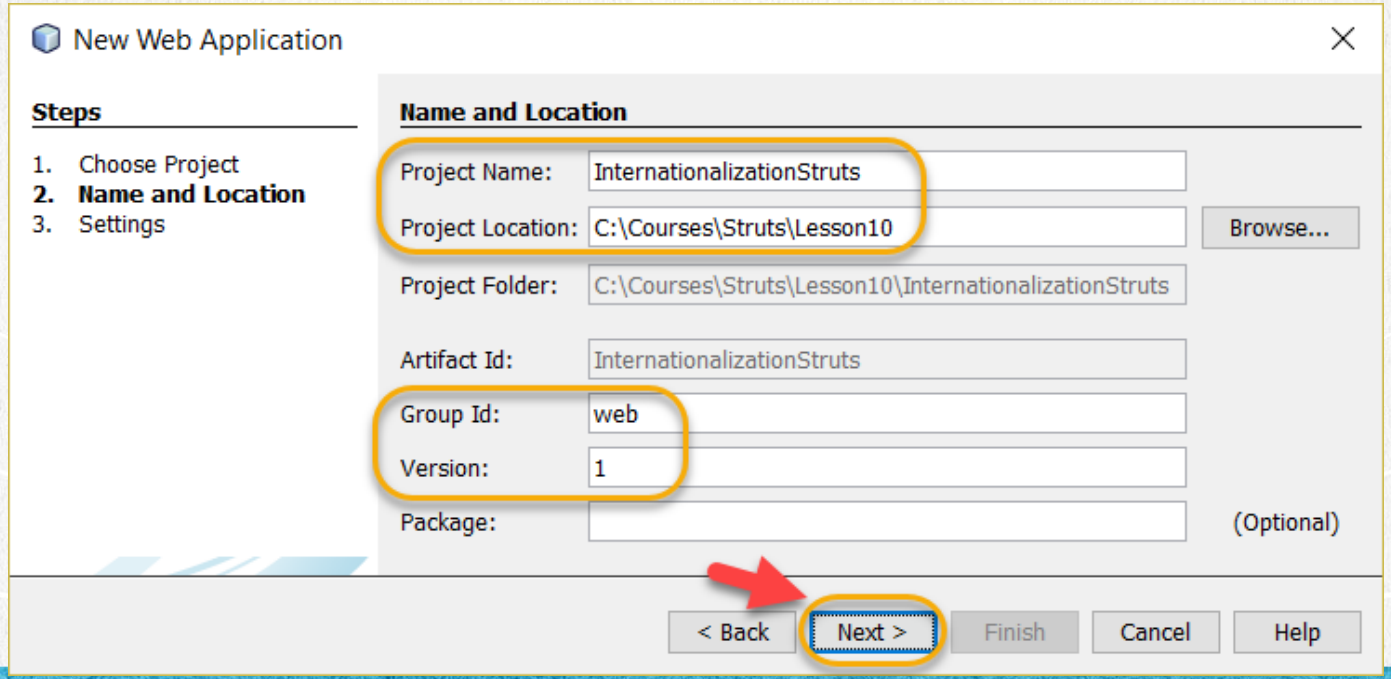
1. CREATE A NEW PROJECT

- We create the new project as shown below:



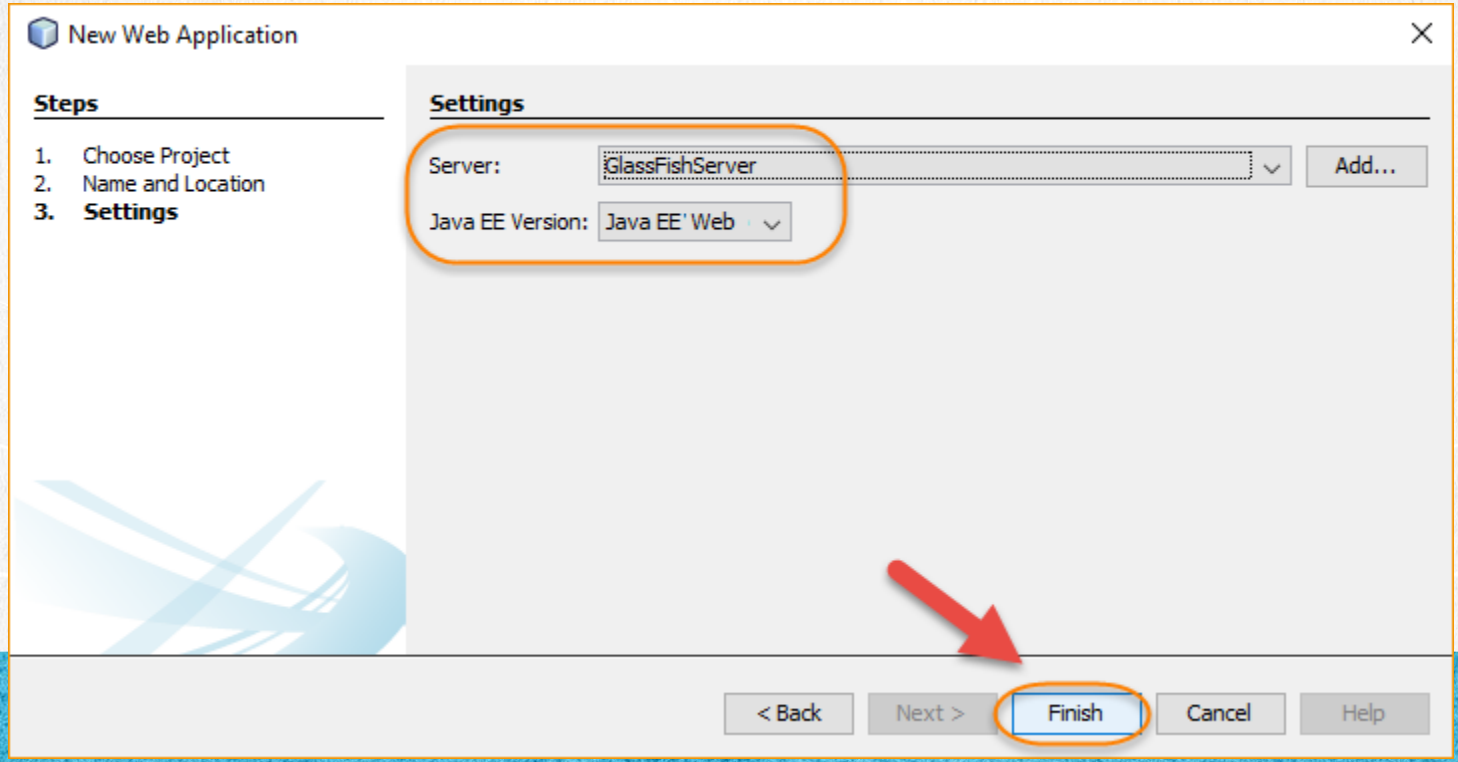
1. CREATE A NEW PROJECT

- We create the new project as shown below :



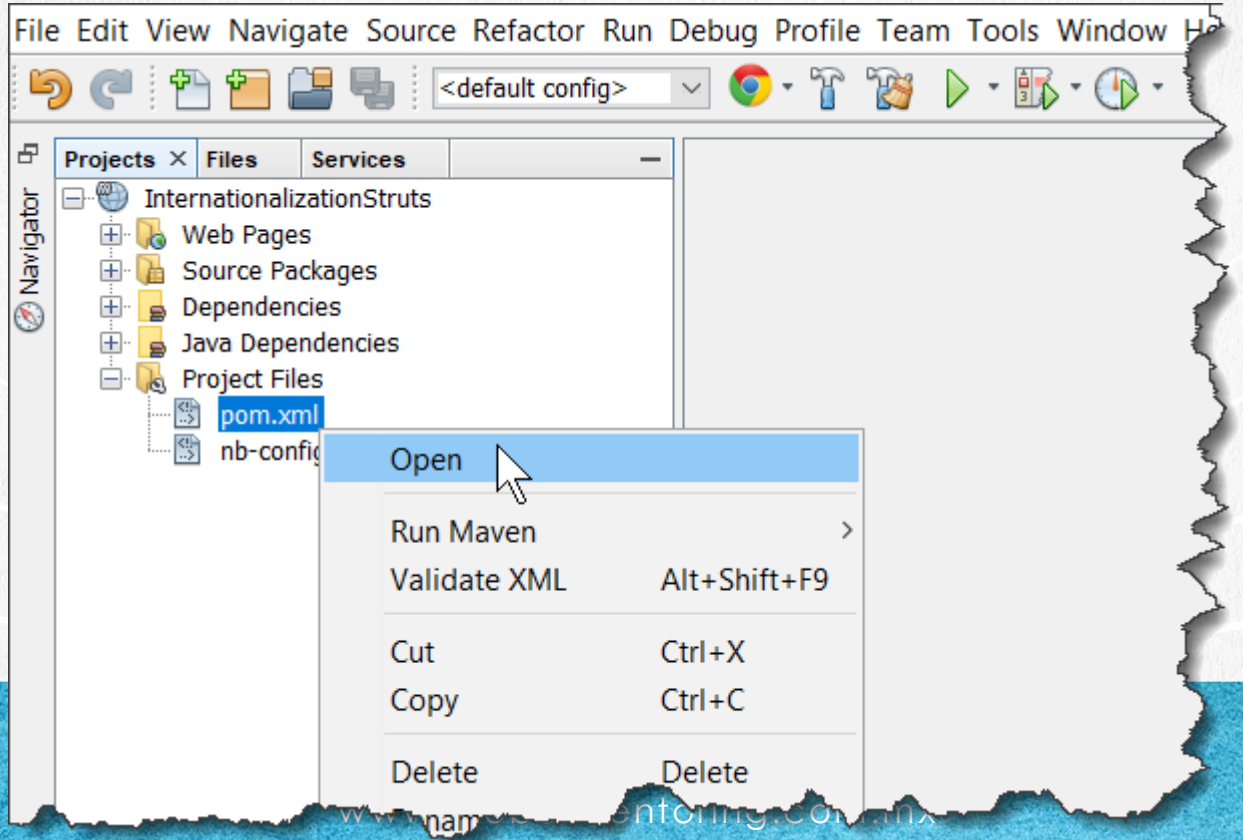
1. CREATE A NEW PROJECT

- We select the values shown:



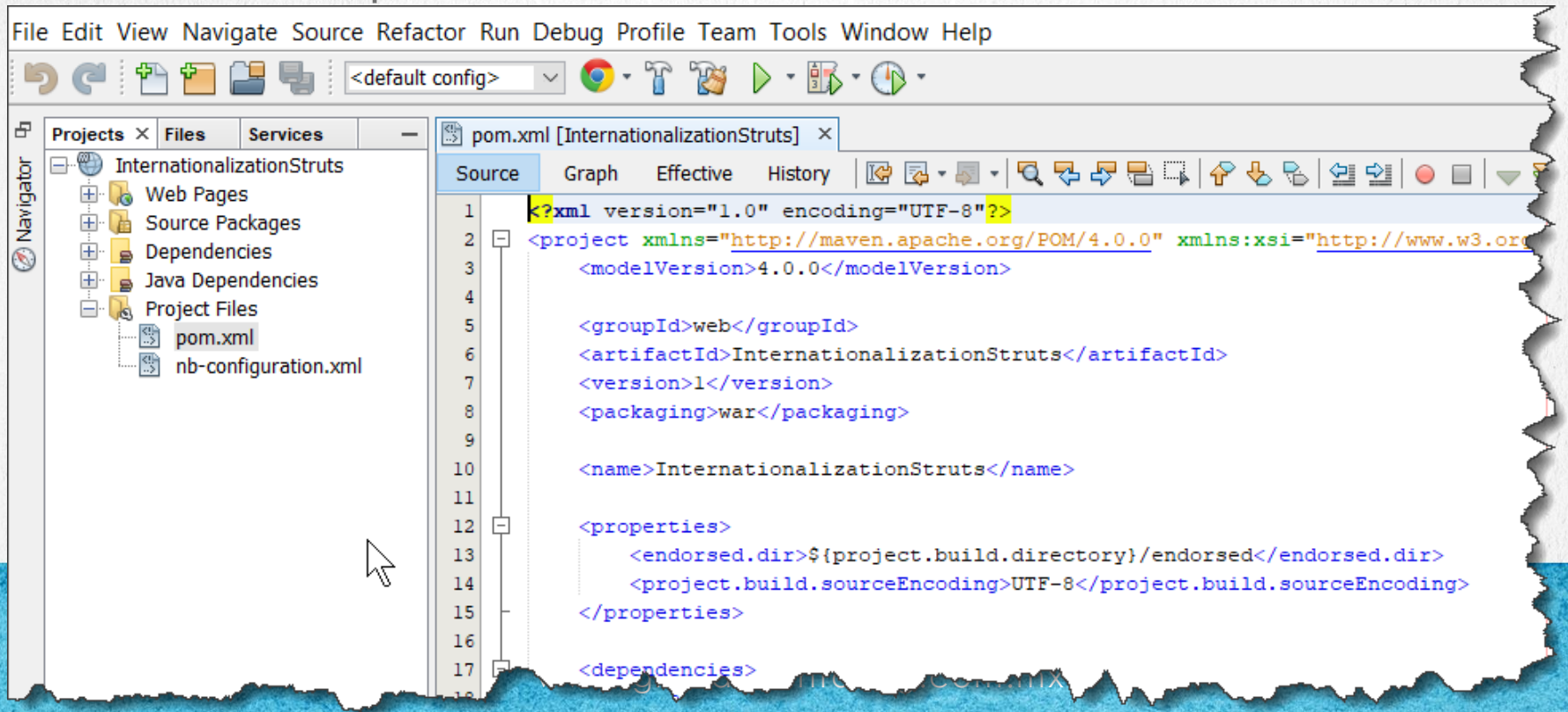
2. OPEN MAVEN'S POM.XML FILE

- The maven pom.xml file manages the Java libraries we will use :



2. OPEN MAVEN'S POM.XML FILE

- Once opened, we will modify the information completely of this file, with the information provided below:



3. MODIFY THE CODE

pom.xml:

Click to download

```
<?xml version="1.0" encoding="UTF-8"?>
<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>web</groupId>
    <artifactId>InternationalizationStruts</artifactId>
    <version>1</version>
    <packaging>war</packaging>

    <name>InternationalizationStruts</name>

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

    <dependencies>
        <dependency>
            <groupId>javax</groupId>
            <artifactId>javaee-web-api</artifactId>
            <version>8.0</version>
            <scope>provided</scope>
        </dependency>
        <dependency>
            <groupId>org.apache.struts</groupId>
            <artifactId>struts2-core</artifactId>
            <version>2.5.17</version>
        </dependency>
```

3. MODIFY THE CODE

pom.xml:

Click to download

```
        <dependency>
            <groupId>org.apache.logging.log4j</groupId>
            <artifactId>log4j-api</artifactId>
            <version>2.11.1</version>
        </dependency>
        <dependency>
            <groupId>org.apache.logging.log4j</groupId>
            <artifactId>log4j-core</artifactId>
            <version>2.11.1</version>
        </dependency>
        <dependency>
            <groupId>org.apache.struts</groupId>
            <artifactId>struts2-convention-plugin</artifactId>
            <version>2.5.17</version>
        </dependency>
    </dependencies>
```

3. MODIFY THE CODE

pom.xml:

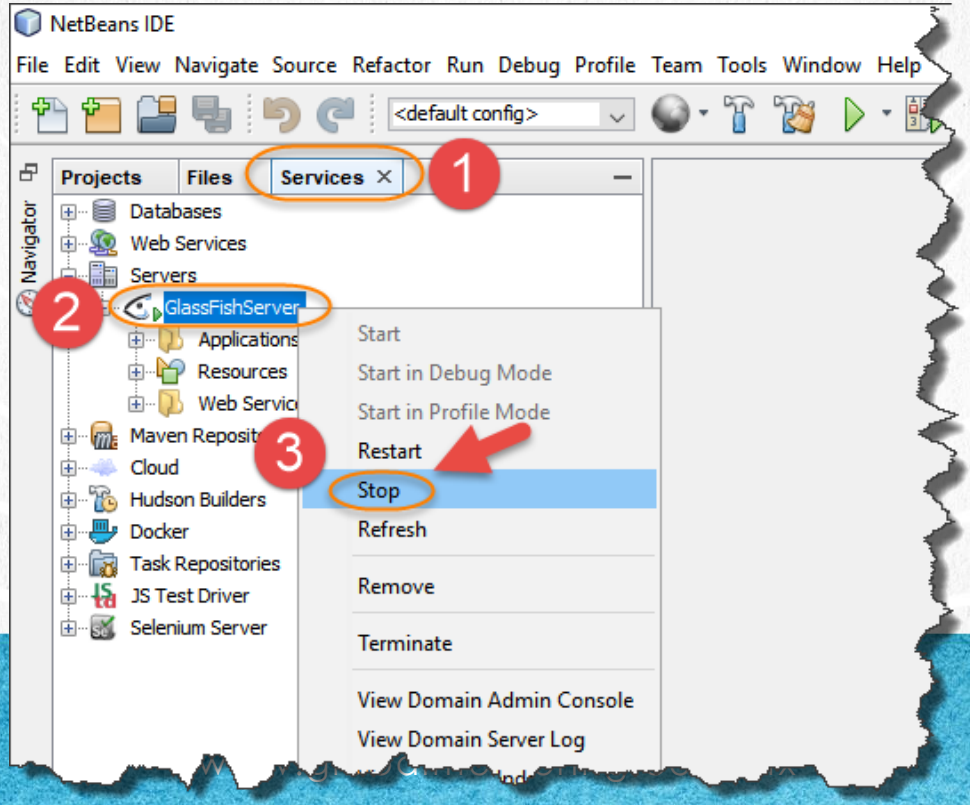
Click to download

```
    <build>
        <plugins>
            <plugin>
                <groupId>org.apache.maven.plugins</groupId>
                <artifactId>maven-war-plugin</artifactId>
                <version>2.3</version>
                <configuration>
                    <failOnMissingWebXml>false</failOnMissingWebXml>
                </configuration>
            </plugin>
            <plugin>
                <groupId>org.apache.maven.plugins</groupId>
                <artifactId>maven-compiler-plugin</artifactId>
                <version>3.7.0</version>
                <configuration>
                    <source>1.8</source>
                    <target>1.8</target>
                </configuration>
            </plugin>
        </plugins>
    </build>

</project>
```

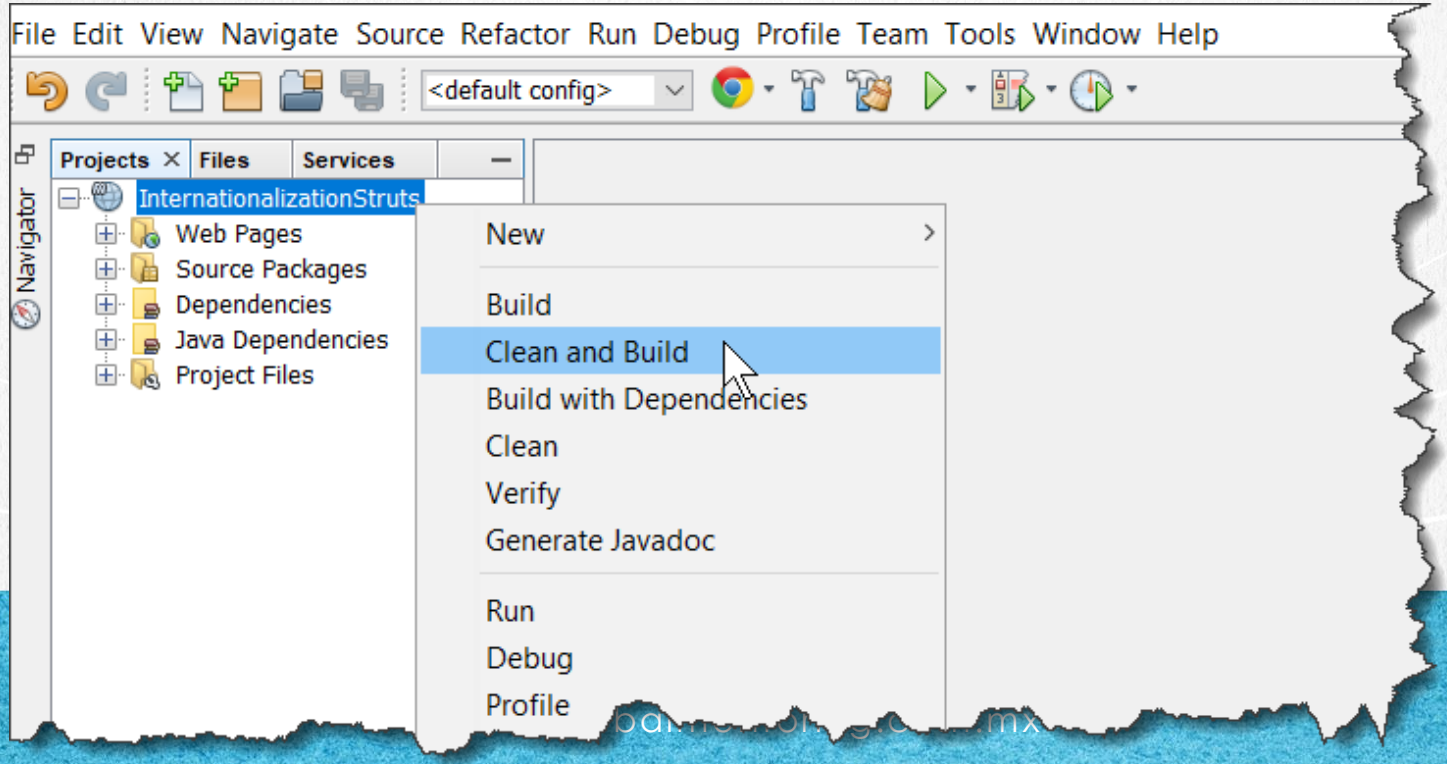
4. STOP GLASSFISH IF IT WAS STARTED

•Before doing Clean & Build of the project to download the new libraries, we verify that the Glassfish server is not started as there may be problems to do the Clean & build process if the server is started. This step is only verification :



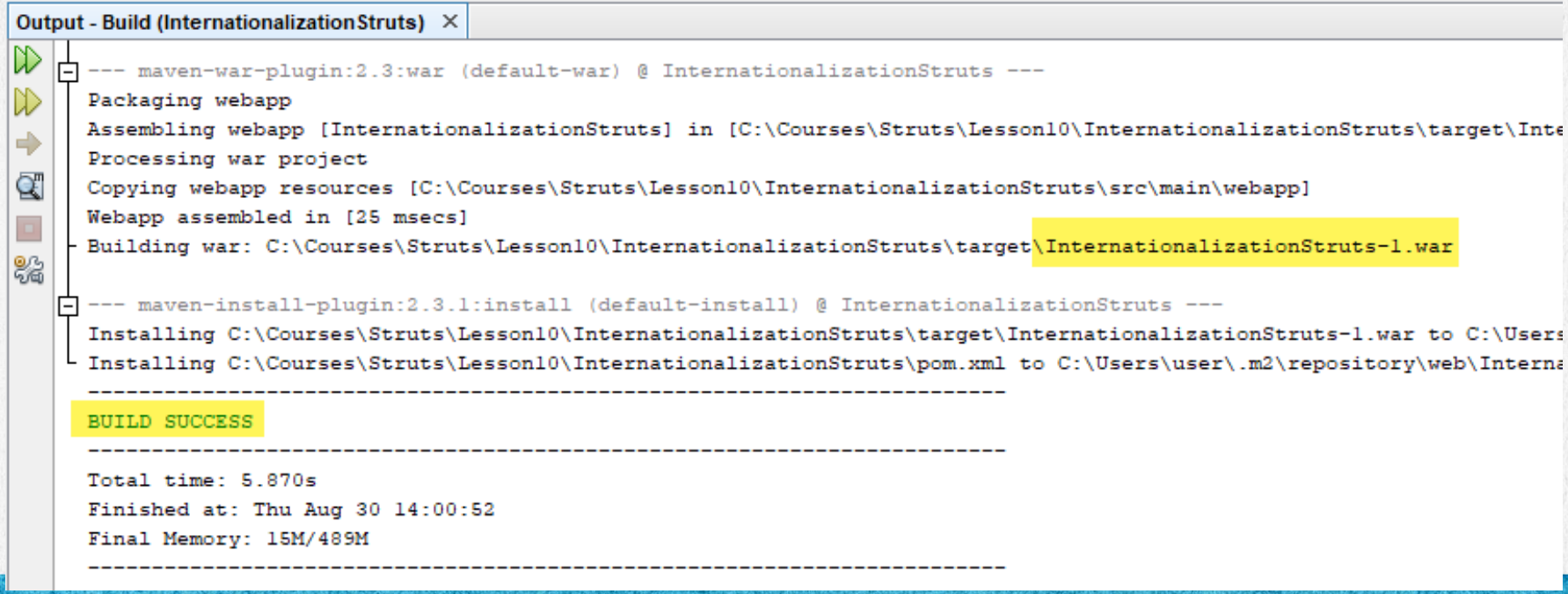
5. EXECUTE CLEAN & BUILD

•In order to download the new libraries, we make Clean & Build the project. If for some reason this process fails, you must disable any software such as antivirus, Windows defender or firewall during this process so that the download of Java .jar files is not prevented. Once finished, these services can be activated again. This process may take several minutes depending on your internet speed:



5. EXECUTE CLEAN & BUILD

- If you no longer had to download any library because you could already have all downloaded, the process is faster. In the end we should observe the following:



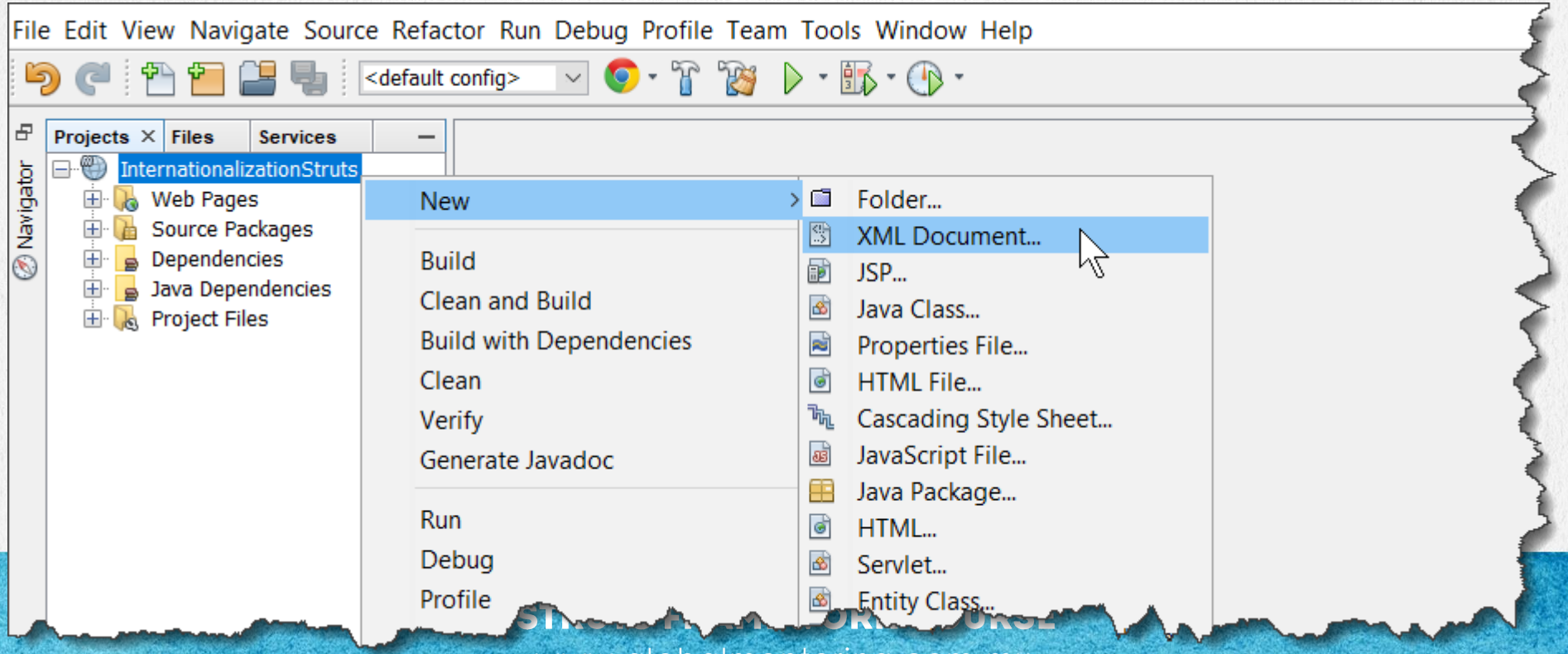
6. CREATE AN XML FILE

We are going to create the web.xml file below

This file is what allows us to join a Java Web application with the Struts framework, configuring the Struts filter in the web.xml file.

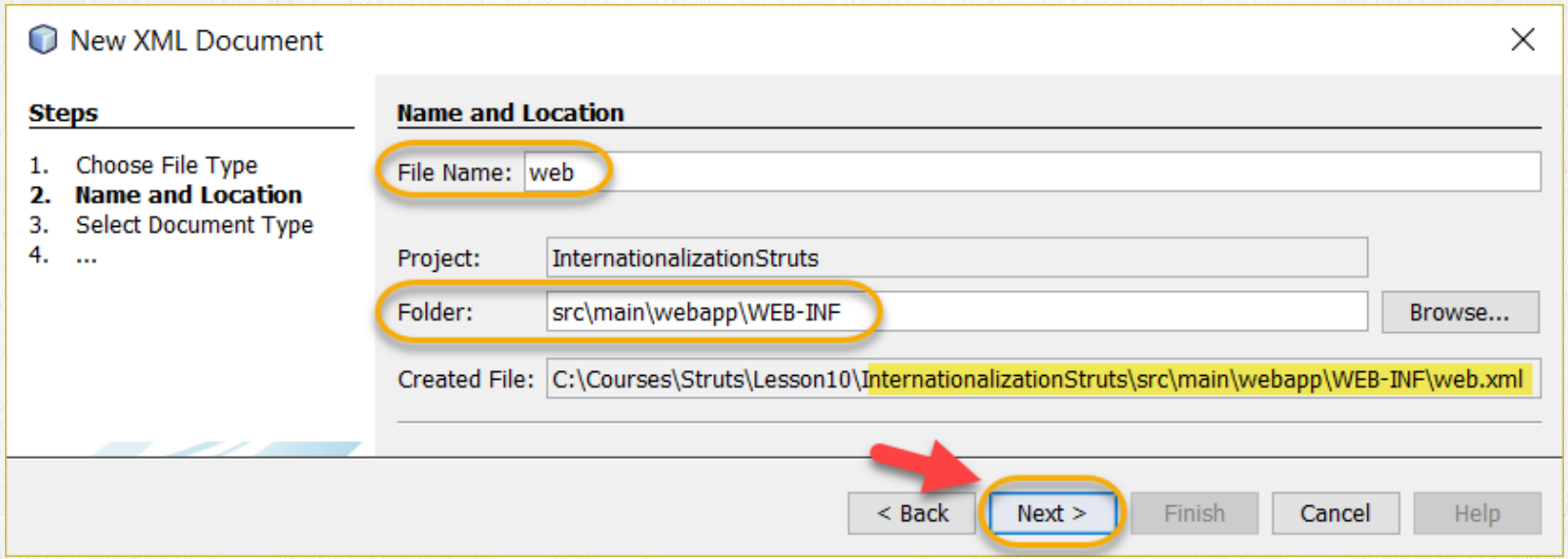
6. CREATE AN XML FILE

- We create the web.xml file and add it to the WEB-INF folder as shown:



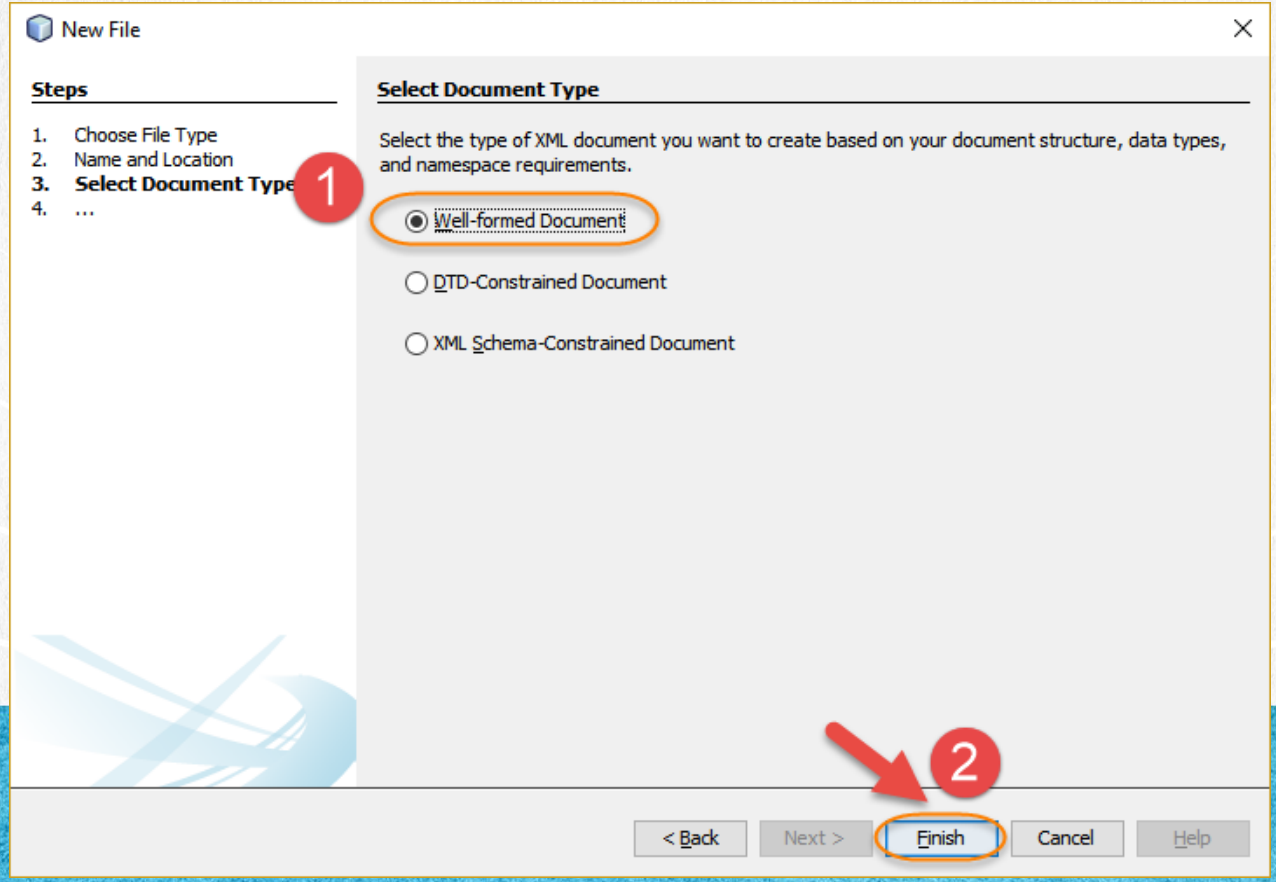
6. CREATE AN XML FILE

- The name of the file is web, it is not necessary to add the extension, it adds it in automatic the IDE since it is an XML type document. Finally we provide the path shown:



6. CREATE AN XML FILE

- We select the indicated type and click on finish:



7. MODIFY THE CODE

web.xml:

Click to download

```
<?xml version="1.0" encoding="UTF-8"?>
<web-app version="4.0"
         xmlns="http://xmlns.jcp.org/xml/ns/javaee"
         xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
         xsi:schemaLocation="http://xmlns.jcp.org/xml/ns/javaee
         http://xmlns.jcp.org/xml/ns/javaee/web-app_4_0.xsd">

    <filter>
        <filter-name>struts2</filter-name>
        <filter-class>org.apache.struts2.dispatcher.filter.StrutsPrepareAndExecuteFilter</filter-class>
    </filter>
    <filter-mapping>
        <filter-name>struts2</filter-name>
        <url-pattern>/*</url-pattern>
    </filter-mapping>

</web-app>
```

8. MODIFY THE INDEX.HTML FILE

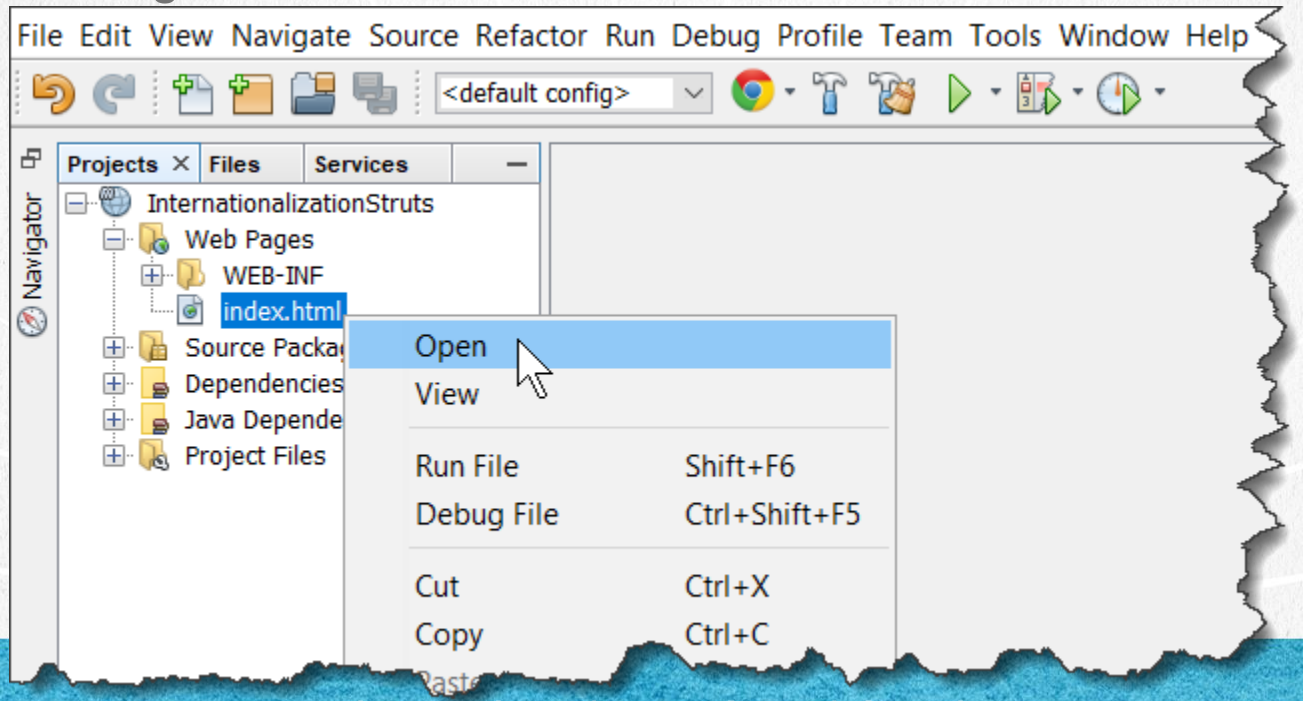
In automatic the IDE adds a file called index.html. However, if this file is not created we must add it to the project at the root level of Web Pages.

The index.html file really is not yet part of the Struts framework, however it will be the entry point for the Struts framework to be executed, since from this file we will indicate which action we want to execute.

In this exercise the path that we will use will be: messages

8. MODIFY THE INDEX.HTML FILE

- Modify the index.html file. In case this file does not exist at the root level of the Web Pages folder, we create it, as shown:



8. MODIFY THE FILE

index.html:

Click to download

```
<!DOCTYPE html>
<html>
    <head>
        <title>Home</title>
        <meta charset="UTF-8">
    </head>
    <body>
        <a href="messages">Go to the system</a>
    </body>
</html>
```

9. CREATE A NEW JAVA CLASS

The class MessagesAction.java that we are going to create next will act as Controller (Action) and Model (Bean).

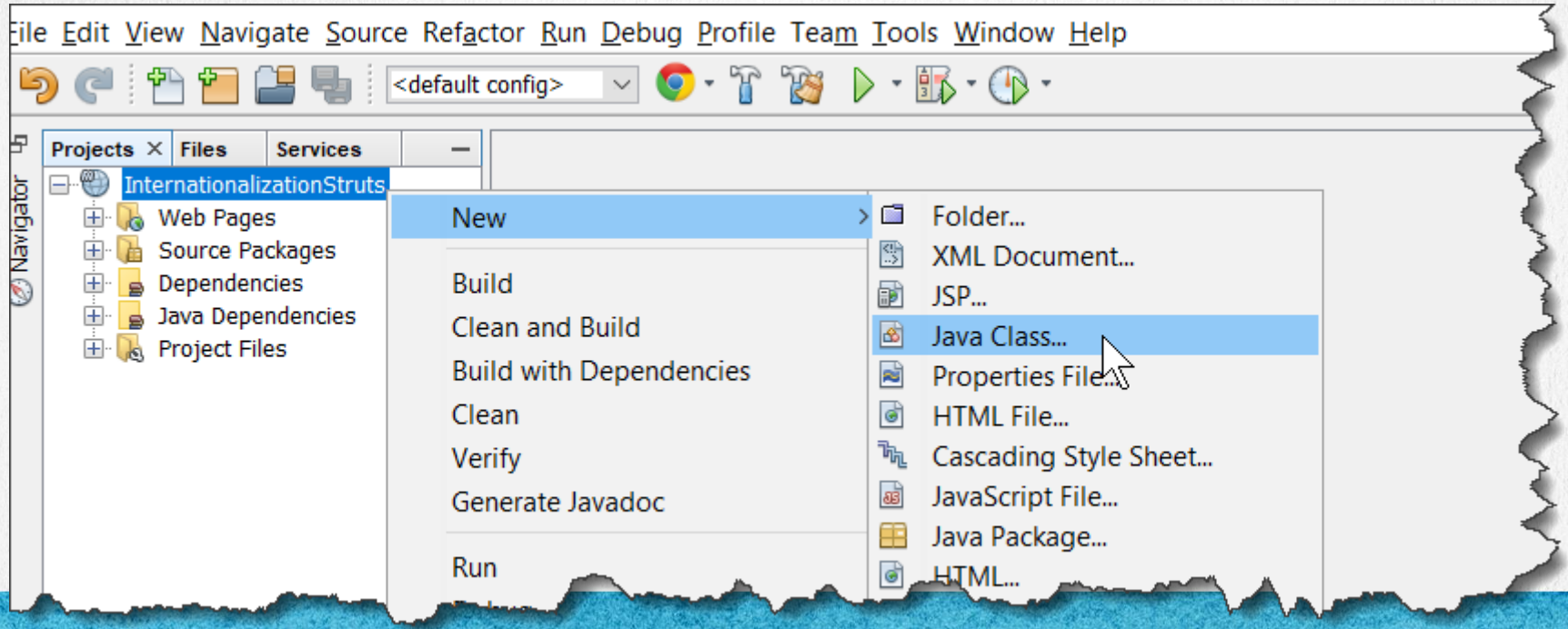
We will extend the ActionSupport class and overwrite the execute method.

We are going to apply the internationalization topic, so in order to change the language our Action class must receive the request_locale parameter from the respective view and in this way the interceptor of Struts 2 that is responsible for managing the concept of internationalization will be the one that will select the resource bundle (property file with messages in the corresponding language) according to the specified language.

Let's see how our class is.

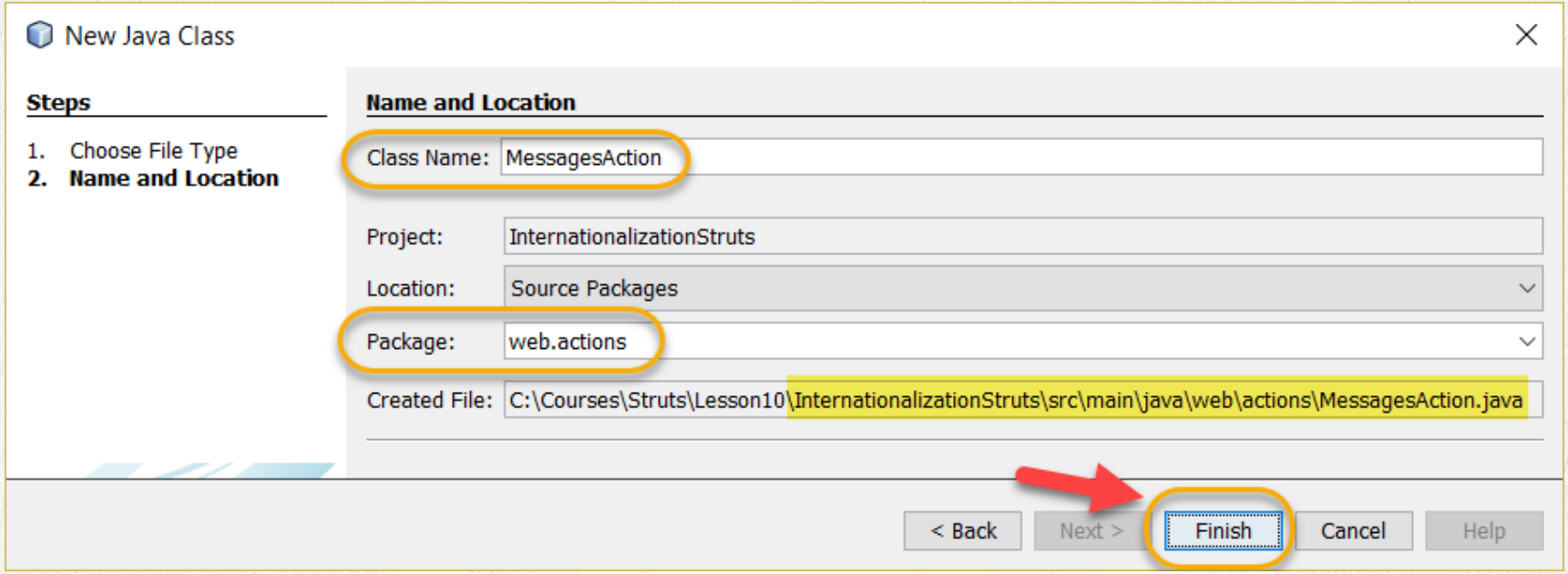
9. CREATE A NEW JAVA CLASS

- We create the MessagesAction.java class:



9. CREATE A NEW JAVA CLASS

- We create the MessagesAction.java class:



10. MODIFY THE CODE

MessagesAction.java:

Click to download

```
package web.actions;

import com.opensymphony.xwork2.ActionSupport;
import org.apache.logging.log4j.*;

public class MessagesAction extends ActionSupport {

    Logger log = LogManager.getLogger(MessagesAction.class);

    private String name;

    @Override
    public String execute() {
        log.info("Name value:" + name);
        return SUCCESS;
    }

    public String getName() {
        return name;
    }

    public void setName(String name) {
        this.name = name;
    }
}
```

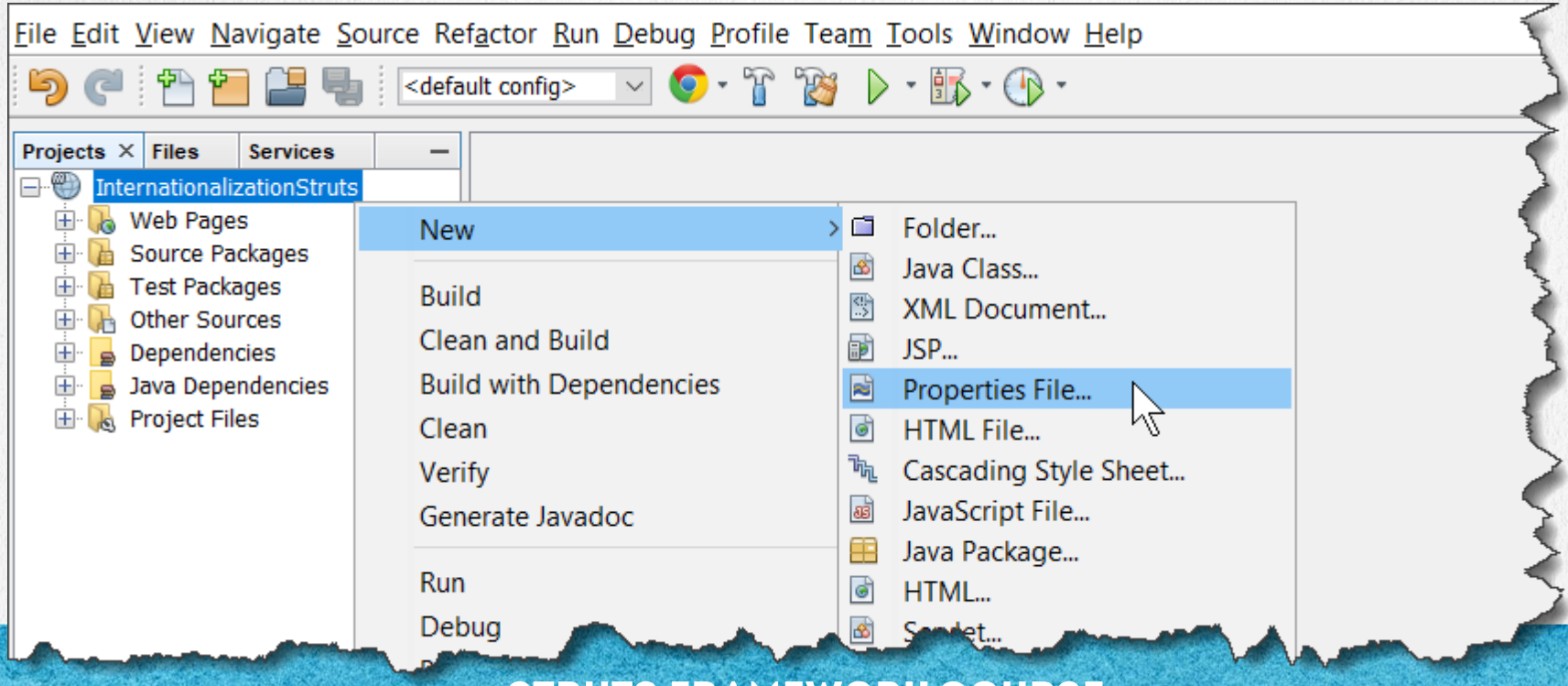
11. CREATE A PROPERTIES FILE

We will create two properties files, the first will have the messages of the application in English (en), and the second will have the messages in Spanish (es) according to the i18n standard.

Let's see how our file is.

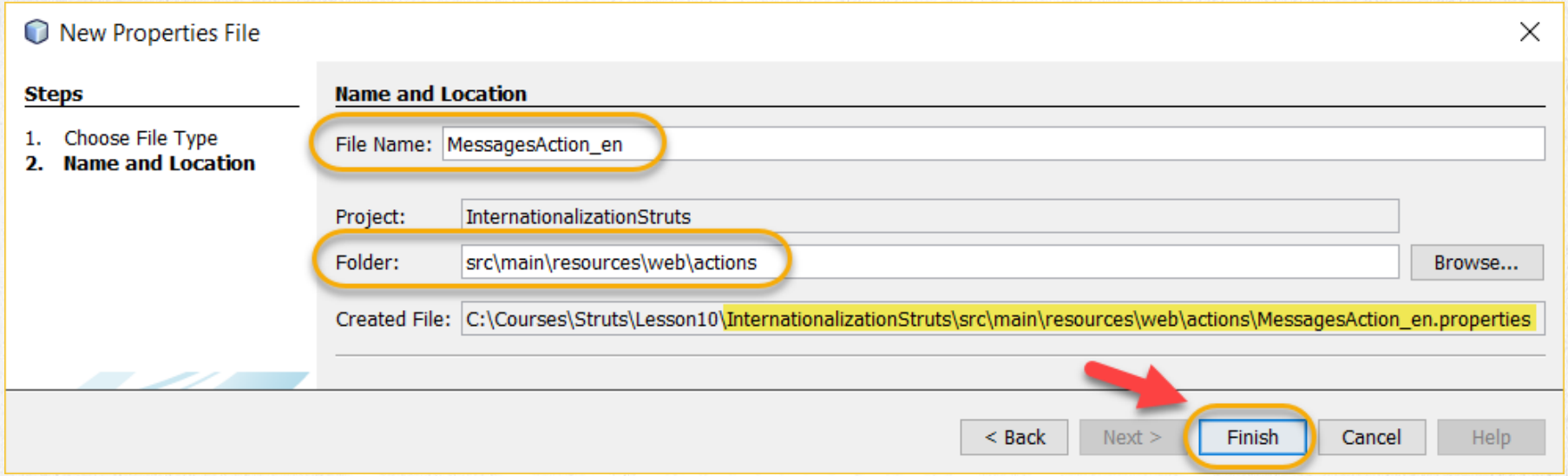
11. CREATE A PROPERTIES FILE

- We created the MessagesAction_en.properties file:



11. CREATE A PROPERTIES FILE

- We created the MessagesAction_en.properties file :



12. MODIFY THE FILE

MessagesAction_en.properties:

Click to download

```
title=Struts 2 Localization
name=Name
send=Send
name.send=Sent name is:
idiom.english=English
idiom.spanish=Spanish
```

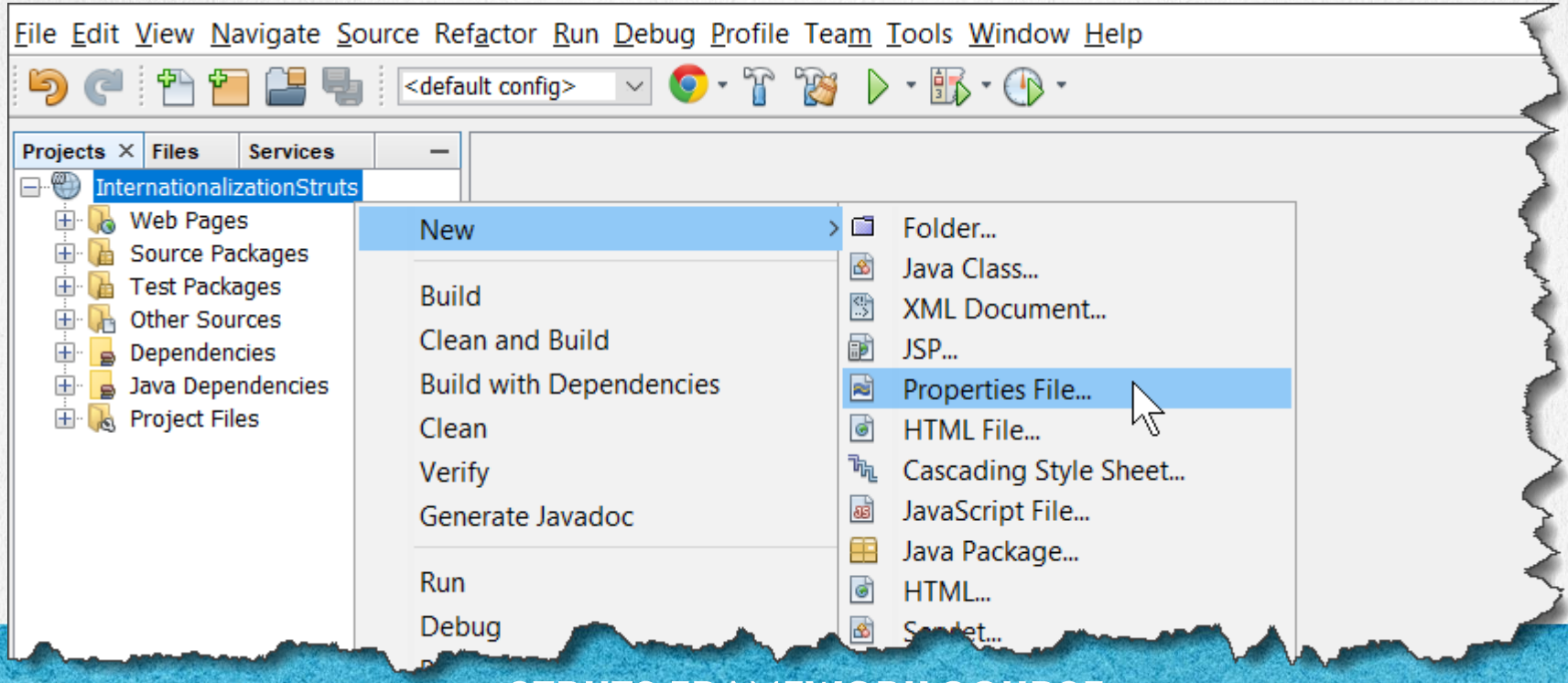
13. CREATE A PROPERTIES FILE

We are now going to create the second properties file, which will contain the messages in Spanish (es) according to the i18n standard.

Let's see how our file is.

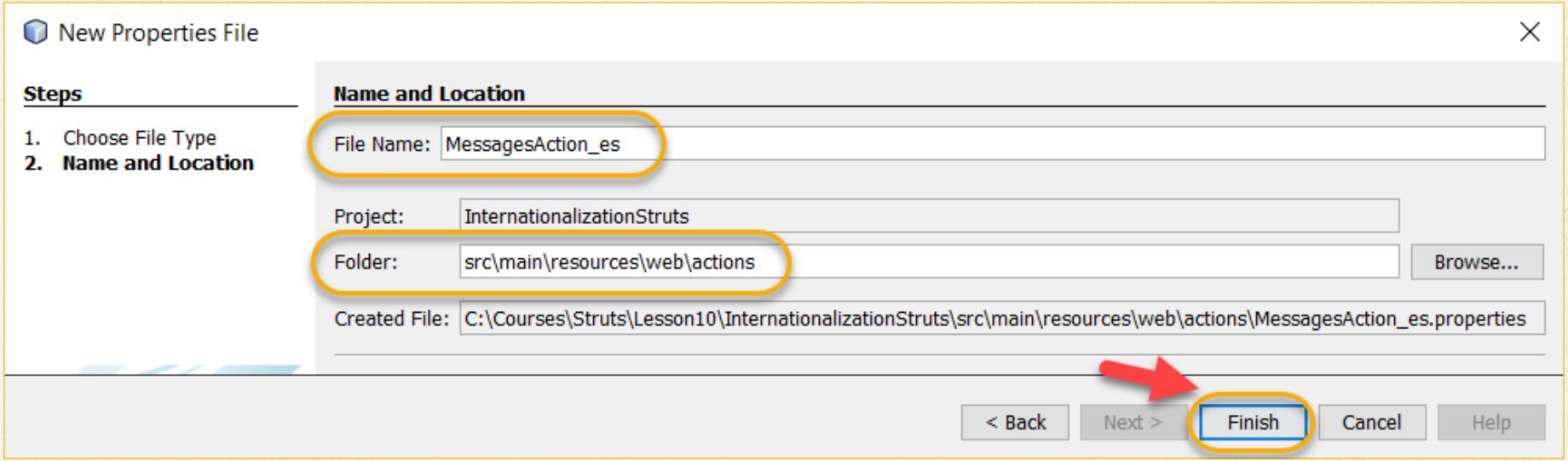
13. CREATE A PROPERTIES FILE

- We created the MessagesAction_es.properties file:



13. CREATE A PROPERTIES FILE

- We created the MessagesAction_es.properties file:



14. MODIFY THE FILE

MessagesAction_es.properties:

Click to download

```
title=Internacionalización con Struts
name=Nombre
send=Enviar
name.send=Nombre proporcionado:
idiom.english=Inglés
idiom.spanish=Español
```

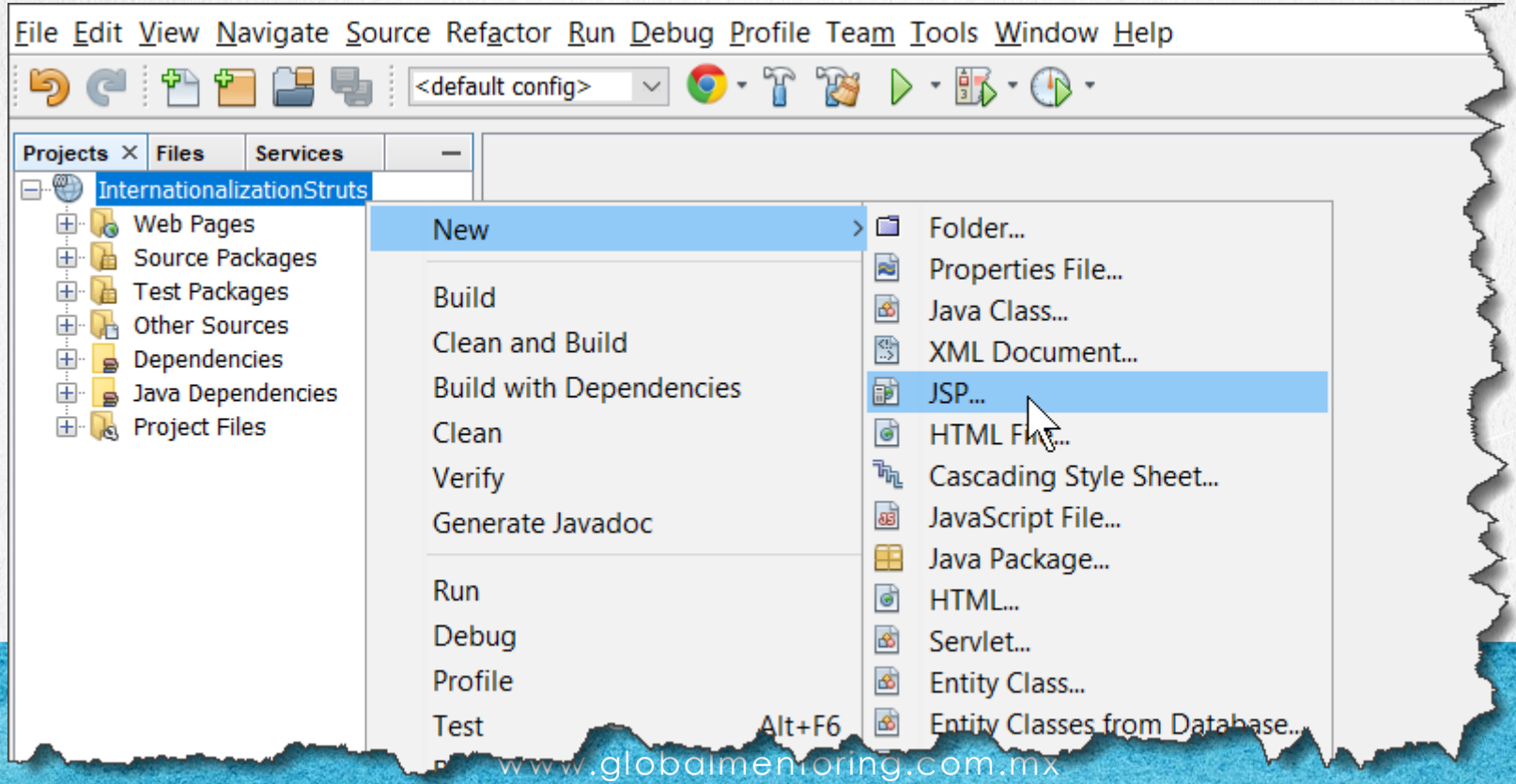
15. CREATE A NEW JSP FILE

Now we create the file: messages.jsp. Remember that this name corresponds to the path that will be used to call the corresponding action MessagesAction.java

We must also deposit this JSP in the folder /WEB-INF/content as we have seen in the Struts 2 conventions topic.

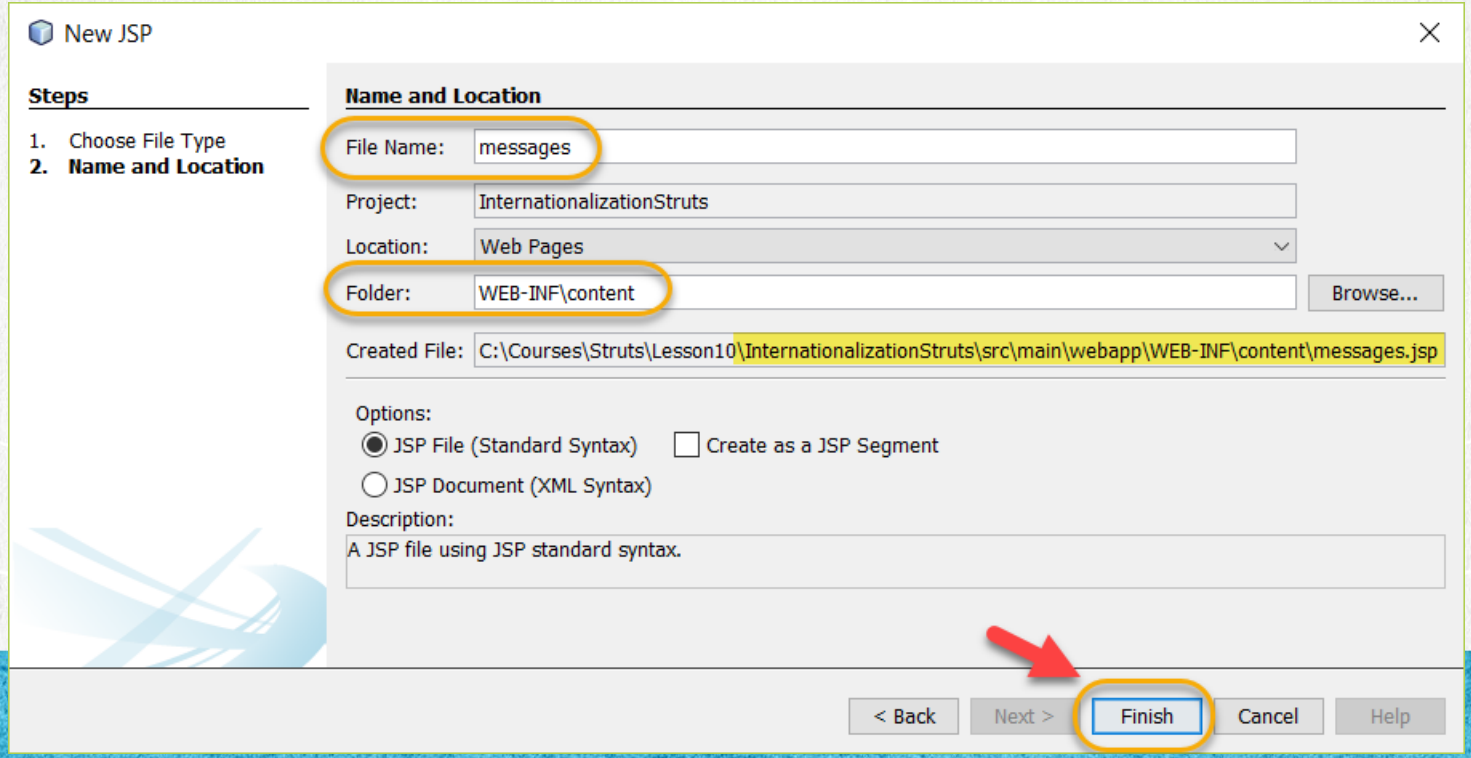
15. CREATE A NEW JSP FILE

- We create the messages.jsp file:



15. CREATE A NEW JSP FILE

- We created the messages.jsp file in the path shown :



16. MODIFY THE FILE

messages.jsp:

Click to download

```
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<%@taglib  prefix="s" uri="/struts-tags" %>
<!DOCTYPE html>
<html>
    <head>
        <title><s:text name="title" /></title>
        <s:head />
    </head>
    <body>
        <h1><s:text name="title" /></h1>
        <s:form>
            <s:textfield key="name" name="name"  />
            <s:submit key="send"/>
        </s:form>

        <s:if test='name!=null && !"".equals(name.trim())'>
            <s:text name="name.send" /> <s:property value="name" />
        </s:if>
```

16. MODIFY THE FILE

messages.jsp:

Click to download

```
        <br/>
        <br/>
        <%-- Create the URL--%>
        <s:url var="localeEN" action="messages" >
            <s:param name="request_locale" >en</s:param>
        </s:url>
        <s:url var="localeES" action="messages" >
            <s:param name="request_locale" >es</s:param>
        </s:url>

        <%-- We use the URLs. The request_locale parameter changes language --%>
        <s:a href="%{localeEN}" ><s:text name="idiom.english" /></s:a>
        |
        <s:a href="%{localeES}" ><s:text name="idiom.spanish" /></s:a>
    </body>
</html>
```

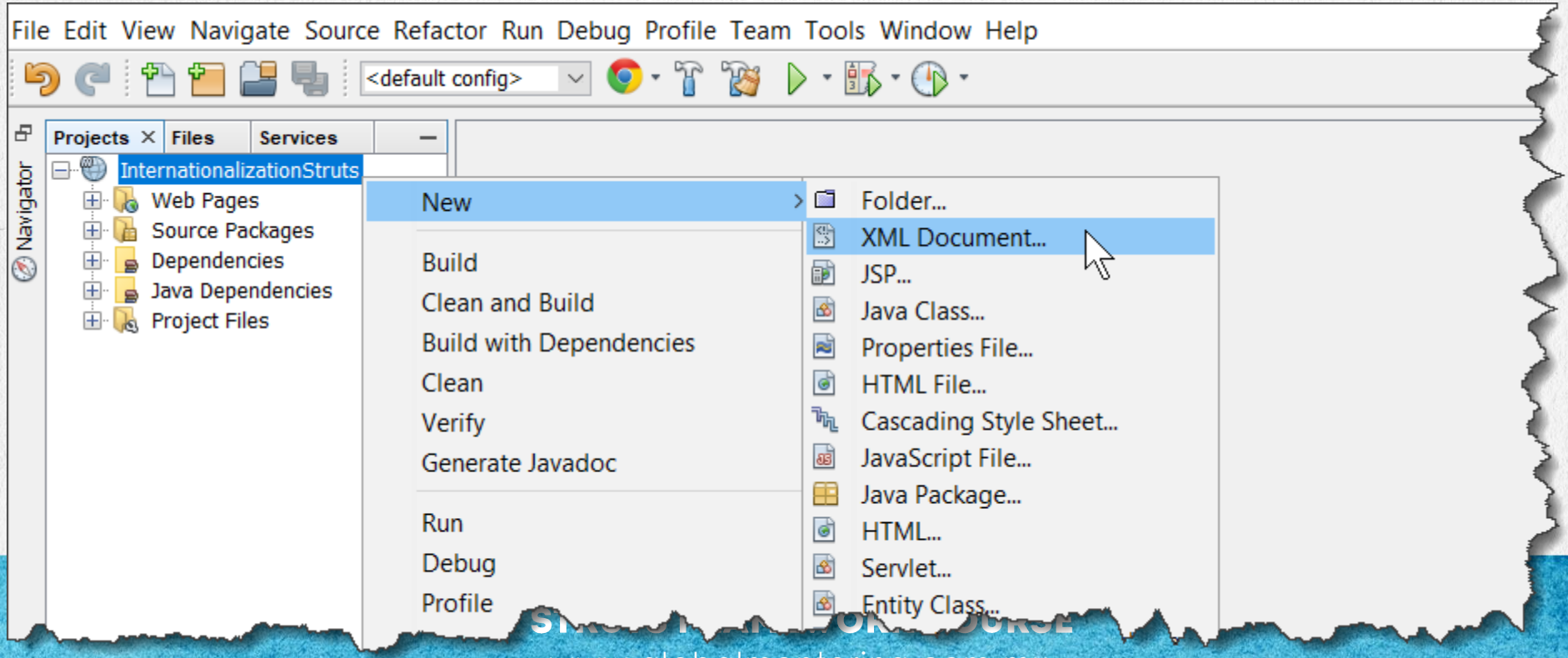
17. CREATE THE LOG4J2.XML FILE

We create a log4j2.xml file. The log4j API allows us to manage the log or log of a Java application in a simpler way.

We place this file in the resource path of the maven project. If maven is not used then the file must be deposited at the root level of the Java code src.

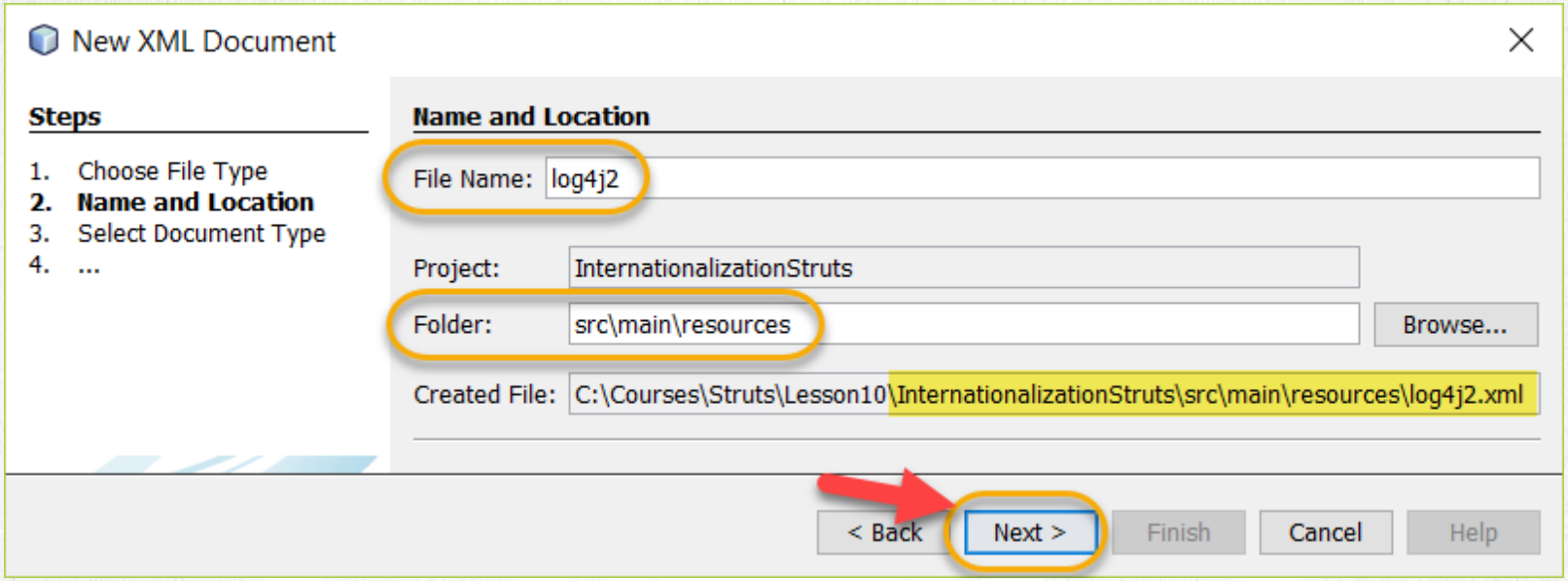
17. CREATE THE LOG4J2.XML FILE

- We create the log4j2.xml file as follows:



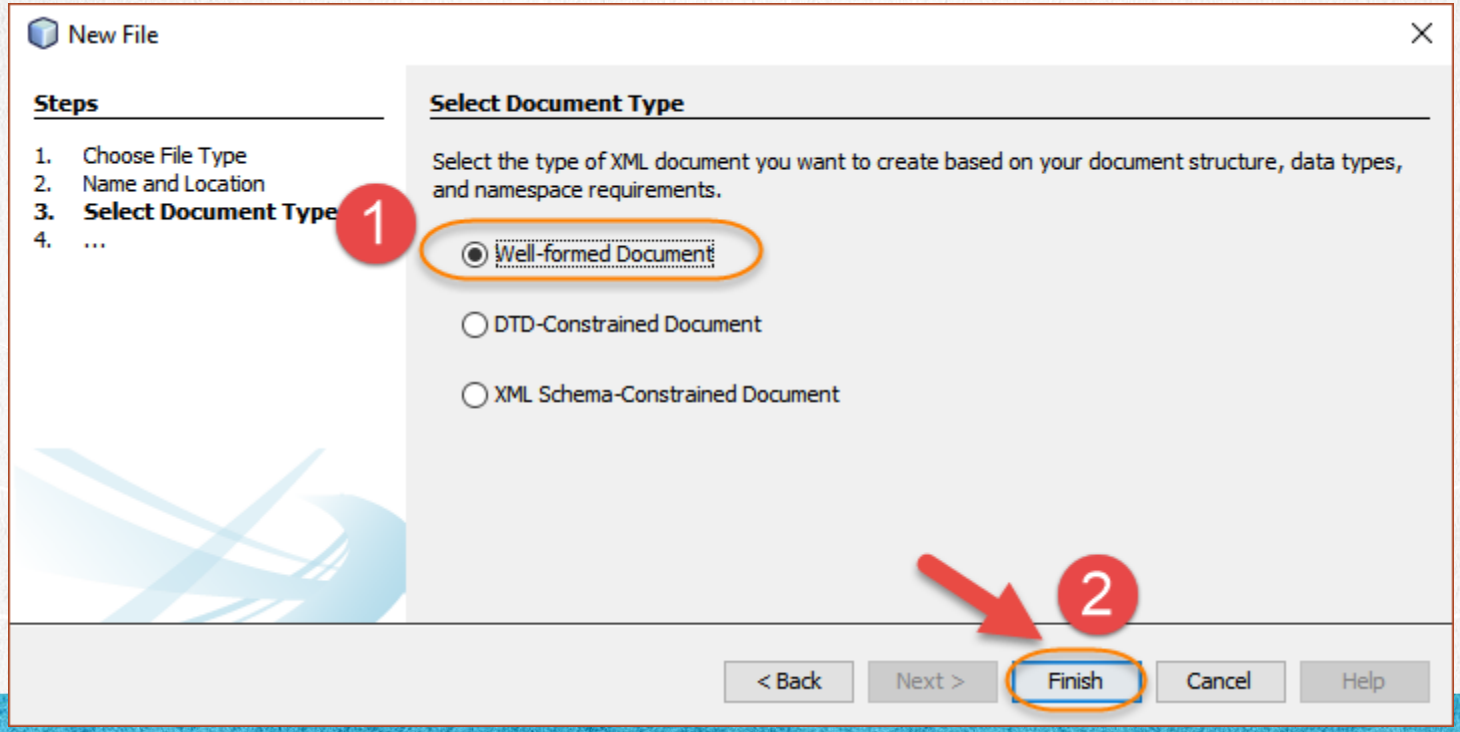
17. CREATE THE LOG4J2.XML FILE

- We deposit the file in the resources folder as shown:



17. CREATE THE LOG4J2.XML FILE

- We select the option shown:



18. MODIFY THE FILE

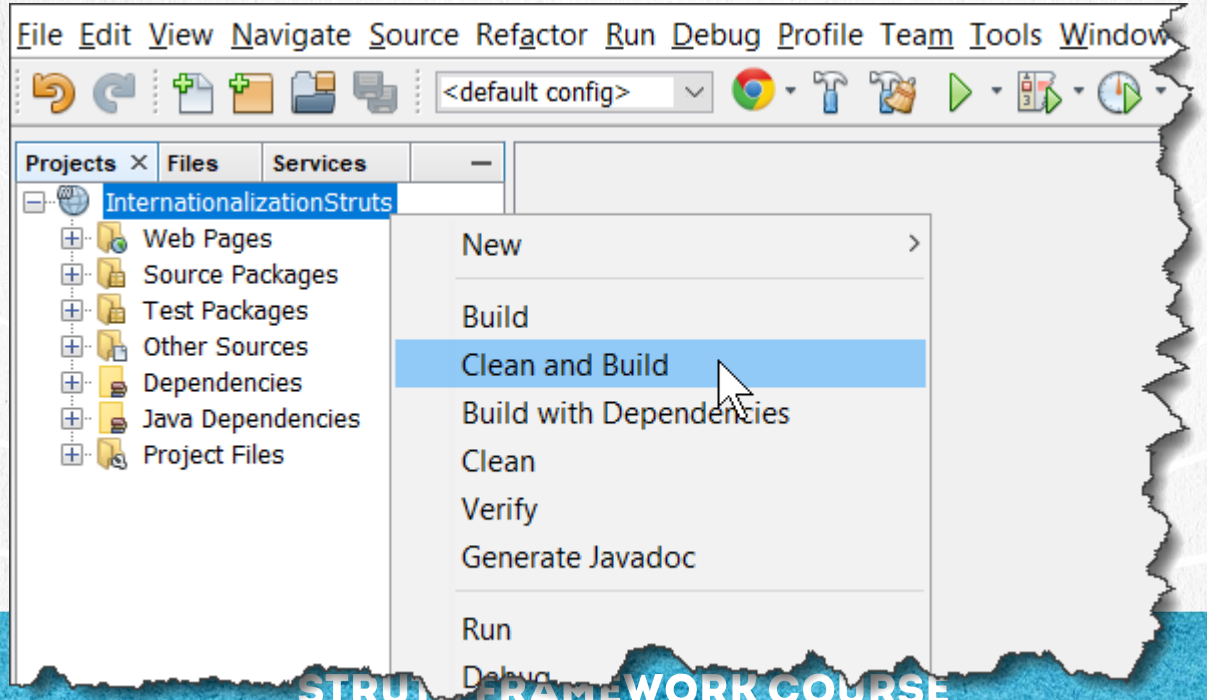
log4j2.xml:

Click to download

```
<?xml version="1.0" encoding="UTF-8"?>
<Configuration>
    <Appenders>
        <Console name="STDOUT" target="SYSTEM_OUT">
            <PatternLayout pattern="(%F:%L) - %m%n"/>
        </Console>
    </Appenders>
    <Loggers>
        <Logger name="com.opensymphony.xwork2" level="info"/>
        <Logger name="org.apache.struts2" level="info"/>
        <Root level="info">
            <AppenderRef ref="STDOUT"/>
        </Root>
    </Loggers>
</Configuration>
```

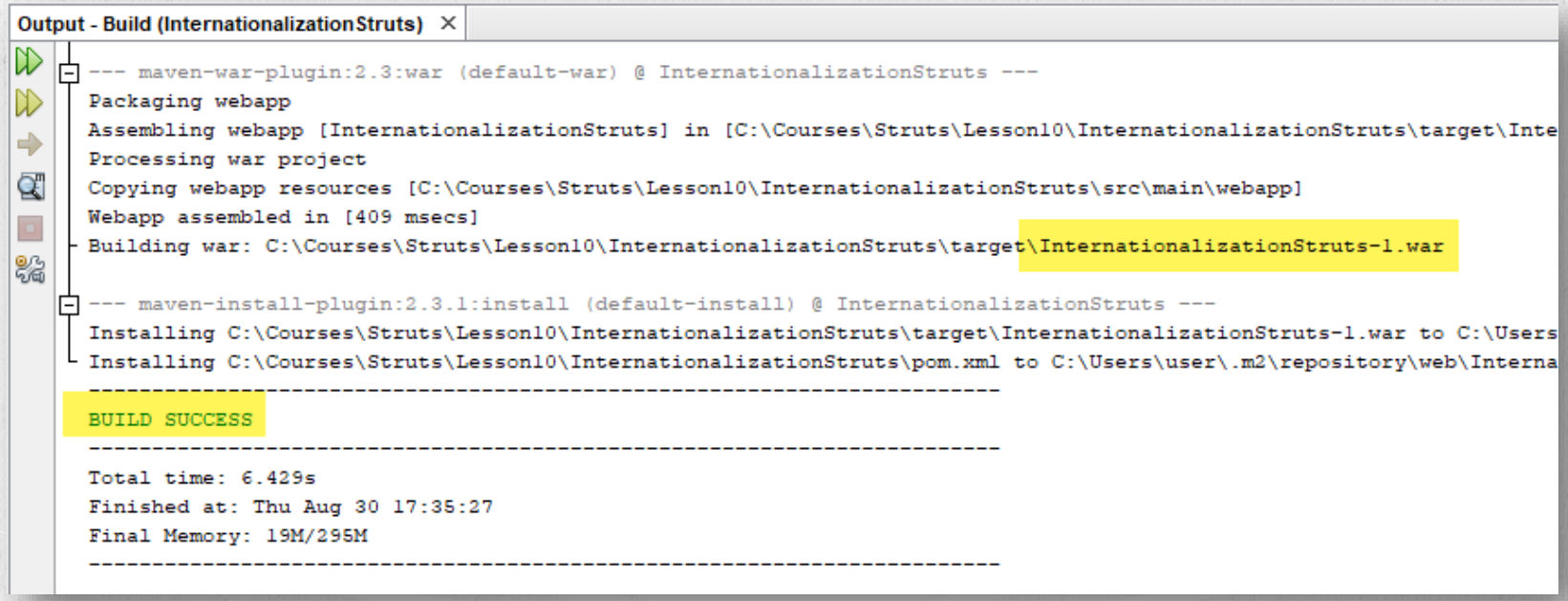
19. EXECUTE CLEAN & BUILD

- We execute the Clean & Build command as shown, to obtain the latest version of each file:



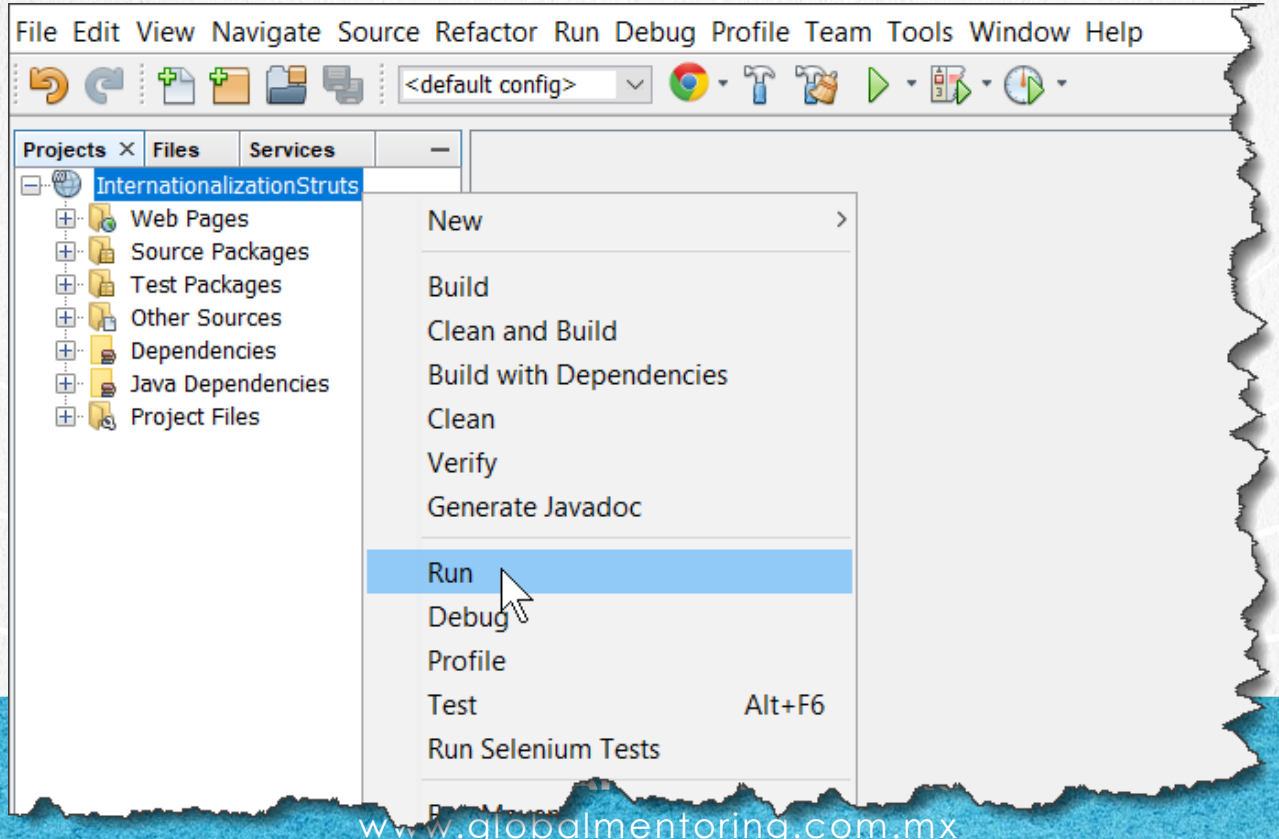
19. EXECUTE CLEAN & BUILD

- We must observe a result similar to the following:



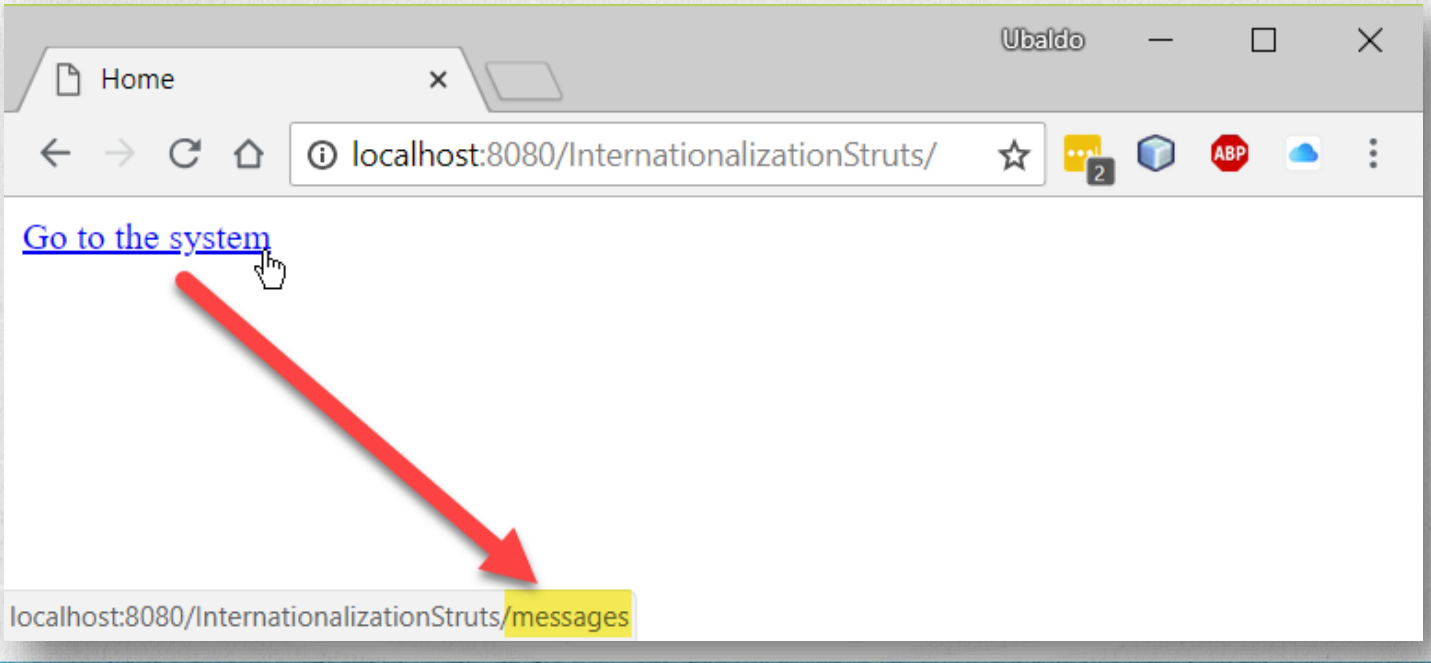
20. EXECUTE THE APPLICATION

- We run the application as follows:



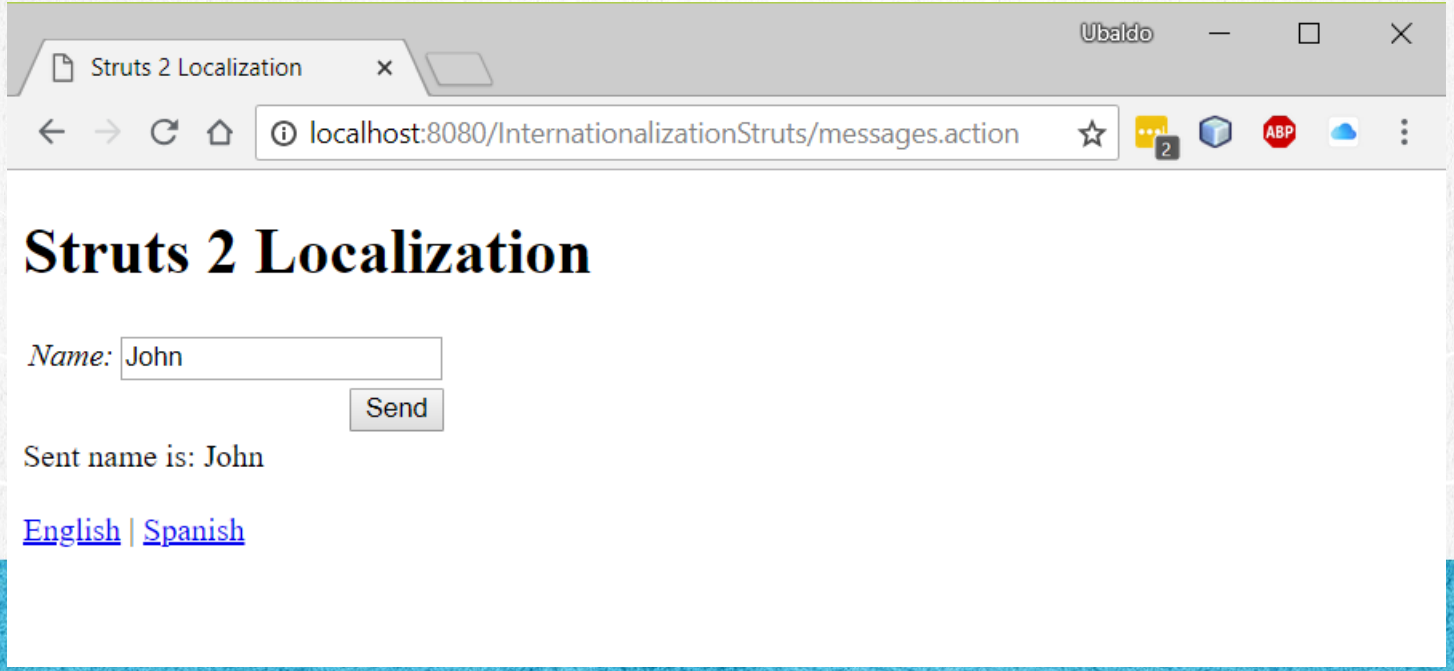
20. EXECUTE THE APPLICATION

- We run the application as follows:



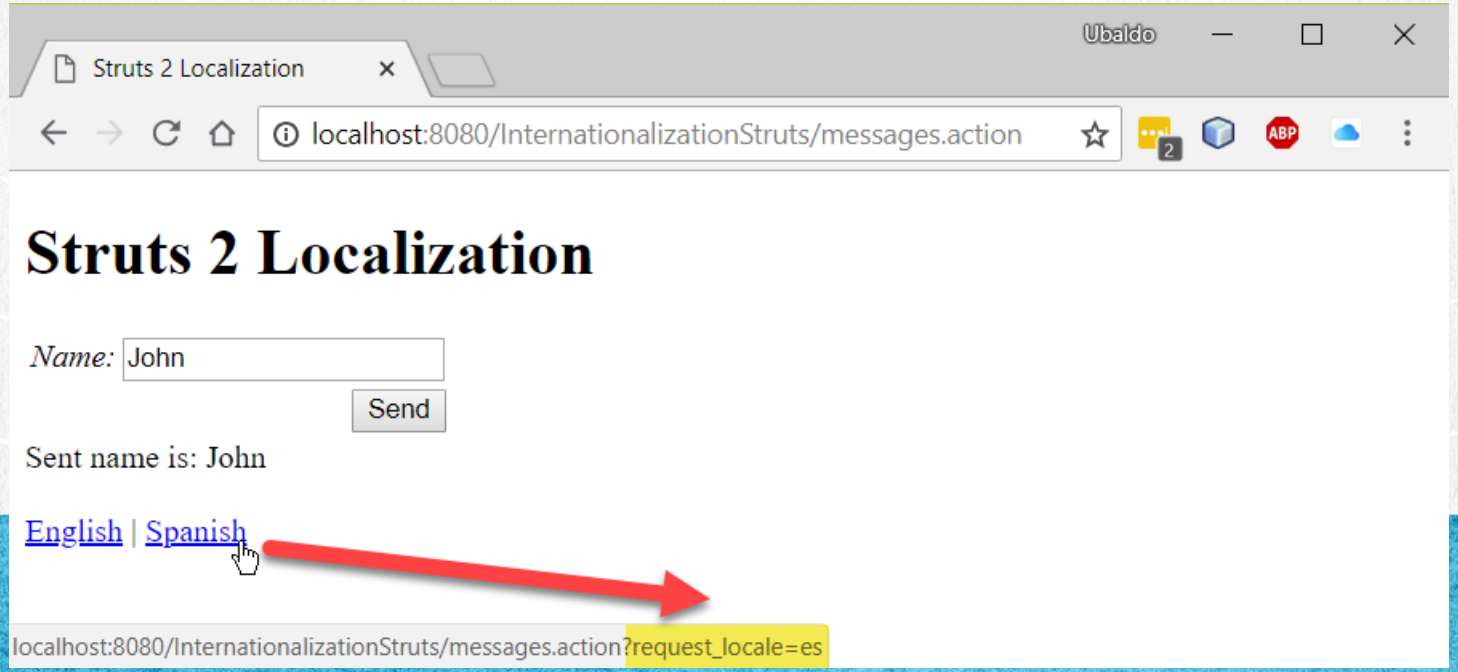
20. EXECUTE THE APPLICATION

- Fill the form and click on Send, in this case it first appears in English, but the default language depends on the configuration of our Web browser :



20. EXECUTE THE APPLICATION

- If we want to change the language, we click on the desired language, eg. Spanish. We can see that the request_locale=es is sent in, and with this it is enough to change the language:



20. EXECUTE THE APPLICATION

- We note that the properties file has now been loaded in the Spanish language (es):

20. EXECUTE THE APPLICATION

- Finally, to return again to the English language, just click on the respective option and send the parameter request_locale=en

FINAL RECOMMENDATIONS

If for some reason the exercise fails, several things can be done to correct it:

1. Stop the Glassfish server
2. Make a Clean & Build project to have the most recent version compiled
3. Restart the project (deploy the project to the server again)

If the above does not work, you can try loading the resolved project which is 100% functional and rule out configuration problems in your environment or any other code error.

EXERCISE CONCLUSION

With this exercise we put into practice the concept of internationalization with Struts 2.

Although in this project we could have applied more features such as validations, error handling, etc., we left it as something optional so that you can put it into practice yourself. In this exercise we have left this project as simple as possible so that the use of Internationalization is clear when we work with Struts 2.

This topic as we have seen is an extension of the handling of Messages with Struts 2, and just by extending the ActionSupport class and working with the default implementation of Struts, we have access to this feature automatically.

With this we conclude the message topic and Internationalization with Struts 2.

ONLINE COURSE

STRUTS 2 FRAMEWORK

By: Eng. Ubaldo Acosta