Spring Boot Hello World Example - JSP

By mkyong (https://www.mkyong.com/author/mkyong/) | November 28, 2016 | Viewed : 141,108 times +4,405 pv/w

A Spring Boot (https://projects.spring.io/spring-boot/) web application example, using embedded Tomcat + JSP template, and package as an executable WAR file.

Technologies used:

- 1. Spring Boot 1.4.2.RELEASE
- 2. Spring 4.3.4.RELEASE
- 3. Tomcat Embed 8.5.6
- 4. Maven 3
- 5. Java 8

1. Project Directory

Create the following folders manually:



2. Project Dependencies

Maven example. Read comments for self-explanatory.

pom.xml

```
<?xml version="1.0" encoding="UTF-8"?>
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>
   <artifactId>spring-boot-web-jsp</artifactId>
   <packaging>war</packaging>
   <name>Spring Boot Web JSP Example
   <description>Spring Boot Web JSP Example</description>
   <url>https://www.mkyong.com</url>
   <version>1.0</version>
   <parent>
       <groupId>org.springframework.boot</groupId>
       <artifactId>spring-boot-starter-parent</artifactId>
       <version>1.4.2.RELEASE
   </parent>
   operties>
       <java.version>1.8</java.version>
   </properties>
   <dependencies>
       <!-- This is a web application -->
       <dependency>
           <groupId>org.springframework.boot
           <artifactId>spring-boot-starter-web</artifactId>
       </dependency>
       <!-- Tomcat embedded container-->
       <dependency>
           <groupId>org.springframework.boot</groupId>
           <artifactId>spring-boot-starter-tomcat</artifactId>
           <scope>provided</scope>
       </dependency>
       <!-- JSTL for JSP -->
       <dependency>
           <groupId>javax.servlet</groupId>
           <artifactId>jstl</artifactId>
       </dependency>
       <!-- Need this to compile JSP -->
           <groupId>org.apache.tomcat.embed
           <artifactId>tomcat-embed-jasper</artifactId>
           <scope>provided</scope>
       </dependency>
       <!-- Need this to compile JSP,
           tomcat-embed-jasper version is not working, no idea why -->
           <groupId>org.eclipse.jdt.core.compiler</groupId>
           <artifactId>ecj</artifactId>
           <version>4.6.1
           <scope>provided</scope>
       </dependency>
       <!-- Optional, test for static content, bootstrap CSS-->
       <dependency>
           <groupId>org.webjars
           <artifactId>bootstrap</artifactId>
           <version>3.3.7
       </dependency>
   </dependencies>
   <build>
       <plugins>
           <!-- Package as an executable jar/war -->
           <plugin>
               <groupId>org.springframework.boot</groupId>
               <artifactId>spring-boot-maven-plugin</artifactId>
           </plugin>
```

```
</plugins>
  </puild>
</project>
```

Display project depdencies:

```
$ mvn dependency:tree
[INFO] Scanning for projects...
[INFO]
[INFO] ------
[INFO] Building Spring Boot Web JSP Example 1.0
[INFO] -----
[INFO] --- maven-dependency-plugin:2.10:tree (default-cli) @ spring-boot-web-jsp ---
[INFO] org.springframework.boot:spring-boot-web-jsp:war:1.0
[INFO] +- org.springframework.boot:spring-boot-starter-web:jar:1.4.2.RELEASE:compile
[INFO] | +- org.springframework.boot:spring-boot-starter:jar:1.4.2.RELEASE:compile
[INFO] | +- org.springframework.boot:spring-boot:jar:1.4.2.RELEASE:compile
[INFO] | +- org.springframework.boot:spring-boot-autoconfigure:jar:1.4.2.RELEASE:compile
[INFO] | +- org.springframework.boot:spring-boot-starter-logging:jar:1.4.2.RELEASE:compile
[INFO] | | +- ch.qos.logback:logback-classic:jar:1.1.7:compile
[INFO] | | +- ch.qos.logback:logback-core:jar:1.1.7:compile
[INFO] | | | \- org.slf4j:slf4j-api:jar:1.7.21:compile
[INFO] | | +- org.slf4j:jcl-over-slf4j:jar:1.7.21:compile
[INFO] | | +- org.slf4j:jul-to-slf4j:jar:1.7.21:compile
[INFO] | | \- org.slf4j:log4j-over-slf4j:jar:1.7.21:compile
[INFO] | +- org.springframework:spring-core:jar:4.3.4.RELEASE:compile
[INFO] | | \- org.yaml:snakeyaml:jar:1.17:runtime
[INFO] | +- org.hibernate:hibernate-validator:jar:5.2.4.Final:compile
[INFO] | +- javax.validation:validation-api:jar:1.1.0.Final:compile
[INFO] | +- org.jboss.logging:jboss-logging:jar:3.3.0.Final:compile
[INFO] | \- com.fasterxml:classmate:jar:1.3.3:compile
[INFO] | +- com.fasterxml.jackson.core:jackson-databind:jar:2.8.4:compile
[INFO] | +- com.fasterxml.jackson.core:jackson-annotations:jar:2.8.4:compile
[INFO] | \- com.fasterxml.jackson.core:jackson-core:jar:2.8.4:compile
[INFO] | +- org.springframework:spring-web:jar:4.3.4.RELEASE:compile
[INFO] | +- org.springframework:spring-aop:jar:4.3.4.RELEASE:compile
[INFO] | +- org.springframework:spring-beans:jar:4.3.4.RELEASE:compile
[INFO] | \- org.springframework:spring-context:jar:4.3.4.RELEASE:compile
[INFO] | \- org.springframework:spring-webmvc:jar:4.3.4.RELEASE:compile
[INFO] |
           \- org.springframework:spring-expression:jar:4.3.4.RELEASE:compile
[INFO] +- org.springframework.boot:spring-boot-starter-tomcat:jar:1.4.2.RELEASE:provided
[INFO] | +- org.apache.tomcat.embed:tomcat-embed-core:jar:8.5.6:provided
[INFO] | +- org.apache.tomcat.embed:tomcat-embed-el:jar:8.5.6:provided
[INFO] | \- org.apache.tomcat.embed:tomcat-embed-websocket:jar:8.5.6:provided
[INFO] +- javax.servlet:jstl:jar:1.2:compile
[INFO] +- org.apache.tomcat.embed:tomcat-embed-jasper:jar:8.5.6:provided
[INFO] +- org.eclipse.jdt.core.compiler:ecj:jar:4.6.1:provided
[INFO] \- org.webjars:bootstrap:jar:3.3.7:compile
[INFO]
       \- org.webjars:jquery:jar:1.11.1:compile
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 1.327 s
[INFO] Finished at: 2016-11-28T16:57:00+08:00
[INFO] Final Memory: 20M/309M
```

3. Spring Spring

3.1 This SpringBootServletInitializer run a SpringApplication from a traditional WAR deployment

```
SpringBootWebApplication.java
```

```
package com.mkyong;
import org.springframework.boot.SpringApplication;
import org.springframework.boot.autoconfigure.SpringBootApplication;
import org.springframework.boot.builder.SpringApplicationBuilder;
import org.springframework.boot.web.support.SpringBootServletInitializer;

@SpringBootApplication
public class SpringBootWebApplication extends SpringBootServletInitializer {

    @Override
    protected SpringApplicationBuilder configure(SpringApplicationBuilder application) {
        return application.sources(SpringBootWebApplication.class);
    }

    public static void main(String[] args) throws Exception {
        SpringApplication.run(SpringBootWebApplication.class, args);
    }
}
```

3.2 A simple Spring controller class.

```
WelcomeController.java
package com.mkyong;
import java.util.Map;
import org.springframework.beans.factory.annotation.Value;
import org.springframework.stereotype.Controller;
import\ org. spring framework. web. bind. annotation. Request Mapping;
@Controller
public class WelcomeController {
    // inject via application.properties
    @Value("${welcome.message:test}")
    private String message = "Hello World";
    @RequestMapping("/")
    public String welcome(Map<String, Object> model) {
        model.put("message", this.message);
        return "welcome";
    }
}
```

4. JSP + Resources + Static files

4.1 For JSP files, put in src/main/webapp/WEB-INF/jsp/

src/main/webapp/WEB-INF/jsp/welcome.jsp

```
<!DOCTYPE html>
<%@ taglib prefix="spring" uri="http://www.springframework.org/tags"%>
<%@ taglib prefix="c" uri="http://java.sun.com/jsp/jstl/core"%>
<html lang="en">
<head>
    <!-- Access the bootstrap Css like this,
       Spring boot will handle the resource mapping automcatically \dashrightarrow
    <link rel="stylesheet" type="text/css" href="webjars/bootstrap/3.3.7/css/bootstrap.min.css" />
    <1--
    <spring:url value="/css/main.css" var="springCss" />
    <link href="${springCss}" rel="stylesheet" />
    <c:url value="/css/main.css" var="jstlCss" />
    <link href="${jstlCss}" rel="stylesheet" />
</head>
<body>
    <nav class="navbar navbar-inverse">
       <div class="container">
           <div class="navbar-header">
               <a class="navbar-brand" href="#">Spring Boot</a>
           </div>
           <div id="navbar" class="collapse navbar-collapse">
               <a href="#">Home</a>
                   <a href="#about">About</a>
               </div>
       </div>
    </nav>
    <div class="container">
       <div class="starter-template">
           <h1>Spring Boot Web JSP Example</h1>
           <h2>Message: ${message}</h2>
       </div>
    </div>
    <script type="text/javascript" src="webjars/bootstrap/3.3.7/js/bootstrap.min.js"></script>
</body>
</html>
```

4.2 For static files like CSS or Javascript, put in /src/main/resources/static/

```
/src/main/resources/static/css/main.css

h1{
    color:#0000FF;
}

h2{
    color:#FF0000;
}
```

4.3 For properties files, put in /src/main/resources/

```
/src/main/resources/application.properties

spring.mvc.view.prefix: /WEB-INF/jsp/
spring.mvc.view.suffix: .jsp

welcome.message: Hello Mkyong
```

Note

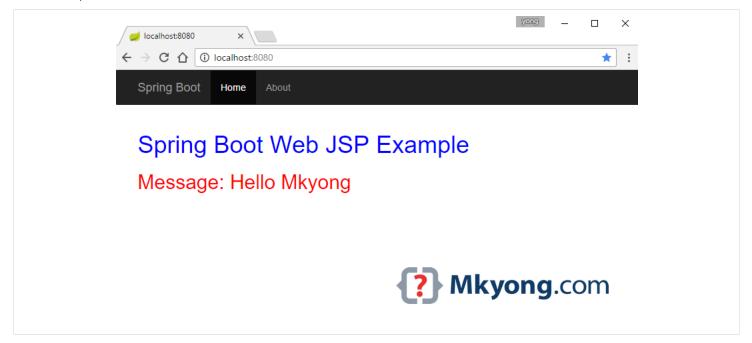
Spring Boot, convention over configuration, no need to declare the resource mapping like this (https://www.mkyong.com/spring-mvc/spring-mvc-how-to-include-js-or-css-files-in-a-jsp-page/). The resource mapping just handles automatically – Read this article – Spring Boot Serving static content (http://docs.spring.io/spring-boot/docs/current/reference/htmlsingle/#boot-features-spring-mvc-static-content)

5. Demo

5.1 Start the Spring Boot web app.

```
project$ mvn spring-boot:run
//...
|___| .__| |_| |_\_, | / / / /
======|_|======|___/=/_/_/
:: Spring Boot ::
2016-11-28 17:25:24.809 INFO 4696 --- [
                                                                                            : Starting SpringBootWebApplication on MKYONG-WIN10 v
                                                main] com.mkyong.SpringBootWebApplication
                                                main] com.mkyong.SpringBootWebApplication
2016-11-28 17:25:24.812 INFO 4696 --- [
                                                                                            : No active profile set, falling back to default prof
2016-11-28 17:25:24.861 INFO 4696 --- [
                                               main] ationConfigEmbeddedWebApplicationContext : Refreshing org.springframework.boot.context.embedde
2016-11-28 17:25:25.950 INFO 4696 --- [
                                               main] s.b.c.e.t.TomcatEmbeddedServletContainer : Tomcat initialized with port(s): 8080 (http)
2016-11-28 17:25:25.965 INFO 4696 --- [
                                                main] o.apache.catalina.core.StandardService : Starting service Tomcat
2016-11-28 17:25:25.966 INFO 4696 --- [
                                                main] org.apache.catalina.core.StandardEngine : Starting Servlet Engine: Apache Tomcat/8.5.6
2016-11-28 17:25:26.171 INFO 4696 --- [ost-startStop-1] org.apache.jasper.servlet.TldScanner : At least one JAR was scanned for TLDs yet contained
2016-11-28 17:25:26.180 INFO 4696 --- [ost-startStop-1] o.a.c.c.C.[Tomcat].[localhost].[/]
                                                                                            : Initializing Spring embedded WebApplicationContext
2016-11-28 17:25:26.180 INFO 4696 --- [ost-startStop-1] o.s.web.context.ContextLoader
                                                                                            : Root WebApplicationContext: initialization complete
2016-11-28 17:25:26.304 INFO 4696 --- [ost-startStop-1] o.s.b.w.servlet.ServletRegistrationBean : Mapping servlet: 'dispatcherServlet' to [/]
2016-11-28 17:25:26.312 INFO 4696 --- [ost-startStop-1] o.s.b.w.servlet.FilterRegistrationBean : Mapping filter: 'characterEncodingFilter' to: [/*]
2016-11-28 17:25:26.313 INFO 4696 --- [ost-startStop-1] o.s.b.w.servlet.FilterRegistrationBean
                                                                                            : Mapping filter: 'hiddenHttpMethodFilter' to: [/*]
2016-11-28 17:25:26.313 INFO 4696 --- [ost-startStop-1] o.s.b.w.servlet.FilterRegistrationBean
                                                                                           : Mapping filter: 'httpPutFormContentFilter' to: [/*]
                                                                                            : Mapping filter: 'requestContextFilter' to: [/*]
2016-11-28 17:25:26.314 INFO 4696 --- [ost-startStop-1] o.s.b.w.servlet.FilterRegistrationBean
//...
2016-11-28 17:25:26.841 INFO 4696 --- [
                                                main] s.b.c.e.t.TomcatEmbeddedServletContainer : Tomcat started on port(s): 8080 (http)
2016-11-28 17:25:26.846 INFO 4696 --- [
                                                main] com.mkyong.SpringBootWebApplication
                                                                                            : Started SpringBootWebApplication in 2.403 seconds
```

5.2 Access http://localhost:8080



5.3 Maven package the project as an executable WAR file. A 18M++ WAR file will be generated in the target folder.

Run It, access http://localhost:8080 again.

```
project$ java -jar target/spring-boot-web-jsp-1.0.war
```

JSP limitations

You can't create an executable <code>jar</code> to run this embedded Tomcat + JSP web example, because of a hard coded file pattern in Tomcat. Read this Spring Boot – JSP limitation (http://docs.spring.io/spring-boot/docs/current/reference/html/boot-features-developing-web-applications.html#boot-features-jsp-limitations).

Download Source Code

Download it - spring-boot-web-jsp.zip (8KB) (http://www.mkyong.com/wp-content/uploads/2016/11/spring-boot-web-jsp.zip)

References

- 1. Spring Boot Static content (http://docs.spring.io/spring-boot/docs/current/reference/htmlsingle/#boot-features-spring-mvc-static-content)
- SpringBootServletInitializer JavaDoc (http://docs.spring.io/spring-boot/docs/current/api/org/springframework/boot/context/web/SpringBootServletInitializer.html)
- 3. Deploying Spring Boot Applications (https://spring.io/blog/2014/03/07/deploying-spring-boot-applications)
- Spring Boot JSP limitations (http://docs.spring.io/spring-boot/docs/current/reference/html/boot-features-developing-web-applications.html#boot-features-jsp-limitations)
- 5. Spring MVC Inlucde CSS file (https://www.mkyong.com/spring-mvc/spring-mvc-how-to-include-is-or-css-files-in-a-isp-page/)

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mkyong

Founder of Mkyong.com (http://mkyong.com), love Java and open source stuff. Follow him on Twitter (https://twitter.com/mkyong), or befriend him on Facebook (http://www.facebook.com/java.tutorial) or Google Plus

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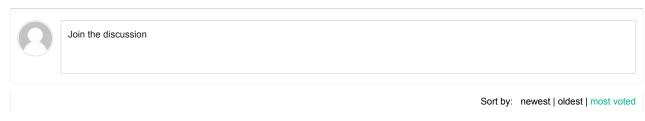
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Vaishali Modi

Getting error as below:

Guest

This application has no explicit mapping for /error, so you are seeing this as a fallback.

There was an unexpected error (type=Not Found, status=404).

No message available



② 1 month 18 days ago



Srinivas

You have to execute the maven command like "mvn clean package", after this run the java program

Guest



28 days 18 hours ago



Daniel Bower (http://bowerstudios.com)

Changing the scope of that tomcat dependency from provided to runtime ought to do the trick.

Guest



② 2 months 29 days ago



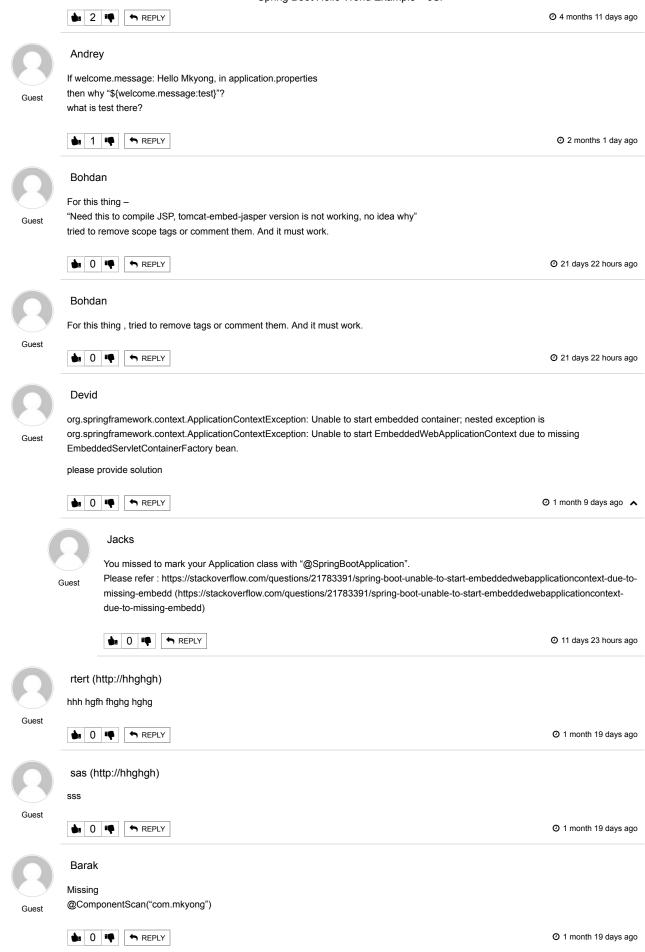
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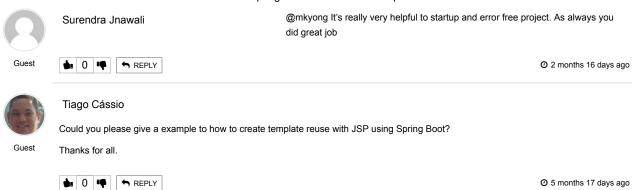
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my jsp is getting downloaded

as a file when i am hitting http://localhost:8080 (http://localhost:8080) url.







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