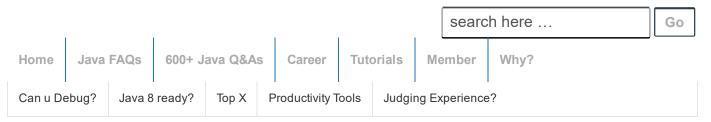
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o3: ♥ JAX-RS how to create a RESTFul Web Service in Java?

Posted on June 17, 2015 by Arulkumaran Kumaraswamipillai



Q. What are the high level steps in developing a RESTful web service in Java?

A. You can see the complete tutorial in the tutorials section. This post is to quickly explain the major steps at the job interview. Knowing all the basics is of no use if you can't write a web service.

Step 1: Create a Maven project structure:

1 mvn archetype:generate -DgroupId=com.mytutorial -

Step 2: Need the libraries/frameworks

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This example shows RESTEasy as JAX-RS implementation from JBoss.

```
23
       xsi:schemaLocation="http://maven.apache.org/
       <modelVersion>4.0.0</modelVersion>
4
       <groupId>com.mytutorial
5
       <artifactId>simpleRestWeb</artifactId>
6
       <packaging>war</packaging>
       <version>1.0-SNAPSHOT</version>
7
8
       <name>simpleRestWeb Maven Webapp</name>
9
       <url>http://maven.apache.org</url>
10
11
       properties>
12
            <resteasy.version>2.3.6.Final</resteasy.</pre>
            <javax-servlet.version>3.0.1</javax-serv</pre>
13
14
            <spring.version>3.1.0.RELEASE</spring.ve</pre>
15
       </properties>
16
17
       <dependencies>
18
            <dependency>
19
                <groupId>junit
20
                <artifactId>junit</artifactId>
21
                <version>3.8.1
22
                <scope>test</scope>
23
           </dependency>
24
25
            <!-- JAX-RS RESTEasy implementation-->
26
            <dependency>
27
                <groupId>org.jboss.resteasy</groupId</pre>
28
                <artifactId>jaxrs-api</artifactId>
29
                <!-- <scope>provided</scope> -->
30
                <version>${resteasy.version}</version</pre>
31
           </dependency>
32
            <dependency>
33
                <groupId>org.jboss.resteasy</groupId</pre>
34
                <artifactId>resteasy-jaxrs</artifact
<!-- <scope>provided</scope> -->
35
36
                <version>${resteasy.version}</version</pre>
37
           </dependency>
38
            <dependency>
39
                <groupId>org.jboss.resteasy</groupId</pre>
40
                <artifactId>resteasy-jaxb-provider
41
                <!-- <scope>provided</scope> -->
42
                <version>${resteasy.version}</versio|</pre>
43
           </dependency>
44
            <dependency>
45
                <groupId>org.jboss.resteasy</groupId</pre>
46
                <artifactId>resteasy-spring</artifact
47
                <scope>runtime</scope>
48
                <version>${resteasy.version}</version</pre>
49
           </dependency>
50
51
            <!-- Servelet API -->
52
            <dependency>
53
                <groupId>javax.servlet
54
                <artifactId>javax.servlet-api</artif
55
                <scope>provided</scope>
56
                <version>${javax-servlet.version}</v</pre>
57
            </dependency>
58
59
            <!-- Spring -->
60
            <dependency>
```

```
∃ JMX (3)
 Pressed for time? Jav
⊕ SQL, XML, UML, JSC

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```

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Setting up Tutorial (6)

```
61
                <groupId>org.springframework</groupI</pre>
62
                <artifactId>spring-web</artifactId>
63
                <scope>compile</scope>
64
                <version>${spring.version}</version>
65
            </dependency>
66
        </dependencies>
67
        <build>
            <finalName>simpleRestWeb</finalName>
68
69
        </build>
70 </project>
71
```

Step 3: Web service interface with JAX-RS annotations

Folder: src/main/java

```
package com.mytutorial;
3
   import javax.ws.rs.GET;
   import javax.ws.rs.Path;
import javax.ws.rs.PathParam;
6
   @Path("/myapp")
8
   public interface SimpleRestWeb {
9
10
        @GET
        @Path("/name/{name}")
11
        public String sayHello(@PathParam("name") St
12
13 }
```

Step 4: Implementation of Web service interface

```
package com.mytutorial;

public class SimpleRestWebImpl implements Simple

@Override
public String sayHello(String name) {
    String result = "Hello " + name;
    return result;
}

10 }
```

Step 4: Spring XML config as IoC.

Folder: src/main/resources/com/mytutorial

```
1 <?xml version="1.0" encoding="UTF-8"?>
2 <beans xmlns="http://www.springframework.org/sch
3 xmlns:aop="http://www.springframework.org/sc</pre>
```

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Step 5: web.xml deployment descriptor

to bootstrap Spring and initialize servlet, mapping, etc.

Folder: src/main/webapp/WEB-INF.

```
<!DOCTYPE web-app PUBLIC</pre>
    "-//Sun Microsystems, Inc.//DTD Web Application
3
    "http://java.sun.com/dtd/web-app_2_3.dtd" >
5
   <web-app>
       <display-name>Archetype Created Web Applicat
7
8
       <context-param>
9
            <param-name>contextConfigLocation</param</pre>
10
            <param-value>classpath:/com/mytutorial/a
11
       </context-param>
12
13
       <context-param>
14
            <param-name>resteasy.use.deployment.sens
15
            <param-value>false</param-value>
16
       </context-param>
17
18
       <context-param>
19
            <param-name>resteasy.servlet.mapping.pre
20
            <param-value>/rest</param-value>
21
       </context-param>
22
23
       stener>
24
            tener-class>org.jboss.resteasy.plugi
25
       </listener>
26
       stener>
27
            <listener-class>org.jboss.resteasy.plugi
28
       </listener>
29
30
       <servlet>
31
            <servlet-name>resteasy-simple</servlet-n</pre>
32
            <servlet-class>org.jboss.resteasy.plugin
33
       </servlet>
34
35
       <servlet-mapping>
36
            <servlet-name>resteasy-simple</servlet-n</pre>
37
            <url-pattern>/rest/*</url-pattern>
38
       </servlet-mapping>
39 </web-app>
```

Build the war and deploy to say JBoss application server.

Step 6: JBoss deployment descriptor

Folder: src/main/webapp/WEB-INF/jboss-web.xml

```
1 <jboss-web>
2 <context-root>tutorial</context-root>
3 </jboss-web>
4
```

The URL = http://localhost:8080/tutorial/rest/myapp/name/arul

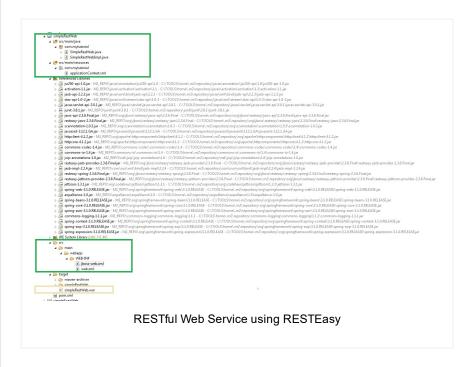
tutorial: defined in jboss-web.xml (application context)

rest: defined in web.xml (servlet-mapping)

myapp/name/arul: in SimpleRestWeb interface (@Path

annotation at class and method level)

Project Structure:



Hmmm, some of the other steps are agreeing on content type like XML, JSON, etc among the producer & consumers, the contract for the content, service retry logic, service timeouts, using JAXB to map XML/JSON to Java objects, etc need to be sorted out.

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