Spring with REST Integration

This document provides a step-by-step guide for building a RESTful Service using Spring framework.

Prerequisites:

1. **Eclipse IDE**
2. **Java 1.8**
3. **Apache Tomcat 8**
4. **POSTMAN plugin in Google Chrome**

Note: ***In this application we are not using Database to persist the data. We are using java.util.Map (in Memory DB :P) as persistent store to persist the data in the form of key and value pair.***

Source can be downloaded from below repository link

Repository Link: https://github.com/Ashok-IT-School/Spring-REST-Integration-App.git

For any inputs/clarifications feel free to reach me. Below are my contact details

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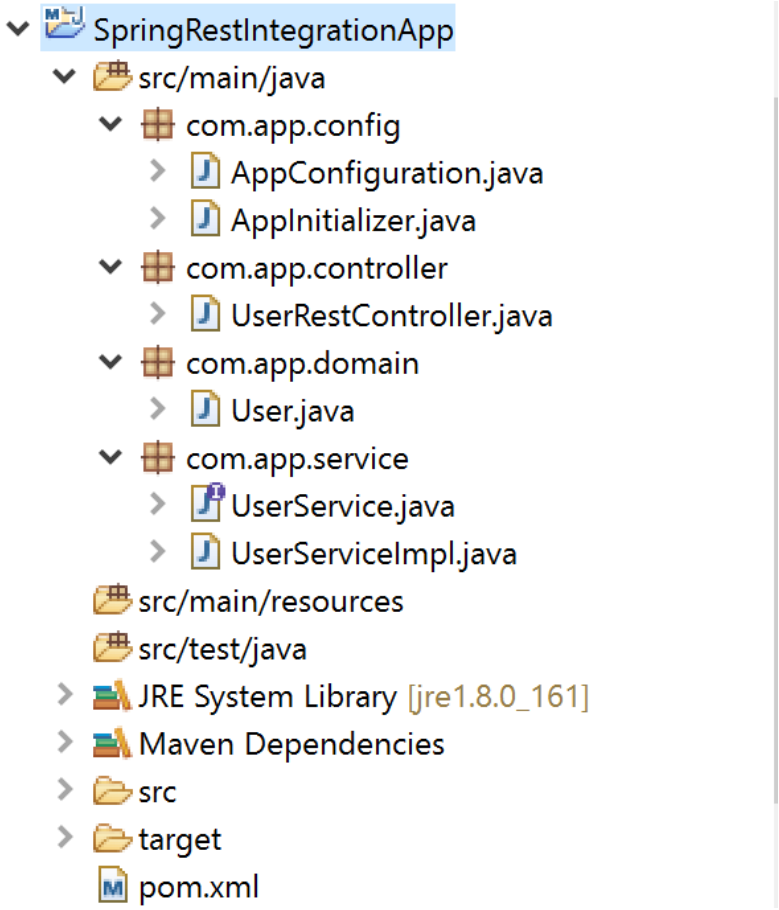
Steps to develop Spring app with Rest Integration

Step 1: Create Maven Web Project



Step 2: Configure maven dependencies in project pom.xml file

After creating the project, the first step is to add Spring dependencies into pom.xml, like so:

```
<properties>
        <springframework.version>4.3.0.RELEASE</springframework.version>
        <jackson.library>2.7.5</jackson.library>
</properties>
<dependencies>
        <dependency>
                <groupId>org.springframework</groupId>
                <artifactId>spring-core</artifactId>
                <version>${springframework.version}</version>
        </dependency>
        <dependency>
                <groupId>org.springframework</groupId>
                <artifactId>spring-web</artifactId>
                <version>${springframework.version}</version>
        </dependency>
        <dependency>
                <groupId>org.springframework</groupId>
                <artifactId>spring-webmvc</artifactId>
                <version>${springframework.version}</version>
        </dependency>
        <dependency>
                <groupId>javax.servlet</groupId>
                <artifactId>javax.servlet-api</artifactId>
                <version>3.1.0</version>
        </dependency>
        <dependency>
                <groupId>com.fasterxml.jackson.core</groupId>
                <artifactId>jackson-databind</artifactId>
                <version>${jackson.library}</version>
        </dependency>
</dependencies>
```

Step 3: Create Domain class for representing the data (User.java)

User.java

```
package com.app.domain;

import javax.xml.bind.annotation.XmlAccessType;
import javax.xml.bind.annotation.XmlAccessorType;
import javax.xml.bind.annotation.XmlRootElement;

@XmlRootElement(name = "user")
@XmlAccessorType(XmlAccessType.FIELD)
public class User {

    private Integer userid;
    private String username;
    private String email;
    private String gender;

    //setters & getters

    //toString( )

}
```

Step 4: Create UserService.java class to perform Business operations

```
package com.app.service;
import java.util.HashMap;
import java.util.Map;
import org.springframework.stereotype.Service;
import com.app.domain.User;
@Service(value = "service")
public class UserServiceImpl implements UserService {
	//In memory Map to store data
	private static Map<Integer, User> usersData = new HashMap<Integer, User>();
	public boolean add(User user) {
		if (usersData.containsKey(user.getUserid())) {
			return false;
		} else {
			usersData.put(user.getUserid(), user);
			return true;
		}
	}
	public User get(String uid) {
		System.out.println(usersData);
		if (usersData.containsKey(Integer.parseInt(uid))) {
			return usersData.get(Integer.parseInt(uid));
		}
		return null;
	}
	public boolean update(String uid, User user) {
		if (usersData.containsKey(Integer.parseInt(uid))) {
			usersData.put(Integer.parseInt(uid), user);
			return true;
		}
		return false;
```

```
	}
	public boolean delete(String uid) {
		if (usersData.containsKey(Integer.parseInt(uid))) {
			usersData.remove(usersData.get(Integer.parseInt(uid)));
			return true;
		}
		return false;
	}
}
```

Step 5: Create RestController (UserRestController.java)

```
package com.app.controller;
import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.web.bind.annotation.RequestBody;
import org.springframework.web.bind.annotation.RequestMapping;
import org.springframework.web.bind.annotation.RequestMethod;
import org.springframework.web.bind.annotation.RequestParam;
import org.springframework.web.bind.annotation.ResponseBody;
import org.springframework.web.bind.annotation.RestController;

import com.app.domain.User;
import com.app.service.UserService;

@RestController
public class UserRestController {

	@Autowired(required = true)
	private UserService service;
@RequestMapping(value = "/add", method = RequestMethod.POST, consumes = {
"application/xml","application/json" })
	public @ResponseBody String addUser(@RequestBody User user) {
```

```
		boolean isAdded = service.add(user);
		if (isAdded) {
			return "User Added successfully";
		} else {
			return "Failed to Add the User..!";
		}
	}

	@RequestMapping(value = "/get", produces = { "application/xml", "application/json"
},method=RequestMethod.GET)
	@ResponseBody
	public User getUserById(@RequestParam(name = "uid") String uid) {
		System.out.println("Getting User with User Id : "+uid);
		User user = service.get(uid);
		return user;
	}

	@RequestMapping(value = "/update", method = RequestMethod.PUT, consumes = {
"application/xml", "application/json" })
	public @ResponseBody String update(@RequestParam("uid") String uid, @RequestBody
User user) {
		boolean isAdded = service.update(uid, user);
		if (isAdded) {
			return "User updated successfully";
		} else {
			return "Failed to update the User..!";
		}
	}
	@RequestMapping(value = "/delete", method = RequestMethod.DELETE)
	public @ResponseBody String delete(@RequestParam("uid") String uid) {
		boolean isAdded = service.delete(uid);
		if (isAdded) {
```

```
                return "User Deleted successfully";
            } else {
                return "Failed to Delete the User..!";
            }
        }
        public void setService(UserService service) {
            this.service = service;
        }
}
```

Step 6: Create AppConfig and AppInitiazer classes

AppConfiguration.java (To load Component classes)

AppConfiguration.java

```
package com.app.config;

import org.springframework.context.annotation.ComponentScan;
import org.springframework.context.annotation.Configuration;
import org.springframework.web.servlet.config.annotation.EnableWebMvc;

@Configuration
@EnableWebMvc
@ComponentScan(basePackages = "com.app.*")
public class AppConfiguration {

}
```

AppInitializer.java (To load DispatcherServlet at deployment time)

AppInitializer.java

```java
package com.app.config;

import org.springframework.web.servlet.support.AbstractAnnotationConfigDispatcherServletInitializer;

public class AppInitializer extends AbstractAnnotationConfigDispatcherServletInitializer {

    @Override
    protected Class<?>[] getRootConfigClasses() {
        return new Class[] { AppConfiguration.class };
    }

    @Override
    protected Class<?>[] getServletConfigClasses() {
        return null;
    }

    @Override
    protected String[] getServletMappings() {
        return new String[] { "/rest/*" };
    }

}
```

Step 7: Deploy the Application into server (Apache Tomcat 8.0)

Step 8: Test the Application using POSTMAN plugin in Google Chrome

POSTMAN Guide

Testing Add User – POST request

URI: http://localhost:6060/SpringRestIntegrationApp/rest/add

Method Type: POST

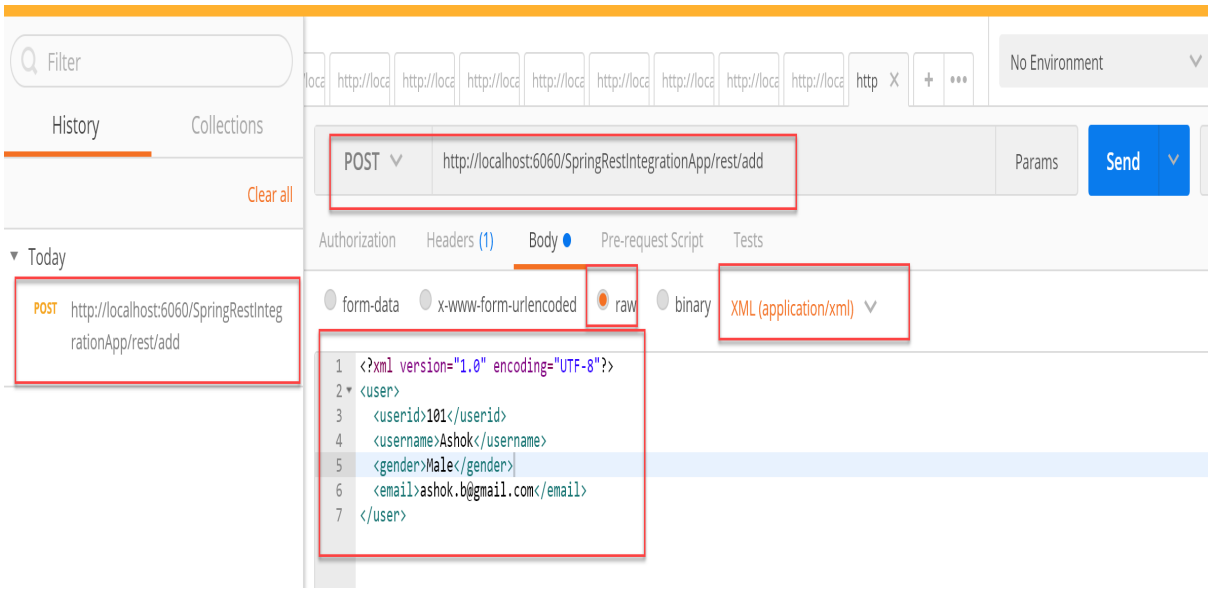
Consumes: {application/xml, application/json}

Produces: text/plain

Request Body Data: In XML Format

```
<? xml version="1.0" encoding="UTF-8"?>
<user>
  <userid>101</userid>
  <username>Ashok</username>
  <gender>Male</gender>
  <email>ashok.b@gmail.com</email>
</user>
```

POSTMAN Screenshot



Testing Get User – GET request

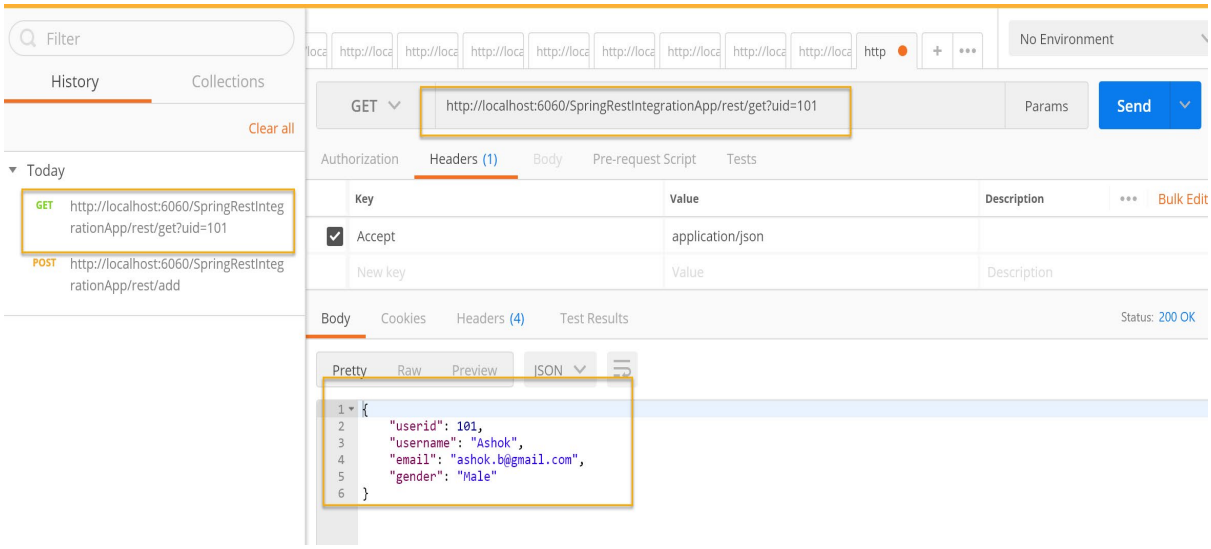
URI: http://localhost:6060/SpringRestIntegrationApp/rest/get?uid=101

Method Type: GET

Input: Request Parameter (? uid=101)

Produces: {application/xml, application/json}

POSTMAN Screenshot



Testing Update User – PUT request

URL: http://localhost:6060/SpringRestIntegrationApp/rest/update?uid=101

Method Type: PUT

Input in URL: User Id (Request Parameter)? uid=101

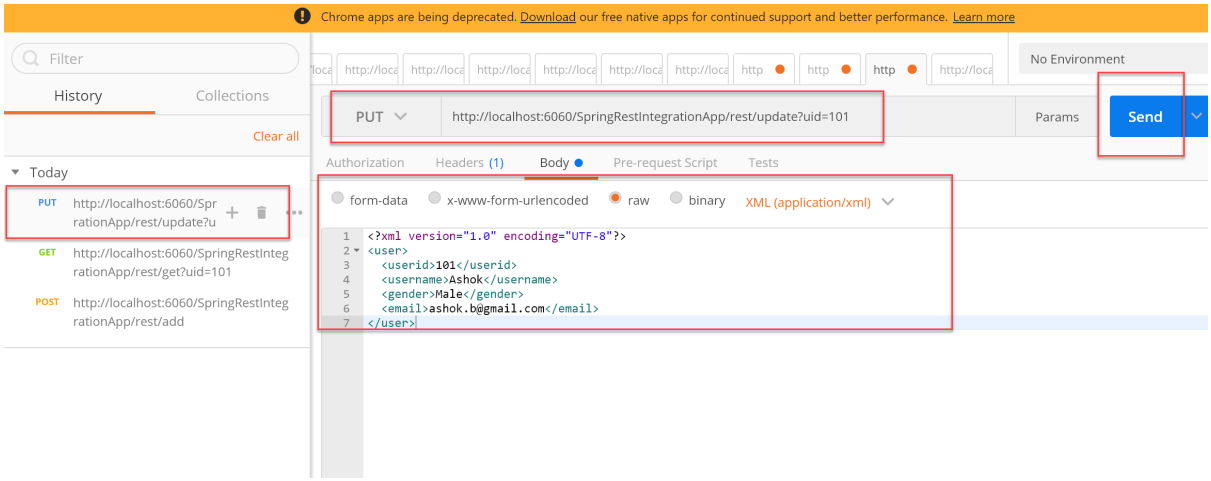
Consumes: {application/xml, application/json}

Produces: text/plain

Request Body Data: in XML format

```
<? xml version="1.0" encoding="UTF-8"?>
<user>
  <userid>101</userid>
  <username>Ashok</username>
  <gender>Male</gender>
  <email>ashok.b@gmail.com</email>
</user>
```

POSTMAN Screenshot



Testing Delete User – DELETE request

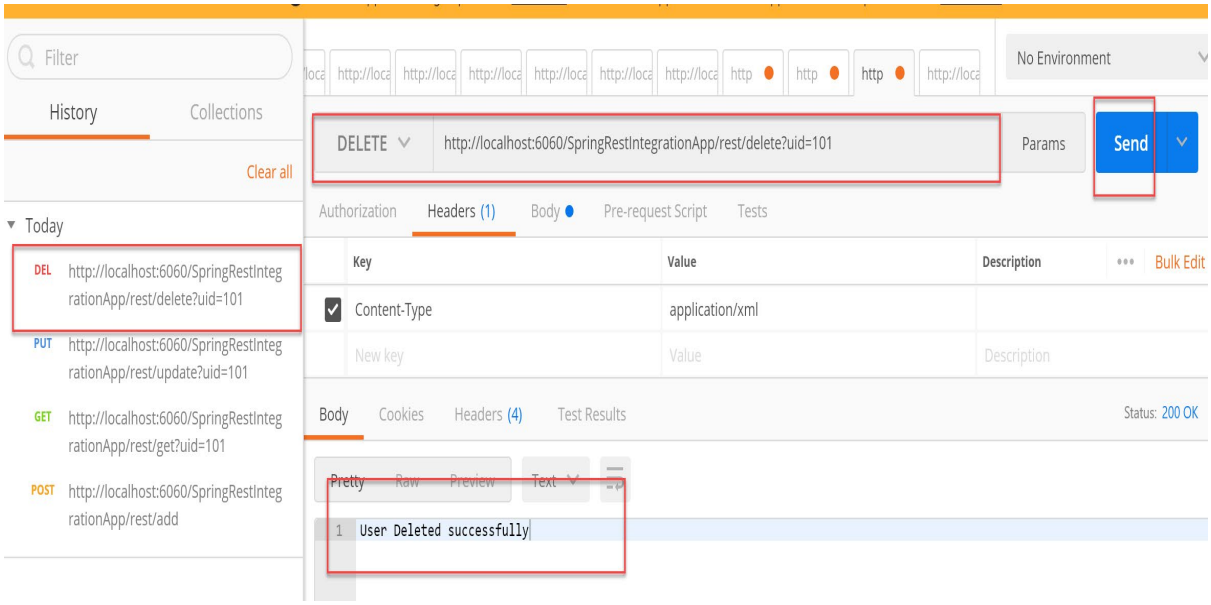
URL: http://localhost:6060/SpringRestIntegrationApp/rest/delete?uid=101

Method Type: DELETE

Input: Request Parameter (? uid=101)

Produces: text/plain

POSTMAN Screenshot



----------**Thankyou**----------