

# WORKING WITH SPRING REST | RESTFUL SERVICES IN SPRING (TT3358)

Course Code: 101040

Next-Level Spring: Best Practices for Writing RESTful Services in Java using Spring Boot.

Spring REST focuses on providing an understanding of the fundamental principles and technologies that are used in the development of RESTful services and clients. This understanding is critical to being able to diagnose, troubleshoot, tune, and perform other lifecycle activities.

Working with Spring REST is a two-day, fast-paced coding course geared for experienced developers who have prior working knowledge of Java. Throughout the course students learn the best practices for writing Restful services in Java using Spring Boot. The course provides an in-depth view of the APIs provided by Spring to develop both the REST service and the REST client.

## What You'll Learn

This “skills-centric” course is about **50% hands-on lab and 50% lecture**, designed to train attendees in core Cucumber and web testing skills, coupling the most current, effective techniques with the soundest industry practices. Working within in an engaging, hands-on learning environment, guided by our expert team, attendees will:

- Learn the request-response cycle of REST requests
- Implement a REST controller using Spring
- Map URLs to service endpoints
- Use Spring's template class to develop a REST client
- Bootstrap a Spring REST applications
- Return different media types for a service
- Setting the response headers
- Discuss Exceptions and HTTP Status codes
- Handle exceptions thrown by a service

## Who Needs to Attend

Java Developers, Application Developers, Full Stack Developers, Technical Managers, Architects.

## Prerequisites

This is an intermediate-level development course geared for students experienced with Java and Spring programming essentials. In order to be successful in the hands-on portion of the training, you should have incoming practical, hands-on prior experience working with basic Spring concepts and development skills (or attended the suggested pre-requisite courses listed below). This course does not cover Java or Spring development basics.

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CLASSROOM LIVE

\$2,464 CAD

2 Day

## Classroom Live Outline

### **Session: Implementing REST with Spring**

#### **Lesson: REST principles**

- Introduce the six architectural constraints of REST
- Introduce Resources and Resource representations
- Best practices for defining Resource URIs
- Tutorial: Setup Eclipse for Using Maven

#### **Lesson: Introduction to RESTful Services in Spring**

- Discuss the request-response cycle of REST requests
- Defining a REST Controller in Spring
- Explain the `@ResponseBody` annotation
- Define request mappings
- Use path variables

#### **Lesson: Introduction to REST Clients in Spring**

- Introduce `RestTemplate` class
- Making GET, POST, PUT, HEAD, OPTIONS and DELETE requests
- Introduce the `UriTemplate` class
- Using `HttpEntity` and `RequestEntity`
- Use the `exchange` method to define 'complex' requests
- Process requests and responses using callback
- Configure the `RestTemplate`

#### **Lesson: Bootstrapping the REST application**

- Describe steps needed to bootstrap Spring REST application
- Configure Content Representation libraries
- Configure Spring MVC and map the Dispatcher Servlet

- Explain the advantages of using Spring Boot to setup the REST project
- Setup a Spring REST application using Spring Boot

### **Lesson: Content Representation**

- Returning different media types from service
- Introduce negotiated resource representation
- Configure Message Converters

### **Lesson: Implementing the REST Service**

- Process for Spring REST Implementation
- The Domain object
- Using Project Lombok to define the domain object
- (Not) Using Data Transfer Objects
- ResponseEntity builder interfaces
- Setting Location header using UriComponentsBuilder

### **Lesson: Error Handling**

- Handling Exceptions and HTTP Status codes
- Using @ResponseStatus
- Exception handler methods in controller
- Using Controller advices to handle exception
- The ResponseStatusException class

### **Session: Security and RESTful Services**

#### **Lesson: Securing Untrusted Input**

- Input Data Attacks
- Protecting a Web Service
- Tenacious D
- Responding to Error State

#### **Lesson: Defending RESTful Services**

- How Attackers See REST
- Factors that Increase Attack Surface
- Data Tampering
- Cross Site Scripting
- Bridging and its potential Problems
- Dangerous Developer Assumptions
- Three Basic Tenets for Safe RESTfulness

## **Classroom Live Labs**

This hands-on course focuses on ‘learning by doing’, combining expert lecture, practical demonstrations and group discussions with plenty of machine-based real-world programming labs and exercises. Student machines are required.

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VIRTUAL CLASSROOM LIVE

\$2,464 CAD

2 Day

## Virtual Classroom Live Outline

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- Introduce the six architectural constraints of REST
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- Best practices for defining Resource URIs
- Tutorial: Setup Eclipse for Using Maven

#### **Lesson: Introduction to RESTful Services in Spring**

- Discuss the request-response cycle of REST requests
- Defining a REST Controller in Spring
- Explain the `@ResponseBody` annotation
- Define request mappings
- Use path variables

#### **Lesson: Introduction to REST Clients in Spring**

- Introduce `RestTemplate` class
- Making GET, POST, PUT, HEAD, OPTIONS and DELETE requests
- Introduce the `UriTemplate` class
- Using `HttpEntity` and `RequestEntity`
- Use the `exchange` method to define 'complex' requests
- Process requests and responses using callback
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#### **Lesson: Bootstrapping the REST application**

- Describe steps needed to bootstrap Spring REST application
- Configure Content Representation libraries
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- Explain the advantages of using Spring Boot to setup the REST project
- Setup a Spring REST application using Spring Boot

### **Lesson: Content Representation**

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### **Lesson: Implementing the REST Service**

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- Using Project Lombok to define the domain object
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PRIVATE GROUP TRAINING

2 Day

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