



Java REST Essentials

Explore Core Concepts, Principles, and Java Implementations for RESTful Services and More

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Course Snapshot

- **Course: Java REST Essentials (TT7305)**
- **Duration:** 2 days
- **Skill-Level & Audience :** Introduction to REST for experienced Java developers
- **Hands-on Learning:** This course is approximately **50% hands-on**, combining expert lecture, real-world demonstrations and group discussions with machine-based practical labs and exercises. Student machines are required.
- **Delivery Options:** This course is available for **onsite private classroom presentation, live online virtual presentation**, or can be presented in a **flexible blended learning format** for combined onsite and remote attendees. Please also ask about our **Self-Paced / Video / QuickSkills or Mini-Camp Flex Hours / Short Course** options.
- **Public Schedule:** This course has active dates on our live-online open enrollment **Public Schedule**.
- **Customizable:** This course agenda, topics and labs can be further adjusted to target your specific training skills objectives, tools and learning goals. Please inquire for details.

Overview

Geared for experienced Java developers, **Java REST Essentials** is a two day, lab-intensive services training course that introduces developers to the core concepts, principles, and Java implementations for RESTful services. Today's development environments are increasingly dominated by sophisticated tooling that makes the implementation of RESTful services less arduous. The proper design of these services is far more complex and demanding. Java RESTful Service Essentials focuses on providing an understanding of the fundamental principles and technologies that are used in building these services. This understanding is critical to being able to diagnose, troubleshoot, tune, and perform other lifecycle activities.

Learning Objectives

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

- Understand and apply the basic concepts of REST
- Understand and intelligently discuss the similarities and differences between RESTful services and SOAP-based services
- Appreciate the security concerns associated with RESTful services
- Design, develop, and deploy real-world RESTful Services
 - Effectively define and design endpoints
 - Work with query parameters
 - Determine the best format to use for exchanging data
 - Understand the principles associated with HTTP methods and how to stay congruent to them
 - Extend the semantics of the RESTful service beyond the HTTP methods
- Implement RESTful services using JAX-RS to
 - Handle various HTTP methods
 - Use different approaches for parameters
 - Deal with content negotiation
 - Work with different data formats including XML and JSON
 - Handle exceptions
- Implement RESTful Java clients
 - Develop JAX-RS Java clients using the JAX-RS 2.0 Client API
 - Manage different Web targets
 - Deal with content negotiation on the client
 - Work with different data formats including XML and JSON
 - Properly process server responses

- Implement JAX-RS Filters and Interceptors
 - Intercept and manipulate service requests and responses
 - Dynamically register interceptor to resources
 - Understand the concept of NameBinding
- Discover asynchronous JAX-RS processing
 - Implement an asynchronous JAX-RS service endpoint
 - Register response listeners

Need different skills or topics? If your team requires different topics or tools, additional skills or custom approach, this course may be further adjusted to accommodate. We offer additional Services, Microservices, programming, design and security courses which may be blended with this course for a track that best suits your development objectives. Our team will collaborate with you to understand your needs and will target the course to focus on your specific learning objectives and goals.

Audience & Pre-Requisites

This is an **intermediate level** training course, designed for experienced Java developers and architects who need to identify, design, and implement web services. We will explore and apply the terminology, the specification, the processes and technologies specific to web services. Students should have at least a year of practical development experience with Java and servlets, and should be familiar with XML and JSON.

Take Before: Incoming students should have skills equivalent to those in this course, or should have taken this course:

- TT2100 Core Java Programming for OO Experienced Developers (such as C# or C++)

For IT Stakeholders / DevOps / Developers

- TT7050 Understanding Microservices – A Technical Overview
- TT7053 Microservices Engineering Boot Camp
- TT7055 Microservices Boot Camp / Extended

For Programmers

- TT7302 Java Web Services – SOAP Essentials
- TT7305 Java REST Essentials
- TT7345 Working with Java Microservices
- TT8500 Web Services Security – Developing Secure Web Services

Follow On Courses: Our Java & JEE developer tracks include a wide variety of follow-on courses and learning paths for leveraging Java and JEE for next-level development, web development, reactive development, services and microservices, testing / TDD, application security and more. Please see our **Java & JEE Developer Training Suite & Learning Paths** list of courses or inquire for recommendations based on your specific role and goals.

Enhanced Learning Services: Please also ask about our **Pre-Training Class OnRamp & Prep / Primer** offerings, **Skills Gap Assessment Services, Case Studies, Knowledge Check Quizzes, Skills Immersion Programs & Camps, Collaborative Mentoring Services** and **Extended Learning Support & Post Training** services.

Course Topics / Agenda

Please note that this list of topics is based on our standard course offering, evolved from typical industry uses and trends. We will work with you to tune this course and level of coverage to target the skills you need most. Topics, agenda and labs are subject to change, and may adjust during live delivery based on audience skill level, interests and participation.

Session: Working with REST

Lesson: Overview of REST

- Representational State Transfer
- REST Characteristics
- REST Elements
- REST Architectural Principles

- REST and HTTP
- REST/HTTP: Representation-Oriented
- REST Design Principles
- Tutorial: Working with Eclipse (JEE Version) and Apache TomEE 7x

Lesson: Designing RESTful Services

- Effectively Designing RESTful Services
- Best Practices for Endpoint Definition
 - Using Query Parameters
- Working with HTTP GET and

DELETE

- Working with HTTP PUT
- Working with HTTP POST
- Best Practices for HTTP Methods
- Handling Additional Operations

Session: JAX-RS**Lesson: Introduction to JAX-RS**

- Understand some of the features of the JAX-RS framework
- Be familiar with process for implementing RESTful services
- Be able to develop and deploy a simple REST service
- How JAXB supports XML interoperability
- How to use JAXB with JAX-RS

Lesson: @Path: URI Matching

- JAX-RS mechanisms for mapping URIs to resource
- How to use @Path expressions to map URIs
- How to use @Path expressions to extract values from URIs

Lesson: JAX-RS Content Negotiation

- JAX-RS built-in content handler
- How to inject content handlers into service
- Basics of working with JSO
- Capabilities for HTTP content negotiation
- JAX-RS mechanisms for supporting content negotiation

Lesson: JAX-RS Request and Response

- How information about the request can be injected into the resource
- The different injection targets of the resource
- How to build a 'complex' response
- How to respond to a HTTP POST
- The JAX-RS exception hierarchy
- How exceptions can be mapped to response codes

Lesson: JAX-RS Client API

- Be able to invoke a JAX-RS service using the client API

- Understand the purpose of the WebTarget object
- Be able to dynamically resolve path template values
- Understand some of the return codes
- Be able to filter client request and server responses

Lesson: JAX-RS Filters and Interceptors

- Understand the purpose of JAX-RS filters
- Be able to develop interceptors
- Be able to define global filters and interceptors
- Dynamically add interceptors and filters
- Understand NameBinding

Lesson: Asynchronous JAX-RS

- Be able to make asynchronous requests
- Develop resources to process request asynchronously

Student Materials: Each participant will receive a **Student Guide** with course notes, code samples, software tutorials, step-by-step written lab instructions, diagrams and related reference materials and resource links. Students will also receive the project files (or code, if applicable) and solutions required for the hands-on work.

Hands-on Setup Made Simple! Our dedicated tech team will work with you to **ensure your student machines and learning environment is setup, tested and ready to go** well in advance of the course delivery date, ensuring a smooth start to class and seamless hands-on experience for your students. We offer several flexible student machine setup options including **guided manual set up** for simple installation directly on student machines, or **cloud based / remote hosted lab solutions** where students can log in to a complete separate lab environment minus any installations, or we can supply **complete turn-key, pre-loaded equipment** to bring ready-to-go student machines to your students or in-person facility. Please inquire for details.

For More Information

For more information about our dedicated training services, collaborative mentoring services, courseware licensing options, courseware development services, public course schedule, training management services, partner and reseller programs, or to see our complete list of course offerings and special offers please visit us at www.triveratech.com, email Info@triveratech.com or call us toll free at **844-475-4559**. Our pricing and services are always satisfaction guaranteed.

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