



## Java 8 Performance & Tuning

Next-Level Java Skills | Explore Writing High-Performance Applications, Effective Java, Data Structures and More

[www.triveratech.com](http://www.triveratech.com)

### Course Snapshot

- **Course:** Java 8 Performance and Tuning (TT3110-J8)
- **Duration:** 2 days
- **Audience & Skill-Level:** This is an **intermediate level** Java programming course geared for experienced Java developers seeking to improve their Java application performance.
- **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.
- **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

Java 8 Performance Tuning is a next-level Java training workshop geared for experienced developers who wish to improve their code performance.

### Learning Objectives

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

- List possible metrics for measuring software performance
- Explain the effect of OO design on software performance
- List and describe types of benchmarks and the criteria that should be considered when constructing a benchmark plan
- Explore the most useful targets for profiling, and the most common tools/techniques for profiling
- Describe two strategies for improving performance as a result of profiling data
- List and explain the five most common problem areas for good performance with Java
- Use the JDK to collect runtime profiling data
- Successfully read the profiling data generated by the JDK to detect performance bottlenecks
- Instrument your own code to collect method execution time data
- Learn code optimization techniques relating to object management, exceptions, threads, and serialization
- Understand the JVM Architecture from the perspective of performance
- Examine and work with Java language features that can impact performance
- Understand optimizing data structures in Java
- Choose the correct Collection for the task
- Leverage the built in Collections algorithms to enhance your code performance and security
- Examine the many Java 8 features to understand their impact on performance

**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 Java, JEE and Java for Web application development, design, testing, services, application security and other related topics that may be blended with this course for a track that best suits your needs. 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** Java programming course geared for experienced Java developers seeking to improve their Java application performance.

**Take Before:** Students should have practical skills equivalent to or should have received training in the following topic(s) as a pre-requisite:

- TT2100-J8: Introduction to Java 8 Programming for OO Experienced Developers

**Take After:** Our core Java training courses provide students with a solid foundation for continued learning based on role, goals, or their areas of specialty. Our object oriented, Java developer learning paths offer a wide variety of follow-on courses such as:

- Continued Java & JEE training: Intermediate to Advanced Java, JEE Essentials, Java for Web, Spring / Spring Boot, Microservices / Web Services / REST, RxJava, Tuning, Patterns & More
- TDD / Test Driven Development, JUnit / Unit Testing, Agile development training
- Secure Java Coding / Java Security and secure application development training
- Mobile developer / Android training
- Please contact us for recommended next steps tailored to your longer-term education, project, role or development objectives.

**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.**

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## 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'll 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: Writing High Performance Applications

- Memory Management Issues
  - Memory Consumption of Java Data Types
- CPU Performance Issues
- Threading Issues
- Profiling and Benchmarking
- Java Microbenching Harness (JMH)
- Code Optimization Techniques
- Design Optimization Techniques

### Session: Effective Java

- Creating and Destroying Objects
- Factory Methods

- Impact of Finalizers
- Classes and Interfaces
- Immutability
- Composition vs. Inheritance
- Exceptions
- Threading Constructs to Avoid

### Session: Data Structures

- Efficient Strings and Arrays
- Efficient Use of Collections
- Choosing a Collection
- Tuning Collection Constructors

### Session: Performance and Java 8

- Performance Across Java Versions

- Impact of Java 8 Concurrency Updates
- Tiered Compilation
- Nashorn versus Java 7's JavaScript Engine
- Lambda Expressions versus Inner Classes
- Impact of Streams versus Collections
- Date/Time Classes
- I/O Stream Recommendations
- Encoding/Decoding
- Strings and Spring Interning

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**Course 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 our 'easy-access' cloud-based course environment is accessible, fully-tested and verified as ready to go well in advance of the course start date, ensuring a smooth start to class and effective learning experience for all participants. Please inquire for details and options.

## For More Information

**Need dedicated training?** All courses can be presented **onsite** or **online**, or in a **combined / flex / blended learning format**, tailored to target your specific audience, needs and learning goals. We also offer focused, flexible **short courses**, **self-paced learning** options, **recorded sessions** and more. We train beginner to advanced skills in all areas we cover, and offer **New Hire / Cohort Training**, **Boot Camps**, **Skills Immersion Programs**, **Reskilling Programs**, **Skills Migration & Transition Programs**, and more. We collaborate with you to ensure all courses are truly targeted to meet your specific needs and learning skills, maximizing your valuable training time, as well as your important budget.

Please also visit our extensive **Public Training Schedule** for training for smaller groups or individuals. Please contact us for course details, **Corporate Rates** and **Special Discount Offers**.

**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](http://www.triveratech.com), email [Info@triveratech.com](mailto:Info@triveratech.com) or call us toll free at **844-475-4559**. Our pricing and services are always satisfaction guaranteed.

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