

## Java Developer Journey

# Migrating from Java 8 to Java 11 | Java 11 New Features and Skills (TT2133)

Gain the Skills Required to Seamlessly Transition to Java 11, Elevate your Development Skills, Maximize Performance & More

## Course Snapshot

- **Course: Migrating from Java 8 to Java 11 | Java 11 New Features and Skills (TT2133)**
- **Duration:** 1 day
- **Skill-Level & Audience :** Introduction to Java 11 new features for experienced Java 8 developers.
- **Hands-on Learning:** This course is approximately **50% hands-on**, combining expert lecture, real-world demonstrations and group discussions with machine-based practical programming 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 blended learning format. Please also ask about our Self-Paced / Video / QuickSkills or Mini-Camp / Short Course flexible delivery options.
- **Customizable:** This course agenda, topics and labs can be further adjusted to target your specific training skills objectives, tools and learning goals. Please ask for details.

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## Overview

**Migrating from Java 8 to Java 11** is a one day, fast paced workshop-style course designed to get you quickly up to speed with the skills and best practices required to transition your Java 8 applications to Java 11, taking advantage of Java 11's powerful features and capabilities. This immersive course will guide you through a series of key topics and skills, including updates from Project Coin, innovative String methods in Java 11, and local-variable type inference. You'll also delve into the powerful updates to collections and streams, ensuring you have a thorough understanding of the latest enhancements.

The course is designed to empower you to make a seamless transition to Java 11, by providing an in-depth exploration of the Java Module System (Jigsaw). You'll learn the rationale behind Jigsaw, grasp the fundamentals of the module system, and discover how to define application modules, dependencies, and exports. With a focus on practical application, our hands-on labs will guide you through the process of migrating a Java 8 application to Java 11, replacing removed libraries, and overcoming common challenges. You'll leave the course armed with the skills required to confidently migrate your Java 8 applications to Java 11, leverage the latest language features and enhancements, and optimize your code for improved performance and maintainability.

NOTE: This course can easily be expanded to two days with additional topics and added hands-on workshop content as desired. Please inquire for details.

## Learning Objectives

This course is approximately **50% hands-on**, combining expert lecture, real-world demonstrations and group discussions with machine-based practical programming labs and exercises. Our engaging instructors and mentors are highly experienced practitioners who bring years of current "on-the-job" experience into every classroom. Working in a hands-on learning environment, guided by our expert team, you'll learn to:

- Develop modular applications in Java
- Migrate existing Java applications to the Java 11 platform
- Improve implementations already using Java 8's Stream API by utilizing the methods new in Java 11
- Understand how the implementation of the String class has been updated to decrease the memory footprint
- Explore specific Java 11 features covered including: The Java Module System (project Jigsaw), Updated try-with-resources, Performance enhancements since Java 9, Updates to Collection and Stream API, Using the Local Variable Types, Updates made to the String API

**Hands-on Migration:** Gain practical experience migrating and application, either during or after class. You'll explore the steps required to take an existing Java 8 application written using JUnit, Project Lombok, JAXB and JavaFX and update it to run on Java 11. You'll learn to navigate some of the common challenges developers face while migrating projects.

Throughout the project you'll:

- Take the existing application and make it run on Java **without** modifying the source code
- Update the application, converting it to a proper Java Module
- Update the libraries to the latest Jakarta version
- Utilize the ServiceLoader mechanism to decouple the components
- Use JLink to build a custom runtime environment

### Audience, Pre-Requisites & Learning Paths

This is an intermediate- level Java programming course, designed for **experienced Java 8 developers** who wish to get up and running with Java 11 immediately. Attendees should have a working knowledge of developing Java 8 applications.

### Related Courses / Trivera's Java Developer Suite

This is subset list of some of the core courses in our catalog. Please visit the website for a complete list of offerings.

- TT2000 Getting Started with Programming, OO and Java Basic for Non-Developers
- TT2104 Fast Track to Core Java Programming for Experience OO Developers (such as C++, C#) (4 days)
- TT2120 Basic Java Programming for Developers New to OO (such a C, Mainframe)
- TT2133 Migrating to Java 11
- TT2135 Migrating to Java 17
- TT2211 Intermediate Java Developer Workshop
- TT2023 Java Developer Journey – Career Experience Program (for core Java, full stack and more) (multi-week)

**Next Steps / Follow-on Courses:** We offer a wide variety of follow-on courses and workshops for advanced Java skills, Spring, Java for Web / Full Stack, Jakarta / Java EE, REST, Microservices, Unit Testing / TDD, Java secure coding, mobile development and more. Please see our **Java Developer Journey Courses & Learning Paths** for options 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 course agenda, topics and labs are subject to adjust during live delivery in response to student skill level, interests and participation.*

### Detailed Course Topics / Agenda

#### Day 1

#### Java 11: What's New in Java 11

##### 1. Milling Project Coin

- Changes made to the language since Java 6
- Multi-catch
- Using effectively final variables in try-with-resources
- Suppressed exceptions
- Binary literals
- Reserved underscore

- Type inference in anonymous classes
- @SafeVargs (updates in Java 9)
- Default and static methods in interfaces
- Private methods in interfaces
- Tutorial: Importing Exercises into IntelliJ 2022 (Community Edition)
- Lab: Try-With-Resources

##### 2. Using Strings in Java 11

- Working with Strings

- Discuss the definition of whitespace in Java
- Introduce the new strip() methods of the String class
- The isBlank() and repeat() methods introduced in Java 11
- Using the lines() method to construct a Stream instance using a String
- Compact strings
- String deduplication

### 3. Local-Variable Type Inference

- Explain type inference
- Inferring types of local variables
- The var reserved type name
- Benefits of using var
- Backward compatibility
- Lab: Using Local-Variable Type Inference

### 4. Collection and Stream Updates

- Factory methods for Immutable Collection types
- The takeWhile and dropWhile methods
- The Stream Iterate and ofNullable methods
- Lab: Stream Updates

### The Java Module system (Jigsaw)

#### 5. Why Jigsaw?

- Problems with Classpath
- Encapsulation and the public access modifier
- Application memory footprint
- Java 8's compact profile
- Using internal JDK APIs

#### 6. Introduction to the Module System

- Introduce Project Jigsaw

- Classpath and Encapsulation
- The JDK internal APIs
- Java 9 Platform modules
- Defining application modules
- Define module dependencies
- Implicit dependencies
- Implied Readability
- Exporting packages
- Lab: Defining Modules

#### 7. The Module Descriptor

- Define module requirements
- Explain qualified exports
- Open modules for reflection
- Use ServiceLoader
- The provides and uses keywords
- Lab: Modules and the ServiceLoader
- Lab: Using Reflection on modules (optional)

#### 8. Migrating an Application

- Migrating a java 8 application to Java 11
- Replacing libraries removed from the Java Standard Edition
- Explore the challenges

#### Evening Review / Homework

- Lab: Flight Application (approx

30 minutes)

- Lab: Migrating from Java 8 to Java 11 (approx 45 minutes)
- Lab: Migrating from Java 8 to Java 11 (part 2) (approx 30 minutes)
- Lab: Migrating from Java 8 to Java 11 (part 3) (approx 45 minutes)

### Bonus Topics: Time Permitting (Day Two in Two day edition)

#### 9. Java 11: Removed Features and Options

- Provide an overview of tools and APIs removed
- Java EE modules are no longer available in Java 11

#### 10. Java 9 Concurrency Updates

- Brief overview of Concurrency in Java
- Overview of CompletableFuture (Java 8)
- Subclassing the CompletableFuture
- The default Executor
- New Factory methods
- Dealing with time-outs
- Lab: Completables (optional)

### Setup Made Simple with our Robust Learning Experience Platform (LXP)

All course software (limited versions, for course use only), knowledge checks, digital courseware files or course notes, labs / data sets and solutions, live coaching support channels (as applicable) and rich extended learning / post training resources are provided for you in our "easy access / no install required" high-speed Learning Experience Platform (LXP) remote lab and content environment. Our tech team works with every student to ensure everyone is set up with working access and ready to go prior to every course start date, ensuring a smooth delivery and great hands-on experience.

#### For More Information

For more information about our dedicated skills-focused training services (instructor-led, self-paced or blended), collaborative coaching services, robust Learning Experience Platform (LXP) solutions, Career Experiences, public course schedule, partner programs, courseware licensing options or to see our complete list of course offerings, training solutions 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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