# Red Hat Application Development I: Programming in Java EE (AD183) Training

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Duration: **4 Day**

## Overview

Transition from **Java SE** to **Java EE** development with **Red Hat Application Development I: Programming in Java EE (AD183)** — a hands-on course designed for experienced Java developers who want to build enterprise-level applications.

This {*training} introduces developers to the **key specifications of Java EE** and demonstrates how to transform a basic command-line Java SE program into a **multi-tiered enterprise application**. Through guided labs, you'll learn how to build robust and scalable applications using **Enterprise Java Beans (EJB)**, **Java Persistence API (JPA)**, **Java Messaging Service (JMS)**, **JAX-RS for RESTful APIs**, **Contexts and Dependency Injection (CDI)**, and **JAAS** for application security.

> *This course is based on Red Hat® Enterprise Application Platform (EAP) 7.0.*

## Prerequisites

- At least **2 years of Java SE development experience**.
- Familiarity with an **IDE** such as Eclipse or Red Hat Developer Studio.
- Experience using **Maven** is recommended but not required.

## Who Should Attend

This course is intended for:

- **Java developers** who have solid experience with Java SE and want to expand into enterprise-grade Java EE application development.

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## What You Will Learn

By the end of this {*training}, you will have gained knowledge and skills in the following areas:

- Build and deploy **multi-tiered Java EE applications**.
- Package and deploy projects on **JBoss EAP application servers**.
- Create **Enterprise Java Beans (EJBs)**, including **message-driven beans**.
- Manage **data persistence** with **JPA** and entity relationships.
- Develop **RESTful services** using **JAX-RS**.
- Implement **Contexts and Dependency Injection (CDI)** for modular applications.
- Use **Java Messaging Service (JMS)** to create messaging clients.
- Secure applications using **Java Authentication and Authorization Service (JAAS)**.

### Impact on the Organization

This course enables organizations to:

- Transition development teams from **Java SE to Java EE**, modernizing applications.
- Improve productivity with **JBoss EAP and Java EE tools** such as Maven and Red Hat Developer Studio.
- Build **scalable, secure, and maintainable enterprise applications** with standardized frameworks.

By mastering Java EE through this course, developers can enhance enterprise software reliability and development efficiency across distributed environments.

### Impact on the Individual

After completing this course, participants will be able to:

- Describe core **Java EE 7 specifications** and implement components with each.
- Convert Java SE applications into **multi-tiered enterprise applications**.
- Package and deploy applications to **Red Hat JBoss EAP**.
- Manage persistence with **JPA** and develop **RESTful web services** with **JAX-RS**.
- Implement **dependency injection (CDI)** and manage bean scopes.
- Use **JMS** to send and receive messages.
- Secure enterprise applications using **JAAS**.

This training provides the foundation for progressing to**advanced Java EE and Red Hat middleware development**.

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## Outline

**1. Transitioning to Multi-Tiered Applications**
Differentiate between Java SE and Java EE applications and understand the core architecture.

**2. Packaging and Deploying Applications**
Package and deploy enterprise applications to a **Red Hat JBoss EAP** server.

**3. Creating Enterprise Java Beans (EJBs)**
Develop EJBs, including **session** and **message-driven beans** for business logic implementation.

**4. Managing Persistence**
Use **JPA entities** and **validation** for persistent data management.

**5. Managing Entity Relationships**
Define and maintain entity relationships using**JPA**.

**6. Creating RESTful Web Services**
Build and consume REST APIs with the **JAX-RS** specification.

**7. Implementing Contexts and Dependency Injection (CDI)**
Learn dependency injection and context management for decoupled, testable components.

**8. Building Messaging Applications (JMS)**
Create message producers and consumers using **Java Messaging Service (JMS)**.

**9. Securing Java EE Applications**
Apply **JAAS** to secure enterprise applications and control user access.

**10. Comprehensive Review**
Demonstrate proficiency by integrating all learned concepts into a complete enterprise application.

*Note: Course content may evolve with new Java EE technologies and Red Hat product updates.*