

# EJB3

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**Length:**

5 Days

**Description:**

This course focuses on specific skills related to EJB3 such as developing, deploying and running distributed applications.

**Course Objectives:**

- Learn how to develop Enterprise JavaBeans Applications
- Overview of J2EE Concepts, RMI, JMS, Serialization, Java Bean, EJB Architecture and Concepts
- Develop stateless and stateful session beans that provide business logic using EJB containers
- Develop entity beans to model real-work entities in relational data stores using JAVA Persistence API (JPA)
- Implement transactional states that exploit EJB QL and relationships
- Understand the core concepts of Java Messaging Service (JMS)
- Dependencey Injection and Interceptors
- Domain modeling and persisting entities with the JPA and its query language
- Using EJB3 across application tiers and web services
- Integrating with Spring
- Migrating from EJB 2, JDBC and other O-R frameworks

**Audience:**

Both novice and experienced Java Developers

**Prerequisites:**

Java and exposure to JDBC. Relational Database and Web base client server concepts.

**Course Content:****Chapter 1 – Overview of the EJB Landscape**

What's What in EJB

- EJB overview
- Understanding EJB types
- Getting inside EJB
- Renaissance of EJB

A first taste of EJB

- New features: simplifying EJB
- Introducing the ActionBazaar application
- Building business logic with session beans
- Messaging with message-driven beans
- Persisting data with EJB 3 JPA

**Chapter 2 - Building Business Logic with EJB**

Building business logic with session beans

- Getting to know session beans
- Stateless session beans
- Stateful session beans
- Session bean clients
- Performance considerations for stateful beans

- Session bean best practices
- Messaging and developing MDBs
- Messaging concepts
  - Introducing Java Messaging Service
  - Working with message-driven beans
  - MDB best practices
  - Summary

Learning advanced EJB concepts

- EJB internals
- Accessing resources using DI and JNDI
- AOP in the EJB world: interceptors
- Scheduling: the EJB 3 timer service

Transactions and security

- Understanding transactions
- Container-managed transactions
- Bean-managed transactions
- Exploring EJB security

### **Chapter 3 - Diving Into the Java Persistence API (JPA)**

Implementing domain models

- Domain modeling and the JPA
- Implementing domain objects with JPA
- Entity relationships

Object-relational mapping

- The impedance mismatch
- Mapping entities
- Mapping entity relationships
- Mapping inheritance

Manipulating entities with EntityManager

- Introducing the EntityManager
- Creating EntityManager instances
- Managing persistence operations
- Entity lifecycle listeners
- Entity operations best practices

Using the query API and JPQL to retrieve entities

- Introducing the query API
- Executing the queries
- Introducing JPQL
- Native SQL queries

### **Chapter 4 - Putting EJB 3 Into Action**

Packaging EJB 3 applications

- Packaging your applications
- Exploring class loading
- Packaging session and message-driven beans
- Packaging entities
- Best practices and common deployment issues

Effectively integrating EJB 3 across your application tiers

- Design patterns and web technologies
- Accessing session beans from the web tier
- Using JPA from the web tier

Taming wild EJBs: performance and scalability

- Handling entity locking issues

- Improving entity performance
- Improving performance of EJB 3 components
- Clustering EJB applications

## **Chapter 5 - Migration and Interoperability Issues**

### Migrating to EJB 3

- Backward compatibility and interoperability with EJB 2
- Migrating session beans 14.2
- Migrating message-driven beans 14.3
- Migrating CMP 2 entity beans to the EJB 3 JPA 14.4
- Migrating JDBC DAOs to use the EJB 3 JPA
- Helping O/R frameworks to use the EJB 3 JPA
- Approaches to migration

### Exposing EJBs as web services

- What is a web service?
- JAX-WS: Java EE 5 web services platform
- Developing EJB web services with JAX-WS 2.0
- Accessing a web service from an EJB
- Best practices for web service development

### EJB 3 and Spring

- Introducing the Spring framework
- Using JPA with Spring
- Combining the power of EJB 3 and Spring
- Summary