

**Introduction to JBoss EAP / WildFly Application Server Administration**

**Course Number:** JBS-123  
**Duration:** 4 days

**Overview**

This Introduction to JBoss EAP / WildFly Application Server Administration training course demystifies the capabilities and structure of the EAP or WildFly servers and teaches attendees how to install, configure, and manage server installations successfully.

Note: This course is taught using the latest version unless an earlier version is requested.

**Prerequisites**

All attendees should be familiar with the general principles of Web and application server administration.

**Materials**

All WildFly training attendees receive comprehensive courseware.

**Software Needed on Each Student PC**

* Windows, Linux, macOS, or Solaris with at least 8 GB RAM
* JDK 8 or later
* WildFly
* Line numbering/color coding text editor of your choice
* Related lab files that Accelebrate will provide
* Upon request, a complete class environment can be provided as a Linux virtual machine or a remote lab

**Objectives**

* Understand WildFly architecture and JEE server structure
* Install and configure the server
* Understand the structure of both standalone installations and domain-based installations
* Understand the management model and the XML configuration files
* Use the management tools including direct editing of XML, using the CLI (Command Line Interface), scripting, and the Web management console
* Understand deployment types and packaging (JARS, WARS, EARS, etc.), and deploy applications
* Understand modular classloading in WildFly Server, and how it affects application deployment and dependencies
* Configure and monitor the Web container
* Configure important services, including data sources, JNDI, EJB, JMS messaging, and logging
* Understand and configure WildFly security using the classic (default) security configuration
* Be familiar with the new Elytron security model
* Use monitoring tools, and identify areas for tuning
* Understand and use clustering with WildFly, including load balancing with the built-in front-end load balancer and Apache httpd and mod\_cluster
* Understand and administer a domain of WildFly servers

**Outline**

* WildFly Introduction and Installation
  + Java EE Overview and Architecture
  + WildFly Server Background and Overview
  + Installing and Starting WildFly Server
  + Server Suspend Mode
  + Working with WildFly Server
  + Documentation Overview
* Structure and Architecture
  + WildFly Server Directory and File Structure
  + Server Architecture and Configuration
    - Server Config File - Extensions, Subsystems, Schemas, Paths
    - Interfaces and Socket Bindings
* Configuration and Management - Part 1
  + Overview of Management Options
  + Understanding the Management Model and the XML Config Files
  + Using the CLI (Command Line Interface)
  + Overview
    - Navigating the Management Tree
    - Working with Operations and Commands
    - Creating/Deleting Nodes
  + Using the Management Console (new design in WF 13+)
* Application Deployment
  + Java EE Deployment Archives (JARs, WARs, EARs)
  + Deployment/Undeployment with the CLI and Management Console
  + Deployment Scanner - Auto-Deployment in WildFly Server
  + Marker Files and Auto-deployment
* Configuration and Management - Part 2
  + JBoss Modules and Modular Classloading
  + Defining a Module
  + Working with Dependencies
  + Server Logging
  + Handlers, Log Levels, Formatters and Pattern Strings
  + Configuring Application Logging
  + Configuring Audit Logging
* Subsystem Configuration
  + JNDI and Naming Overview
  + Naming Subsystem Overview and Configuration
  + Datasource and JCA Overview
  + Datasource and Driver Configuration (XML, CLI, and Admin Console)
  + Datasource Monitoring and Tuning
  + Thread Pools - History and Current Configuration
  + Undertow Web Container
    - Undertow Overview
    - Undertow Configuration - listeners and workers (XML and CLI)
    - Host and Filter Configuration
    - HTTP/2 Support
  + The H2 Database and ExampleDS
  + EJB Container/Subsystem (SLSB Pooling, MDB, SFSB Cache, Monitoring)
  + Other Subsystems in Brief (remoting, ee, infinispan)
* Messaging in WildFly Server
  + Messaging and JMS (Java Message Service) Overview
  + ActiveMQ Artemis Overview
  + Messaging Subsystem Configuration (XML, CLI, and Admin Console)
    - General Configuration
    - Connectors and Acceptors
    - Configuring Connection Factories
    - Configuring Queues and Topics (XML, CLI, and Admin Console)
    - Monitoring and Managing
    - Address and Security Settings
* Security
  + WildFly/JEE Security Overview
    - General Requirements
    - "Legacy" Security and Elytron Security
    - Security Domains and Realms
    - RBAC
  + Securing the Management Interfaces
  + Application Security
    - Java EE Security Overview
    - Authentication, Authorization, Identity
    - Linking Applications to a Security Domain
    - Security Info Caching
  + RBAC - Role-Based Access Control
  + Resource Security
    - Configuring TLS/SSL/HTTPS
    - Credential Store - Protecting Sensitive Strings
  + [Optional] Overview of Elytron Security Subsystem
    - Overview and Architecture
    - Configuration Overview
    - Usage Overview
* Clustering and HTTP Load Balancing
  + Clustering Overview
  + WildFly Server Cluster Overview (including HA Singleton)
  + Cluster Configuration - JGroups
  + Architectures - Load Balancers and Client Interceptors (Proxies)
  + HTTP Load Balancing
    - Built-in load balancer
    - Apache httpd load balancer
    - mod\_cluster Overview
    - httpd.conf Configuration
    - Installation Choices
    - modculster Subsystem Configuration
    - Management
* WildFly Server Domain Mode
  + Domain Mode Overview
  + Domain Topology - Domain Controllers, Host Controllers, Server Groups
  + domain.xml - Domain Configuration, Server Groups
  + host.xml - Domain Controller
  + host.xml - Host Controllers, Processes and Server Instances
  + Management - Management Console and CLI
  + Deployment/Undeployment - via Management Console and CLI
* Tuning and Monitoring
  + Enabling Statistics
  + Web Container (Undertow) Tuning - Statistics, Worker Threads
  + EJB Tuning - Bean Instances, Thread Pools
  + Database Access / Datasources
  + Clustering Communication and Replication
  + Monitoring Runtime Data
  + Java Virtual Machine (JVM) Awareness
    - Heap Size
    - Garbage Collection (GC) Overview and Generational GC
* Conclusion