

**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