Administering the JBoss 7/ EAP 6 Application Server

Course Summary

Description

This course covers all the important administrative tasks that are required to administer this new version of JBoss AS. It starts with installation, architecture, and basic configuration and monitoring. It covers management using the new and expanded Web console, as well as the structure of the management model and how to use it via the admin CLI (Command Line Interface) and via scripting. It includes coverage of using the management tools to deploy and configure Web and Enterprise applications, datasources, JMS resources (topics, queues), as well as covering the configuration of the major subsystems, including the Web (HTTP), Web Services, Messaging (including the new HornetQ based provider), Logging, and Security subsystems. You will also learn the structure and contents of the underlying XML configuration files that reflect the actual configuration. The course also covers the use of JBoss in standalone mode (consistent with previous releases of JBoss), and explains the new domain model for managing multiple JBoss nodes from a single management point. The last part of the course delves into the details of clustering JBoss for high availability and load balancing, as well as going into the details of setting up and managing a JBoss domain with the new domain model.

Objectives

At the end of this course, students will be able to:

- Understand JBoss AS 7 structure and architecture
- Install and configure AS 7
- Understand the structure of both standalone installations and domain-based installations
- Be aware of the modular classloading characteristics of AS 7 and of deployments in the server, and how this differs from JBoss 5
- Understand the management model, and how to use it via the CLI (Command Line Interface) and via scripting
- Understand and use the Web management console for managing AS 7
- Be familiar with the XML configuration files, their structure, and their usage
- Be able to configure and manage the important subsystems, including the Web, Messaging, and Logging
- Configure and manage the Web container, including the HTTP, HTTPS, and AJP connectors
- Understand and configure Socket Groups
- Understand, configure, and use Security in AS 7
- Assemble, deploy, and manage Java EE application components such as EJB, Servlets, and JMS
- Configure resources such as datasources, messaging destinations (topics/queues), etc.
- Configure runtime security for AS 7 services and server-side application components
- Optimize / Tune JBoss performance
- Migrate applications from JBoss AS 5 to JBoss AS 7
- Configure and Manage AS 7 Domains
- Configure and Manage AS 7 Clusters, including using Apache httpd and mod_cluster
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Course Summary (cont’d)

Topics

- JBoss AS 7 Introduction and Installation
- AS 7 Structure and Architecture
- AS 7 Management and Logging
- Interfaces and Socket Bindings / Port Configuration
- Application Deployment
- Subsystem Configuration
- Messaging in AS 7
- Security
- Clustering in AS 7
- AS 7 Domain Mode
- Tuning JBoss AS 7
- Migration

Audience

This course is suitable for those in Operations/Admin who need to maintain JBoss servers and for Dev/Ops folks. It is also suitable for straight developers that want to get an in depth knowledge of JBoss servers.

Prerequisites

There are no prerequisites for this course.

Duration

Four days
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Course Outline

I. JBoss AS 7 Introduction and Installation
   A. Java EE Overview and Architecture
   B. JBoss AS 7 Background and Overview
   C. Installing and Starting AS 7
   D. Working with AS 7
   E. Documentation Overview

II. AS 7 Structure and Architecture
    A. AS 7 Directory and File Structure
    B. JBoss Modules
    C. Server Architecture and Configuration

III. AS 7 Management and Logging
     A. Using the CLI (Command Line Interface)
     B. Management Model
     C. Working with Management Resources
     D. Common Management Tasks
     E. The Web Admin Console
     F. Other Management Capabilities
     G. Server Logging
     H. Audit Logging

IV. Interfaces and Socket Bindings / Port Configuration
    A. Interface Configuration
    B. Socket Bindings and Socket Binding Groups
    C. Setting the Bind Address

V. Application Deployment
   A. Java EE Deployment Archives (Jars, Wars, Ears, Sars)
   B. Deploying with the CLI and Admin Console
   C. Auto-Deployment in AS 7 (Marker Files, Expanded, Archived)
   D. Deployment Dependencies

VI. Subsystem Configuration
    A. Thread Pools
    B. Web Container
       1. Web Container Overview
       2. Web Container Configuration in standalone.xml
       3. Querying Container Configuration via the CLI
       4. Configuring the HTTP, HTTPS, and AJP Connectors (in standalone.xml, and via the CLI)
    C. JNDI and Naming Overview

D. JBoss Naming Overview and Configuration
E. JNDI Client Configuration
F. DataSource and JCA Overview
G. DataSource Configuration (XML, CLI, and Admin Console)
H. EJB Subsystem

VII. Messaging in AS 7
     A. JMS (Java Message Service) Overview
     B. HornetQ Overview
     C. Configuring Connection Factories (XML, CLI, and Admin Console)
     D. Configuring Queues and Topics (XML, CLI, and Admin Console)
     E. Dead Letter and Redelivery
     F. Messaging Security

VIII. Security
      A. JBoss Server Security Overview
      B. Management Interface Security
         1. Local Access
         2. Security Realms, Authentication, and Authorization
         3. File Based and LDAP Realms
      C. Role-Based Access Control (RBAC)
         1. Overview
         2. Standard Roles
         3. Membership and Permissions
         4. Configuring
      D. Security Domains - Application Security
         1. Overview
         2. Login Modules - Users/DatabaseUsers/DatabaseServerLogin Module, LDAP
         3. Configuration and Details
         4. Java EE Security Overview and Role Mapping
         5. Using the Vault for Sensitive Data (passwords)
      E. Enabling SSL
         1. SSL Overview
         2. Setting Up HTTPS, keytool, configuration
         3. Other Uses of SSL

IX. Clustering in AS 7
    A. Clustering Overview
    B. Clustering Configuration, JGroups Overview
    C. Troubleshooting Multicast Issues

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Course Outline (cont’d)

D. Managing Clusters
E. Clustered Services (HA-JNDI/High Availability JNDI, EJB, Messaging)
F. Load Balancers and Clustered Http
G. Load Balancing with Apache httpd and mod_cluster
H. Installing and Configuring mod_cluster
I. Load Balancing Between Nodes
J. Managing with the CLI

X. AS 7 Domain Mode
A. Domain Mode Overview
B. domain.xml and host.xml
C. Domain Controllers, Host Controllers, Server Groups, Servers
D. Domain Configuration - domain.xml, Controller, and Server Configuration
E. Domain Management

XI. Tuning JBoss AS 7
A. JBoss AS and the Java Virtual Machine (JVM)
   1. Tuning The Heap (Memory Usage)
   2. Garbage Collection (GC) Overview and Generational GC
   3. Tuning GC
B. Tuning the Web Tier (Tomcat)
   1. Connector Tuning
   2. Other Optimizations
C. Database Connection Tuning
D. Messaging Tuning
E. Other JBoss AS Optimizations
F. Creating Minimal Configurations

XII. Migration
A. Configuration and Management Differences
B. Classloading and Modules
C. Database / Datasource
D. Security
E. Messaging