

WebLogic Server 9.1 Administration Training

Overview

This course teaches the basics of the administration and deployment of Web applications in BEA WebLogic Server 9.1.

Audience

Web server administrators, project managers, developers and consultants who want to gain the knowledge of WebLogic Server administration.

Skills Gained

- Understand WebLogic architecture
 - Understand deployments of EJB and Web applications
 - Understand how to run WebLogic as a Web server
 - Set up WebLogic Server test environments for developers
 - Start/stop servers, problem detection and trouble shooting
 - Use clustering for fault tolerance and load balancing
 - Configure and monitor resources in a production environment
 - Conduct security planning and implementation
 - Handle large throughput and concurrency
 - Understand performance tuning
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- J2EE and WebLogic Server architecture
 - WebLogic Clustering
 - WebLogic Application Deployment
 - WebLogic Resources and Services Configuration and Monitoring
 - Security and Transaction Management
 - WebLogic Performance Tuning

Prerequisites

- Knowledge and experience of network management and protocols
- Knowledge and experience of RDBMS

Duration Five days.

Outline of WebLogic Server 9.1 Administration Training 1. Introduction To J2EE

- Objectives
- What Is J2EE?
- History Of J2EE
- Browsers And Web Servers
- Limitations Of Browsers And Web Servers
- Client vs. Server Processing
- Server Side Processing
- Problems with CGI
- J2EE Offers Server Side Processing

- J2EE Server Side Processing
- J2EE Components
- J2EE: Servlets
- J2EE: JSPs
- J2EE: EJBs
- J2EE Containers
- Sun J2EE Blueprint
- J2EE Application Server Vendors
- Development Environments
- J2EE And JDK
- J2EE Versions
- J2EE Historical Timeline
- Database Vendors
- 3-Tier Architecture
- The BEA WebLogic Family Of Products
- BEA WebLogic Portal
- BEA WebLogic Integration
- BEA WebLogic Workshop
- BEA WebLogic Server 9.1
- New Administrative Features

2. Introduction To WebLogic Server 9.1

- WebLogic Server Instances
- The Java Virtual Machine
- JVM Providers
- Threads vs. Processes
- WebLogic Server Domains
- Servers And Domains
- Domain Configuration
- WebLogic Administration Domain
- Directory Structures
- Getting Started Roadmap
- Install WebLogic Server
- The Configuration Wizard
- The Configuration Wizard: Creating A New Domain
- Starting The Administrative Server
- The Administration Console
- Administrative Tasks
- Lock & Activate In The Admin Console
- Other Administrative Tools
- Automatically Starting Admin Servers
- Managed Servers
- Creating A Managed Server
- Server Details
- Starting A Managed Server
- Password boot.properties
- Examining Server Status
- Shutting Down Servers
- Admin Server Shutdown
- Admin Server Backup
- Start Scripts
- config.xml
- Summary

3. WLST: The WebLogic Scripting Tool

- The WLST

- WLST Details
- MBeans And JMX Administration
- Layered JMX Architecture
- MBeans And WLST
- Starting WLST
- Simple WLST Commands
- WLST Is Hierarchical
- Navigating WLST
- MBean Operations
- MBean Operations: Query
- MBean Operations: Configurational
- MBean Operations: Instantiation
- Other WLST Commands
- Scripting With WLST
- References

4. Logging and Monitoring

- Introduction
- WebLogic Logging Services
- Java Logging API
- Log4j
- Specifying the Logging Implementation
- Message Severity
- WebLogic Server Logs
- Server Log
- Viewing Server Log
- Configuring Server Log
- HTTP Access Log
- Configuring HTTP Access Log
- JMS Log
- Configuring JMS Log
- Domain Log
- Viewing Logs

5. Using WebLogic As A WebServer

- Web Server Overview
- Using WebLogic Web Server
- Configuring The WebLogic Web Server
- Virtual Hosts
- Creating Virtual Hosts
- Specifying Virtual Host Names
- Targeting Virtual Hosts to Server
- Access Log
- External Web Servers
- Apache HTTP Server Plug-In
- Installing Apache HTTP Server Plug-In
- Configuring Apache HTTP Server Plug-In
- Keep-Alive Connections

6. Assembling Applications

- Java Web Application Architecture
- J2EE Architecture
- Web Application Programming Model – MVC
- An MVC Example
- The Infrastructure for Enterprise Web Applications

- What is Application Assembly?
- J2EE Modules
- J2EE Application Assembly
- Web Module
- Web Module - Deployment Descriptor
- web.xml
- weblogic.xml
- WEB-INF Directory
- Web Application Directory
- EJB Modules
- EJB Deployment Descriptors
- ejb-jar.xml
- Enterprise Application Modules
- Enterprise Application Deployment Descriptor
- Accessing Web Applications

7. Deploying Applications

- The Process
- Deployment Overview
- Archive Vs Expanded Directory
- Default Deployment Names
- Using an Application Installation Directory
- Application Installation Directory Structure
- Deployment Methods
- Auto-Deployment
- Console Deployment
- Starting an Application
- Stopping an Application
- Updating Applications
- Deleting Applications
- Testing a Deployed Application
- Monitoring Deployed Applications
- Editing Deployment Descriptors
- Using Command Line Deployment
- weblogic.Deployer
- weblogic.Deployer Commands Syntax
- T3 Protocol Overview
- weblogic.Deployer Usage
- wldesploy Ant Task
- wldesploy Ant Task Examples
- WebLogic Scripting Tool (WLST)
- WebLogic Scripting Tool (WLST) Scripts
- Best Practices

8. Database Access and WebLogic

- Overview
- Types of JDBC Drivers
- Working with a Database via JDBC (Client side)
- The Need for Connection Pooling
- Connection Pooling and Data Sources
- Connecting with Data Source
- Steps in using Connection Pooling
- Admin Tasks for Connection Pools and Data Sources
- JDBC Driver Support in WebLogic Server
- Database Access Using WebLogic
- Working with Data Sources

- Creating a Data Source
- Editing Data Source Properties
- Monitoring Data Source and Connection Pools

9. WebLogic and JMS

- The Trouble with RMI/IIOP
- Messaging to the Rescue
- Message-Oriented Middleware
- Messaging Features
- Publish/Subscribe
- Point-to-Point
- Java Messaging Service
- Terminology
- The JMS Interfaces
- Integrating JMS and EJB
- Durable Subscription
- Deployment Descriptor Entry
- Binding the Queue or Topic
- Transactions & Guaranteed Delivery
- WebLogic JMS Server
- Creating a JMS Server
- Creating a Connection Factory
- Creating a Topic
- Threshold and Quota
- Configuring Threshold and Quota
- Distributed Destination
- Creating a Distributed Topic/Queue
- Creating a Distributed Topic
- Monitoring JMS in WebLogic
- Messaging Bridge

10. Remote Administration

- Node Manager Overview
- Node Manager Functionality & Configuration
- Starting a Administration Server from Node Manager
- Starting a Managed Server from Node Manager
- Restarting a Administration Server from Node Manager
- Restarting a Managed Server from Node Manager
- Shutting Down a Server Instance From a Node Manager
- Working with Security
- Working with Machines
- Creating a Machine
- Adding Server Instances To a Machine
- Starting The Node Manager
- Monitoring Managed Servers
- Node Manager Logs and Configuration Files

11. Chapter 11: Security

- WebLogic Server 9.1 Security
- Authentication / Authorization
- Resources That Can Be Secured
- Authentication Mechanisms
- WebLogic Security Diagram
- Overview: Security Tasks For Securing Resources

- WebLogic Security Realms
- Configuring A User Registry
- The Embedded LDAP Server
- Managing Users/Groups
- User Lockout
- Managing Roles
- Securing A Resource
- WebLogic Server Policies
- Specifying A Policy Condition
- Policies And Roles
- Creating A Scoped Role
- Example: Securing A Web Resource
- Example: Securing A Web Resource – Specifying Roles
- Example: Securing A Web Resource – Specifying Constraints
- Example: Securing A Web Resource – Auth Method
- Example: Securing A Web Resource – Map Roles
- Encryption
- SSL
- Public Key / Private Key Encryption
- Secure Communication Over The Web - SSL
- SSL And WebLogic Server
- Creating A Digital Certificate
- Dealing With A CA
- Configuring WebLogic Server SSL: Keystores
- Configure WebLogic SSL Settings
- Configuring WebLogic Server SSL: Setting A Listen Port

12. Clustering

- What Is Clustering?
- What Components Can Be Clustered?
- Basic Cluster Diagrams
- The Load Balancer
- Web Container Load Balancing
- Hardware Vs. Software Clustering
- Horizontal Clustering
- Horizontal vs. Vertical Clustering
- Clustering WebLogic Server
- WebLogic Cluster Requirements
- Configure Domain For Clustering
- Create A Cluster
- Configure Application Resources
- Deploy Applications To The Cluster
- Configure A Load Balancer
- Load Balancer Options
- Hardware Load Balancers
- Proxy Plug In Load Balancers
- HttpClusterServlet Load Balancer
- Session State
- Clustered Session State
- Session State Strategies
- In-Memory Replication
- Configuring Session State Replication
- JDBC Session Persistence
- JDBC Multi Data Sources
- Creating A Multi Data Source
- EJB Clustering

- EJB Load Balance Algorithm

13. Performance Tuning

- Performance Tuning
- Response Time
- Throughput
- Throughput Curve
- The significance of throughput
- Response Time Curve
- Think time
- Saturation
- Response time at system saturation
- Response time past the buckle point
- Interpreting response time trends
- Interpreting response time trends...
- Basic Tuning Methodology
- Areas To Tune
- Tuning Hardware
- Tune The Operating System
- Tune The JVM
- JVM Choices
- Memory Performance Concerns
- Client or Server VM
- The Heap
- The Heap (cont.)
- Heap Limit
- Heap Top
- Default Heap Sizes
- Configure The Heap Size
- Allocation Failure
- Garbage Collection
- Heap Regions – Sun JDK
- Analyzing Verbose GC - Sun
- Verbose GC - JRockit
- Thread Local Heap (TLH)
- Types of Collector In Sun JVM 1.5
- Memory Tuning Goals
- Effect of Initial Heap Size on GC
- Controlling the GC Timings
- Optimizing GC
- Self Optimizing Throughput Collector
- JRockit Management Console
- Tuning WebLogic Server
- Thread Settings
- Socket Readers
- Socket Implementation
- Monitoring Threads
- Connection BackLog
- Tuning The Back End

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