

Oracle WebLogic Server 14c: Administration I

JAVA

DURATION

5 Days

MODULES

18 Lectures

COURSE CODE

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Course Overview

This Oracle WebLogic Server 14c: Administration I training teaches you how to install and configure Oracle WebLogic Server 14c. It gives administrators an overview of the basic concepts and architecture of WebLogic Server.

What You Will Learn

- 1 Oracle WebLogic Server 14c: Administration I
 - Objectives
 - Target Audience
 - Introductions
 - Course Schedule
 - Course Practices
 - Classroom Guidelines
 - More Information
 - Related Training
- 2 WebLogic Server: Overview
 - Objectives
 - Distributed Systems
 - Java Platform Enterprise Edition
 - Oracle WebLogic Server
 - JVM
 - Typical System Architecture
 - WebLogic Server Domain
 - Administration Server
 - Managed Servers
 - Node Manager
 - Machines and Clusters
 - WebLogic Server Application Services
 - WebLogic Server Application: Example
 - WebLogic Server Administrative Tools
 - WebLogic Server Administration Console

- Fusion Middleware Control
- WebLogic Scripting Tool
- WebLogic Diagnostic Framework
- WebLogic Diagnostics Framework Monitoring Dashboard
- Enterprise Manager Cloud Control
- WebLogic Server and RESTful Management
- Cloud Computing
- Self Service
- Infrastructure as a Service (IaaS)
- Platform as a Service (PaaS)
- Java Cloud Service
- Quiz
- Summary
- 3 Installing and Patching WebLogic Server
- Objectives
- Roadmap
- Determining Supported System Configurations
- When Not All FMW Is the Same Version
- Roadmap
- WebLogic Server 14.1.1 Installers
- WebLogic Server Generic Installer
- WebLogic Quick Installer
- What Is Oracle Coherence?
- WebLogic 14.1.1 Installation Flow
- WebLogic Server Installation Modes
- Installing WebLogic Server on Linux Graphical Mode
- Installation Problems
- Uninstalling WebLogic Server
- Roadmap
- Applying Patches by Using OPatch
- Zero Down Time Patching
- ZDT Patching Workflows
- Zero Down Time Patching Application Patching Overview
- Quiz
- Summary
- Practice 3-1 Overview: Installing WebLogic Server
- Practice 3-2 Overview: Patching WebLogic Server
- 4 Creating Domains
- Objectives
- Roadmap
- Domain Planning Questions
- Virtual IP Address and Virtual Host Name
- Domain Mode: Development
- Domain Mode: Production
- Roadmap
- Domain Creation Tools

- Domains: Creation from Templates
- Creating Domains
- Where to Place the Domain
- Creating a Domain with the Configuration Wizard
- Admin Server Listen Address
- Creating a Domain with the Configuration Wizard
- Roadmap
- Domain File Structure
- Creating the Domain on Other Hardware
- Creating the Domain Archive: Pack
- Using the Domain Archive: Unpack
- Roadmap
- WebLogic Domain in Oracle Java Cloud Service
- JCS Instance
- Creating a JCS Instance
- Java Cloud Service: Default Ports
- Java Cloud Service: Default Domain Configuration
- Quiz
- Summary
- Practice 4-1 Overview: Creating a New Domain
- Practice 4-2 Overview: Copying a Domain to a New Machine
- 5 Starting Servers
- Objectives
- WebLogic Server Life Cycle
- Starting WebLogic Server with a Script
- Customizing the Scripting Environment
- Creating a Boot Identity File
- Stopping WebLogic Server
- Suspend and Resume
- Customizing Standard Scripts
- WebLogic Server Options
- Changing Default JDK Location
- Changing Domain's JDK Location
- JVM Options
- Modifying the CLASSPATH
- WebLogic Server Startup Issues
- When Admin Server Is Not Running
- Restarting a Down Admin Server: Same Machine
- Restarting a Failed Admin Server: Different Machine
- Restarting a Failed Managed Server: Same Machine
- Restarting a Failed Managed Server: Different Machine
- Quiz
- Summary
- Practice 5-1 Overview: Starting and Stopping Servers
- 6 Using the Administration Console
- Objectives

- Accessing the Administration Console
- Administration Console Login
- Basic Navigation
- Tabular Data
- Customizing a Table
- Admin Console Preferences
- Advanced Console Options
- Administration Console Change Center
- Admin Console: Creating Domain Resources
- Creating a Resource Example: New Server
- Modifying a Resource Example: Server
- Admin Console: Monitoring Domain Resources
- Admin Console: Controlling Domain Resources
- Enterprise Manager Cloud Control
- Quiz
- Summary
- Practice 6 Overview: Using the Administration Console for Configuration
- 7 Configuring JDBC
- Objectives
- Roadmap
- JDBC: Overview
- WebLogic JDBC Drivers
- Global Transactions: Overview
- Two-Phase Commit
- JDBC Data Source
- Java Naming and Directory Interface (JNDI)
- JNDI Duties of an Administrator
- Deployment of a Data Source
- Targeting of a Data Source
- Types of Data Sources
- Roadmap
- Creating a Generic Data Source
- Non-XA Driver Transaction Options
- Creating a Generic Data Source
- Connection Pool Configuration
- Connection Properties
- Testing a Generic Data Source
- Roadmap
- Oracle Real Application Clusters: Overview
- GridLink Data Source for RAC
- GridLink, FCF, and ONS
- GridLink and Services
- GridLink and Single Client Access Name (SCAN)
- Creating a GridLink Data Source
- JCS Default Data Source
- Roadmap

- Common Data Source Problems
- Basic Connection Pool Tuning
- Quiz
- Summary
- Practice 7-1 Overview: Configuring a JDBC Data Source
- 8 Monitoring a Domain
- Objectives
- WebLogic Server Logs
- WebLogic Server Log Locations
- Log Message Severity Levels
- Log File Entries
- Accessing the Logs from the Admin Console
- Configuring Server Logging
- Error Messages Reference
- Log Filters
- Creating a Log Filter
- Applying a Log Filter
- Subsystem Debugging
- Debug Scopes
- Debug Scopes: Examples
- Admin Console: Monitoring Domain Resources
- Monitoring the Domain
- Monitoring All Servers
- Monitoring Server Health
- Monitoring Server Performance
- Monitoring Data Source Health
- Example Data Source Performance Attributes
- JMX, MBeans, Managing, and Monitoring
- Monitoring Dashboard
- Monitoring Dashboard Interface
- Views
- Built-in Views
- Creating a Custom View
- Anatomy of a Chart
- Current or Historical Data
- Enterprise Manager Cloud Control: Review
- Quiz
- Summary
- Practice 8-1 Overview: Working with WebLogic Server Logs
- Practice 8-2 Overview: Monitoring WebLogic Server
- 9 Node Manager
- Objectives
- Node Manager
- Types of Node Manager
- Node Manager Architecture: Per Machine
- Node Manager Architecture: Per Domain

- How Node Manager Starts a Managed Server
- Node Manager Start Sequence, File Creation, and Monitoring
- Node Manager and Server Shutdown
- Configuration Wizard and Node Manager
- Configuring the Java-Based Node Manager
- Configuring Server Start and Health Monitoring Parameters
- Configuring the Java-Based Node Manager
- Other Node Manager Properties
- Node Manager Files
- Enrolling Node Manager with a Domain
- When Not to Use nmEnroll()
- Reminder: Pack
- Reminder: Unpack
- Controlling Servers Through Node Manager
- Node Manager: Best Practices
- Quiz
- Summary
- Practice 9-1 Overview: Configuring and Using Node Manager
- 10 Deploying Applications
- Objectives
- Deploying Applications to WebLogic Server
- Software Life Cycle and WebLogic Server
- Java EE Deployments
- WebLogic Server Deployments
- Other Deployments
- Deployment Terms
- Deployment Descriptors
- Deployment Plans
- Exploded Versus Archived Applications
- Autodeploy
- Server Staging Mode
- WebLogic Server Deployment Tools
- Starting and Stopping an Application
- Deploying an Application
- Undeploying an Application
- Redeploying an Application
- Monitoring Deployed Applications: Admin Console
- Monitoring Information Available from the Admin Console
- Monitoring Deployed Applications: Monitoring Dashboard
- Application Errors
- Application Testing
- Application Load Testing Methodology
- Load and Stress Testing
- Load Testing Tools
- The Grinder
- The Grinder Architecture

- The Grinder Proxy
- Agent Properties
- The Grinder Console
- Finding Bottlenecks
- Correcting Bottlenecks
- Quiz
- Summary
- Practice 10-1 Overview: Deploying an Application
- Practice 10-2 Overview: Load Testing an Application
- 11 Shared Java EE Libraries
- Objectives
- Roadmap
- Before Shared Libraries
- Shared Libraries
- Types of Shared Libraries
- Java EE Library Support
- WebLogic Java EE Shared Libraries
- Configuration Precedence and Deployment
- Managing Precedence
- Configuring a Shared Library
- Configuring a Shared Library in the Manifest File
- Referencing a Shared Library
- Quiz
- Roadmap
- Deploying a Library with Administration Console
- Deploying a Library with weblogic.Deployer
- Deploying a Library with WLST
- Summary
- Practice 11-1 Overview: Configuring and Deploying a Shared Library
- 12 Network Channels and Virtual Hosts
- Objectives
- Default WebLogic Networking
- Additional Networking Scenarios
- Dedicating Network Interfaces to Specific Servers
- Using Multiple Ports on a Single Server
- Separating Administrative Communication
- Isolating Cluster Communication
- Network Channel
- Channel Selection
- Creating a Channel
- Channel Network Settings
- Monitoring Channels
- Administration Port
- Configure the Domain's Administration Port
- Server Override of the Administration Port
- Server Standby Mode

- Virtual Host
- Create a Virtual Host
- Configure a Virtual Host
- Configuring a Virtual Host in DNS or the hosts File
- Deploy to a Virtual Host
- Run the Application Using the Virtual Host
- Quiz
- Summary
- Practice 12-1 Overview: Configuring a Network Channel
- Practice 12-2 Overview: Configuring the Administration Port
- [Optional] Practice 12-3 Overview: Creating a Virtual Host
- 13 Clusters: Overview, Creation, and Configuration
- Objectives
- Cluster: Review
- Benefits of Clustering
- Basic (Single-Tier) Cluster Architecture
- Multi-Tier Cluster Architecture
- Architecture Advantages and Disadvantages
- Cluster Communication
- Creating a Cluster: Configuration Wizard
- Creating a Cluster: Administration Console
- Adding Servers to the Cluster: Administration Console
- Server Templates and Dynamic Clusters
- Creating a Dynamic Cluster
- Editing the New Dynamic Cluster
- Editing the New Server Template
- Dynamic Server Calculated Attributes
- Dynamic Server Calculated Attributes: Example
- Comparing Configured and Dynamic Clusters
- Creating a Server Template
- Server Templates and Configured Servers
- Quiz
- Summary
- Practice 13-1 Overview: Configuring a Cluster
- Practice 13-2 Overview: Configuring a Dynamic Cluster
- 14 Clusters: Proxies and Sessions
- Objectives
- Cluster Proxy for a Web Application Cluster
- Proxy Plug-Ins
- Oracle HTTP Server (OHS)
- Installing and Configuring OHS: Overview
- Configuring OHS as the Cluster Proxy
- httpd.conf and mod_wl_ohs.conf
- mod_wl_ohs.conf
- Select Plug-In Parameters
- Starting and Stopping OHS

- Verifying that OHS Is Running
- Oracle Traffic Director
- Oracle Traffic Director (OTD): Features
- Administration Architecture
- High Availability Architecture
- Comparing OHS and OTD
- Failover: Detecting Failures and the Dynamic Server List
- HTTP Session Failover
- Configuring Web Application Session Failover: weblogic.xml
- In-Memory Session Replication
- In-Memory Replication: Example
- Configuring In-Memory Replication
- Machines
- Secondary Server and Replication Groups
- Replication Groups: Example
- Configuring Replication Groups
- File Session Persistence
- Configuring File Persistence
- JDBC Session Persistence
- JDBC Session Persistence Architecture
- Configuring JDBC Session Persistence
- JDBC Persistent Table Configuration
- Configuring a Hardware Load Balancer
- Hardware Load Balancer Session Persistence
- Passive Cookie Persistence and the WebLogic Server Session Cookie
- Quiz
- Summary
- Practice 14-1 Overview: Installing OHS (Optional)
- Practice 14-2 Overview: Configuring a Cluster Proxy
- [Optional] Practice 14-3 Overview: Configuring Replication Groups
- 15 Clusters: Communication, Planning, and Troubleshooting
- Objectives
- Review: Cluster Communication
- How Multicast Works
- How Unicast Works
- Considerations for Choosing Unicast or Multicast
- Configure Multicast
- Configure Unicast
- Replication Channel
- Configuring Replication Channels: Servers
- Configuring Replication Channels: Cluster
- Configuring Replication Channels
- Planning for a Cluster
- Managing a Cluster
- Dynamic Clusters, Elasticity, and WLDF
- Automated Elasticity for Dynamic Clusters

- Scaling Up a Cluster
- Scaling Down a Cluster
- Scaling a Dynamic Cluster by Using the Administration Console
- Troubleshooting a Cluster
- Monitoring a Cluster: Admin Console
- WebLogic Server and OHS Logs
- Common OHS to WLS Connectivity Issues
- Multicast Communication Issues
- Cluster Member Uniformity
- Session Failover Issues
- Quiz
- Summary
- [Optional] Practice 15-1 Overview: Configuring a Cluster Broadcast Channel
- 16 Transactions
- Objectives
- Transactions and ACID
- Global Transactions, 2PC, and XA
- WebLogic Server as a Transaction Manager
- Transaction States when Committing
- Transaction States when Rolling Back
- Java Transaction API (JTA)
- Configuring Transactions
- JTA Configuration Options
- WebLogic Extension of JTA
- JDBC Reminder
- Logging Last Resource and Performance
- LLR: Example
- Transaction Log (TLog)
- Configuring the Default Store
- Configuring a JDBC Transaction Log
- Comparing File Store to JDBC Store
- Monitoring Transactions
- Viewing Transaction Statistics for a Resource
- Forcing a Commit or Rollback
- Troubleshooting Transactions
- Quiz
- Summary
- Practice 16-1 Overview: Configuring Transaction Persistence
- 17 WebLogic Server Security
- Objectives
- Some Security Terms
- Some Security Terms: Graphically
- WebLogic Server Security Realm
- What Security Providers Do
- What the Providers Do
- Security Stores

- Default Security Store Implementation
- Default Security Configuration
- Security Customization Approaches
- Authentication Providers
- Available Authentication Providers
- Lightweight Directory Access Protocol (LDAP)
- LDAP Structure
- LDAP Search Operations
- LDAP Query Basics
- LDAP Authentication Providers
- Available LDAP Authentication Providers
- Creating a New LDAP Authentication Provider
- Configuring the LDAP Provider: Connection
- Configuring the LDAP Provider: Users
- Configuring the LDAP Provider: Groups
- Configuring the LDAP Provider: Subgroups
- Configuring the LDAP Provider: Dynamic Groups
- LDAP Failover
- LDAP Caching
- Multiple Authentication Providers
- Control Flags
- Administration Groups
- Troubleshooting Authentication
- Auditing Provider
- Security Audit Events
- Configuring the Auditing Provider
- Security Realm Debug Flags
- Common LDAP Issues
- Quiz
- Summary
- Practice 17-1 Overview: Configuring an Authentication Provider
- 18 Backing Up a Domain and Upgrading WebLogic Server
- Objectives
- Backup and Recovery
- Backup Solution
- Types of Backups
- When to Back Up
- Limitations and Restrictions for Online Backups
- Performing Full Offline Backup
- Performing Full Online Backup
- Impact of Administration Server Failure
- Automatically Backing Up a Domain Configuration
- Recovery Operations
- Directories to Restore
- Recovery After Disaster
- Recovery of Homes

- Recovery of a Managed Server
- Recovery of the Administration Server
- Restarting the Administration Server on a New Host
- Managed Server Independence
- Upgrading To WebLogic Server 14c
- Upgrading WebLogic Server to 14c
- Upgrading WebLogic Server
- Run the Reconfiguration Wizard
- Upgrade the Managed Server Domain Directories
- Upgrading WebLogic Server Domain to 14c
- Quiz
- Summary
- Practice 18-1 Overview: Backing Up and Restoring a Domain