Oracle WebLogic Server 14c: Troubleshooting Workshop

JAVA

DURATION	MODULES	COURSE CODE
2 Days	**13 Lectures**	**—**

Course Overview

This course helps you learn how to erver 14c: Troubeshooting Workshop training teaches you how to monitor and tune Oracle WebLogic Server 14c. The lecture content is suitable reinforced with hands-on practices.

What You Will Learn

Course Introduction

- Objectives
- Target Audience
- Course Schedule
- Course Practices
- For More Information
- Related Training

Troubleshooting: Overview

- Objectives
- Troubleshooting
- 1. Define the Problem
- 2. Gather Detailed Information: Interview Questions
- 2. Gather Detailed Information: Collect Data
- 3. Consider Probable Causes
- 4. Choose a Likely Cause and Devise a Plan: Nonreproducible Problem
- 4. Choose a Likely Cause and Devise a Plan: Reproducible Problem
- 5. Implement the Plan: Nonreproducible Problem
- 5. Implement the Plan: Reproducible Problem
- 6. Observe the Results
- 7. Repeat If the Problem Is Unsolved
- 8. Document the Solution
- Troubleshooting Tools

- Giving Information to Oracle Support: RDA
- Summary
- Practice 2-1: Accessing and Setting Up the Practice Environment
- Practice 2-2: <OPTIONAL> Running RDA

WebLogic Server Diagnostic Framework

- Objectives
- WebLogic Server Diagnostic Framework (WLDF)
- WLDF Architecture
- WebLogic Server Logging: Review
- Subsystem Debugging: Review
- WLDF Configuration: Overview
- Diagnostic Images
- Diagnostic Archives
- Diagnostic Modules
- Harvester Architecture
- Metric Collector Definitions
- Policies and Actions
- Policy Alarms
- Built-in Diagnostic System Modules
- Creating Diagnostic System Modules
- Controlling Diagnostic System Modules
- Monitoring Dashboard: Review
- Quiz
- Summary
- Practice 3-1: Harvesting Diagnostic Metrics
- Practice 3-2: Monitoring Diagnostic Metrics

Diagnostic Instrumentation

- Objectives
- Instrumentation Scenarios
- Instrumentation Architecture
- Instrumentation Architecture Diagram
- Types of Diagnostic Monitors
- Available Diagnostic Monitor Actions
- Available Delegating Diagnostic Monitors
- How Diagnostic Code Is Inserted: Aspect-Oriented Programming (AOP)
- Custom Monitors
- When Call and Execute Joinpoints Are Executed: Example
- Instrumentation and Request Performance
- Practice 4-1: Configuring and Monitoring Diagnostic Events
- Diagnostic Context
- Diagnostic Context ID
- Request Dyeing
- Available Dyes

- Event Filtering
- Event Throttling
- Tracing Requests
- Adding Context ID to Log Listings
- Quiz
- Summary
- Practice 4-2: Tracing a Client Request

JVM Troubleshooting

- Objectives
- JVM and JVM Memory
- Garbage Collection
- Sun HotSpot Garbage Collection
- Garbage Collection (GC) Types
- Setting JVM Arguments: Review
- Some Basic HotSpot JVM Arguments
- Out of Memory
- Out-of-Memory Response
- Memory Leak
- JVM Crash
- JVM Error Log
- JVM Tool Varieties
- JVM Crash Actions
- Verbose GC
- JVM Profiling
- Open Source JVM Profiling Tools
- HotSpot JVM Diagnostic Tools: Overview
- Java VisualVM
- Management Communication
- Java Mission Control
- Java Flight Recorder
- Integration of JFR and WLDF
- Admin Console JVM Monitoring: Review
- Quiz
- Summary:
- Practice 5-1: Troubleshooting a JVM

Troubleshooting Servers

- Objectives
- WebLogic Server Startup Issues: Review
- Boot Identity Errors
- WebLogic Server Native Libraries
- Setting the Native Library Path
- Causes of Unresponsive Servers
- WebLogic Server Threads

- Execute Thread State
- Creating and Using a Thread Dump
- Reading a Thread Dump Entry
- Java Deadlock Concepts
- Stuck Thread Detection
- Overload Protection
- Configuring Overload Protection
- Changing Priorities: Work Managers
- Server WLDF Image
- Quiz
- Summary
- Practice 6-1: Investigating Server Problems

Troubleshooting Applications

- Objectives
- WebLogic Server Deployment: Review
- Application Staging
- Deployment Errors
- Shared Library: Review
- Library Errors
- Deployment Debug Flags
- Application Error Handling
- Application Monitoring: Review
- Java Exception-Handling Concepts
- Exception Chains
- Java Stack Trace
- ClassNotFoundException and NoClassDefFoundError
- Class Cast Exception
- Null Pointer Exception
- Stack Overflow Errors
- Too Many Open Files Exceptions
- CLASSPATH: Review
- WebLogic Server Start Script: Review
- Viewing the WebLogic Server CLASSPATH
- Manifest Files and the CLASSPATH
- Domain Libraries
- Java Class Loaders
- Searching Class Loaders
- Searching Class Loaders: Example
- Default Class Loader Hierarchy
- Prefer Web Application Classes
- Prefer Enterprise Application Classes
- Client Library Errors
- Quiz
- Summary
- Practice 7-1: Investigating Application Problems

Troubleshooting JDBC

- Objectives
- JDBC: Review
- Data Sources: Review
- JDBC Runtime Attributes
- JDBC WLDF Image
- JDBC WLDF Diagnostic Monitor: Review
- Data Source Diagnostic Profiling
- Configuring Data Source Diagnostic Profiling
- JDBC Debug Flags
- Common Configuration Errors
- Configuration Error Examples
- Insufficient Connection Errors
- Connection Leaks
- Database Cursor Considerations
- Common Connection Errors
- Statement Timeout
- Data Sources and Database Availability
- Retry Frequency and Login Timeout
- Connection Testing: Review
- Testing Trusted Connections
- Firewall Considerations
- Java Persistence API (JPA): Overview
- JPA Configuration: Overview
- Troubleshooting JPA: Overview
- Quiz
- Summary
- Practice 8-1: Investigating JDBC Problems

Troubleshooting Node Manager

- Objectives
- Node Manager (NM): Review
- NM Architecture Per Machine: Review
- NM Architecture Per Domain: Review
- Java-Based NM Configuration: Review
- Other Node Manager Properties: Review
- Configuring Java Node Manager Logging
- Java Node Manager Availability
- Node Manager Server Start and Health Monitoring Parameters: Review
- Monitoring Node Managers
- Common Configuration Errors
- Comparing the nodemanager.properties Settings to Defaults for the Java NM
- Node Manager Authentication
- Node Manager Trusted Domains

- Enrolling Node Manager with a Domain: Review
- Server Boot Identity
- Configuring Node Manager SSL
- Quiz
- Summary
- Practice 9-1: Investigating Node Manager Problems

Troubleshooting Clusters

- Objectives
- Cluster: Review
- Proxy Plug-in: Review
- Oracle HTTP Server (OHS): Review
- OHS: Review
- OHS Logs
- Starting and Stopping OHS: Review
- OHS Plug-in Configuration: Review
- Some Plug-in Parameters: Review
- Proxy Connection Architecture
- Dynamic Server List: Review
- Connection Parameters
- Common Connectivity Issues
- Proxy SSL Issues
- Proxy Debug Page
- Oracle Diagnostic Logging Directives
- Practice 10-1: Investigating Proxy Problems
- Cluster Communication: Review
- Multicast Architecture: Review
- Unicast Architecture: Review
- Session Management: Review
- Session Persistence: Review
- Session Monitoring Attribute
- Session Instrumentation
- Cluster Debug Flags
- Typical Cluster Heartbeat Trace
- Typical Replication Trace: Primary
- Typical Replication Trace: Secondary
- Common Replication Issues
- Serialization Overview
- Serialization Debug Messages
- Quiz
- Summary
- Practice 10-2: Investigating Cluster Replication Problems

Troubleshooting Security

- Objectives

- WebLogic Server Security Realm: Review
- Security Store: Review
- Authentication Providers: Review
- Available Authentication Providers: Review
- External LDAP Authentication Providers: Review
- Common LDAP Issues: Review (When an External LDAP Is Configured)
- Database Store Cache Synchronization Issues
- Default Authenticator: Embedded LDAP
- Embedded LDAP Backups
- Lost Admin Password in the Embedded LDAP
- Embedded LDAP Synchronization Issues
- Security Realm Debug Flags
- Typical Authentication Trace
- LDAP Trace Log
- Typical Role Mapping Trace
- Typical Authorization Trace
- Authentication Troubleshooting
- Auditing Provider: Review
- Security Audit Events: Review
- Configuration Auditing
- Quiz
- Summary
- Practice 11-1: Troubleshooting Changes by Using Auditing
- Practice 11-2: <OPTIONAL> Recovering the Lost Admin Password

Oracle Cloud

- Agenda
- What is Cloud?
- What is Cloud Computing?
- History – Cloud Evolution
- Components of Cloud Computing
- Characteristics of Cloud
- Cloud Deployment Models
- Cloud Service Models
- Industry Shifting from On-Premises to the Cloud
- Oracle IaaS Overview
- Oracle PaaS Overview
- Oracle SaaS Overview
- Summary

Oracle Java Cloud Service Overview

- Objectives
- Introducing Java Cloud Service Your platform for running business applications
- in the cloud
- Java Cloud Service: Three Options

- Java Cloud Service Main Use Cases
- Java Cloud Service Feature: Provisioning
- Java Cloud Service Feature: Patching
- Java Cloud Service Feature: Backup/Restore
- Java Cloud Service Feature: Scaling
- Oracle Coherence Option: Data Caching & Scaling
- Oracle Coherence Option: Your Cloud Data Grid
- How You Interact with Java Cloud Service
- Speaking of Dev Environments… Developer Cloud Service
- Java Cloud Service On-Premises!
- Summary