

Oracle NoSQL Database for Administrators

Oracle Database

DURATION

2 Days

MODULES

16 Lectures

COURSE CODE

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Course Overview

This course helps you learn to define the term big data and determine when to use Oracle NoSQL database. You learn to explain the key features, benefits, and components of NoSQL Database. You then learn to install, manage, and configure Oracle NoSQL Database along with learning to monitor and optimize Oracle NoSQL Database performance. Next, you learn to perform backup, recovery, and troubleshooting tasks. Finally, you learn how to integrate Oracle NoSQL Database with other products. The instructions are reinforced with hands-on practices.

What You Will Learn

Course Introduction

- Learning Objectives
- Course Goals
- Course Outline
- Course Environment
- Accessing the labs Directory
- Introducing Course Persona: Mike
- Additional Resources
- Summary

Oracle NoSQL Database

- Scenario
- Objectives
- Big Data
- Oracle Integrated Software Solution
- NoSQL Database
- RDBMS Compared to NoSQL
- HDFS
- HDFS Compared to NoSQL
- Quiz

- Oracle NoSQL Database: Use Cases
- Scenario 1: Retail Marketing System
- Scenario 2: Human Resources System
- Scenario 3: Healthcare System
- Points to Consider Before Choosing NoSQL
- Oracle NoSQL Database: Overview
- Oracle NoSQL Database: Key Features
- Quiz
- How does Oracle NoSQL Database work?
- Architecture: Example
- KVStore Components
- KVStore Components: Storage and Replication Nodes
- Arbiter Nodes
- Quiz
- Partitions and Key-Value Pairs
- Key-Value: Overview
- Table Data Model: Overview
- Supported Data Types
- Quiz
- Performance and Throughput
- Accessing the KVStore
- Consistency
- Quiz
- Durability
- Quiz
- Summary
- Practice 2 Overview: Oracle NoSQL Database – Overview
- I Unit I Installation and Configuration
- Course Outline I-2
- Mike Installs and Configures Oracle NoSQL Database I-3

Planning an Installation

- Scenario
- Objectives
- Installation Steps
- KVStore Analysis: Tasks
- InitialCapacityPlanning Spreadsheet
- Using InitialCapacityPlanning Spreadsheet
- Application Characteristics
- Hardware Characteristics
- Shard Capacity
- Physical Memory
- Network Throughput
- Store Sizing
- Performance Requirements

- Configuration Requirements
- Configuration Requirements: Determining the Number of Shards
- Configuration Requirements: Determining Number of Partitions and Replication
- Factor
- Configuration Requirements: Determining Number of Storage Nodes
- Summary
- Practice 3 Overview: Planning an Installation

Installing and Configuring Nodes

- Scenario
- Objectives
- Prerequisites Checklist
- Installation Steps
- Creating Directories
- Extracting Software
- Verifying the Installation
- Using the makebootconfig Utility
- Starting the Storage Node Agents
- Pinging the Replication Nodes
- Quiz
- Summary
- Practice 4 Overview: Installing and Configuring Nodes

Configuring and Deploying a KVStore

- Scenario
- Objectives
- Configuration and Monitoring Tool
- Configuration Steps
- Introducing Plans
- States of a Plan
- Configuring and Deploying the KVStore
- Viewing the KVStore Topology
- Testing the KVStore
- Reviewing and Tracking Plans
- Creating a Configuration Script
- Quiz
- Scenario 1: One Zone
- Scenario 2: Two Zones
- Scenario 3: Three Zones
- Summary
- Practice 5 Overview: Configuring a KVStore

Modifying a KVStore

- Scenario

- Objectives
- Reasons to Modify a Cluster
- Adding a Storage Node
- Adding a Zone
- Increasing a Cluster's Replication Factor
- Increasing a Cluster's Capacity
- Quiz
- Steps to Modify a Cluster
- CLI Commands to Modify a Cluster
- Quiz
- Summary
- Practice 6 Overview: Modifying a KVStore

Securing the Configuration

- Scenario
- Objectives
- Lesson Agenda
- Security Configuration: Overview
- Security Configuration: Files
- Quiz
- Lesson Agenda
- Can you match the following?
- Performing a Secure Installation Using makebootconfig
- 1. Create the Boot Configuration Files for Any One Host
- 2. Configure SN on Other Hosts
- 3. Start the SNA on Each Node
- 4. Configure the Store and Create the Admin User
- 5. Log In as Admin and Create More Users
- Quiz
- Lesson Agenda
- Quiz
- Securing an Existing Installation by Using securityconfig
- Creating the Security Configuration
- Adding the Security Configuration
- Removing the Security Configuration
- Merging the Truststore Configuration
- Quiz
- Lesson Agenda
- What is happening here?
- Encrypting Data
- Lesson Agenda
- Configuring Authentication: User Management
- Managing Roles and Users
- Quiz
- Lesson Agenda

- Security Guidelines
- Summary
- Practice 7 Overview: Securing the Configuration

Troubleshooting Oracle NoSQL Database Installation Issues

- Scenario
- Objectives
- Lesson Agenda
- How Would You...
- Verifying a KVStore
- The verify configuration Command
- Quiz
- Lesson Agenda
- Activity
- Where to Find Error Information
- Service States
- Log File Format
- Lesson Agenda
- Activity
- HA Port Ranges
- Indication of Incorrect Port Ranges
- Quiz
- Lesson Agenda
- Clock Synchronization by Using NTP
- Lesson Agenda
- Diagnostics Utility: Setting Up the Tool
- Diagnostics Utility: Packaging Information and Files
- Quiz
- Lesson Agenda
- Steps to Troubleshoot Misconfiguration
- Troubleshooting Guidelines: Port Usage
- Lesson Agenda
- Activity
- Viewing and Killing Processes
- Lesson Agenda
- Scenario
- Removing a Deployment
- Match the Following
- Summary
- Practice 8 Overview: Troubleshooting Oracle NoSQL Database Installation
- Issues
- I Unit 1 Summary of Installation and Configuration
- Course Outline I-2
- Mike Installed and Configured Oracle NoSQL Database I-3
- II Unit 2 Monitoring a KVStore

- Course Outline II-2
- Mike Optimizes and Monitors the KVStore II-3

Setting Store Parameters

- Scenario
- Objectives
- Lesson Agenda
- Introducing KVStore Parameters
- Can you match the following?
- List of Parameters: Storage Node Parameters – I
- Can you match the following?
- List of Parameters: Storage Node Parameters – II
- List of Parameters: Admin Parameters
- List of Parameters: Replication Node Parameters
- List of Parameters: Security Parameters
- Quiz
- Lesson Agenda
- Activity
- Viewing Parameters Using CLI
- Quiz
- Lesson Agenda
- Changing Storage Directory
- Changing Parameters
- Lesson Agenda
- Scenario
- Setting Storewide Policy Parameters
- Quiz
- Summary
- Practice 9 Overview: Setting Store Parameters

Optimizing KVStore Performance

- Scenario
- Objectives
- Lesson Agenda
- Machine Physical Memory: Cache
- Machine Physical Memory: Sizing Advice
- Quiz
- Lesson Agenda
- Scenario
- Determining JE Cache Size: Overview
- Determining JE Cache Size: Example
- Setting JE Cache Size
- Quiz
- Lesson Agenda
- Best Practice: JVM

- Determining Java Heap Size
- Setting Java Heap Size
- Well-Tuned System
- Best Practice: Reduce Key Size
- Quiz
- Summary
- Practice 10 Overview: Optimizing KVStore Performance

General Monitoring

- Scenario
- Objectives
- Lesson Agenda
- Monitoring the KVStore
- Quiz
- Lesson Agenda
- Events
- Viewing the Events
- Viewing an Event Detail
- Lesson Agenda
- Java Management Extensions
- Enabling JMX Monitoring
- Enabling JMX: In the Bootfile
- Enabling or Disabling JMX: By Changing Storage Node Parameters
- Quiz
- Lesson Agenda
- Scenario
- Using JConsole for Monitoring
- Quiz
- Summary
- Practice 11 Overview: General Monitoring
- II Unit 2 Summary of Monitoring a KVStore
- Course Outline II-2
- Mike Optimized and Monitored the KVStore II-3
- III Unit 3 Managing a KVStore
- Course Outline III-2
- Mike Manages the KVStore III-3

Managing Directory Sizes

- Scenario
- Objectives
- Lesson Agenda
- Storage Directory Structure: Example
- Storage Directory Structure: Files
- Quiz
- Lesson Agenda

- Scenario
- Managing Disk Thresholds: Overview
- Managing Disk Thresholds: Example
- Quiz
- Lesson Agenda
- Managing Storage Directory Size: Add or Remove Storage Directory
- Lesson Agenda
- Monitoring Disk Usage
- Handling Disk Limit Exception
- Quiz
- Summary
- Practice 12 Overview: Managing Directory Sizes

Backup and Recovery

- Scenario
- Objectives
- Lesson Agenda
- Backup Process
- Introducing Snapshots
- Quiz
- Snapshot Management
- Lesson Agenda
- Recovery Process
- Recovery: Using the Load Program
- Recovery: Directly Using Snapshots
- Quiz
- Summary
- Practice 13 Overview: Backup and Recovery

Upgrading the Software

- Scenario
- Objectives
- Lesson Agenda
- Preparing to Upgrade
- Upgrade: Best Practices
- Upgrading to This Release from Release 3.0 or Later
- Summary
- Practice 14 Overview: Upgrading the Software
- III Unit 3 Summary of Managing a KVStore
- Course Outline III-2
- Mike Managed the KVStore III-3
- IV Unit 4 Integration
- Course Outline IV-2
- Mike Integrates Oracle NoSQL Database IV-3

Oracle NoSQL Database Integration

- Scenario
- Objectives
- Lesson Agenda
- Integration
- Quiz
- Lesson Agenda
- Connecting SQL Developer to a Secure NoSQL Database Store
- Connecting SQL Developer to a Non-Secure NoSQL Database Store
- Using SQL Developer to View a NoSQL Database Store
- Summary
- Practice 15 Overview: Oracle NoSQL Database Integration
- IV Unit 4 Summary of Integration
- Course Outline IV-2
- Mike Integrated Oracle NoSQL Database IV-3
- V Unit 5 Disaster Recovery
- Course Outline V-2
- Mike Performs Disaster Recovery V-3

Handling Hardware Failures

- Scenario
- Objectives
- Lesson Agenda
- Hardware Failure
- Scenario 1: Disk Failure
- Scenario 2: Storage Node Failure
- Scenario 3: Zone Failure
- Lesson Agenda
- Network Failure
- Recovering from Network Failure
- Scenario 4: Network Failure
- Lesson Agenda
- Detecting Storage Device Failures
- Replacing a Failed Storage Device
- Quiz
- Lesson Agenda
- Detecting Server Failures
- Replacing a Failed Storage Node
- Replacing a Failed SN with a New/Different SN
- Replacing a Failed SN with an Identical SN
- Lesson Agenda
- Repairing a Failed Zone
- Summary
- Practice 16 Overview: Handling Hardware Failures
- V Unit 5 Summary of Disaster Recovery

- Course Outline V-2
- Mike Performed Disaster Recovery V-3