

Exadata Database Machine: 12c Administration Workshop Ed 2

Duration: 5 Days

What you will learn

This Exadata Database Machine: 12c Administration Workshop training introduces you to Oracle Exadata Database Machine, covering the features and capabilities of the Exadata Database Machine X6 product family. In this course, you will be introduced to Oracle Database Exadata Cloud Service. Explore the various Exadata Database Machine features and configurations, with emphasis on the unique capabilities delivered by Exadata Storage Server. This course uses a virtualized environment for the hands-on component. **Learn To:** Describe Exadata Storage Server and how it's different from traditional database storage. List the key capabilities and features of Exadata Database Machine and Exadata Storage Server. Initially configure Exadata Database Machine and make appropriate up-front configuration decisions. Implement Exadata Storage Server security. Use query execution plans, statistics and wait events to examine Exadata Smart Scan. Describe various options and best-practice recommendations for consolidation on Exadata Database Machine. Describe various options for migrating to Database Machine and how to select the best approach. Perform various maintenance tasks on Exadata Database Machine. Configure Enterprise Manager Cloud Control 12c in conjunction with Exadata Database Machine. Monitor Exadata Database Machine using the monitoring infrastructure inherently within Exadata Database Machine, along with the monitoring capabilities exposed through Enterprise Manager Cloud Control 12c. Use other utilities for monitoring Exadata Database Machine which are supplied by Oracle. Gain an understanding of the Oracle Database Exadata Cloud Service. **Benefits to You** Maximize the efficiency and effectiveness of your Exadata Database Machines. Develop an understanding of implementing the best practices taught in the course. **Hands-On Experience** Best-practice recommendations are highlighted throughout; and, where possible, the topics are reinforced through participation in structured hands-on lab exercises.

Related Training

Required Prerequisites

A working knowledge of Unix/Linux along with an understand of general networking, storage and system administration concepts.

Prior knowledge and understanding of Oracle Database 11g Release 2 or 12c, including Oracle Clusterware and Automatic Storage Management (ASM).

Suggested Prerequisites

Oracle Database 12c R2: Administration Workshop Ed 3

Oracle Database 12c R2: Backup and Recovery Workshop Ed 3

Oracle Database 12c: Backup and Recovery Workshop

Oracle Database 12c: Backup and Recovery Workshop Ed 2

Prior knowledge of Oracle Database 11g R2 or 12c RAC

UNIX and Linux Essentials Ed 1

UNIX and Linux Essentials Ed 2

Course Objectives

Describe the key capabilities of Exadata Database Machine

Identify the benefits of using Exadata Database Machine for different application classes

Describe the architecture of Exadata Database Machine and its integration with Oracle Database

Clusterware and ASM

Configure I/O Resource Management

Complete the initial configuration of Exadata Database Machine

Describe various recommended approaches for migrating to Exadata Database Machine

Gain an understanding of the Oracle Database Exadata Cloud Service

Monitor Exadata Database Machine health and optimize performance

Course Topics

Introduction

Course Objectives

Audience and Prerequisites

Course Contents

Terminology

Additional Resources

Introducing the Laboratory Environment

Exadata Database Machine Overview

- Introducing Database Machine
- Introducing Exadata Storage Server
- Exadata Storage Server Architecture: Overview
- Exadata Storage Server Features: Overview
- Exadata Storage Expansion Racks
- InfiniBand Network
- Database Machine Support: Overview

Exadata Database Machine Architecture

- Database Machine Architecture: Overview
- Database Machine Network Architecture
- InfiniBand Network Architecture
- InfiniBand Network Topology
- Interconnecting Multiple Racks
- Database Machine Software Architecture: Overview
- Disk Storage Entities and Relationships

Key Capabilities of Exadata Database Machine

- Classic Database I/O and SQL Processing Model
- Exadata Smart Scan Model
- Exadata Smart Storage Capabilities
- Exadata Hybrid Columnar Compression
- Exadata Smart Flash Cache
- Exadata Storage Index
- Database File System
- I/O Resource Management

Exadata Database Machine Initial Configuration

- Database Machine Implementation: Overview
- Database Machine Site Preparation
- Using Oracle Exadata Deployment Assistant
- Choosing the Right Disk Redundancy Setting
- Configuring Oracle Exadata Database Machine
- The Result After Installation and Configuration
- Supported Additional Configuration Activities

Exadata Storage Server Configuration

- Exadata Storage Server Administration: Overview
- Testing Storage Server Performance Using CALIBRATE
- Configuring the Exadata Cell Server Software
- Starting and Stopping Exadata Cell Server Software
- Configuring Cell Disks and Grid Disks
- Configuring ASM and Database Instances to Access Exadata Cells
- Reconfiguring Exadata Storage
- Exadata Storage Security Implementation

I/O Resource Management

- I/O Resource Management Concepts
- IORM Architecture
- Getting Started with IORM
- Enabling Intradatabase Resource Management
- Setting Database I/O Utilization Limits

Interdatabase Plans and Database Roles
Using Database I/O Metrics
IORM and Exadata Storage Server Flash Memory

Recommendations for Optimizing Database Performance

Flash Memory Usage
Influencing Caching Priorities
Choosing the Flash Cache Mode
Compression Usage
Index Usage
ASM Allocation Unit Size
Minimum Extent Size
Exadata Specific System Statistics

Using Smart Scan

Exadata Smart Scan: Overview
Smart Scan Requirements
Monitoring Smart Scan in SQL Execution Plans
Smart Scan Join Processing with Bloom Filters
Other Situations Affecting Smart Scan
Exadata Storage Server Statistics: Overview
Exadata Storage Server Wait Events: Overview

Consolidation Options and Recommendation

Consolidation: Overview
Different Consolidation Types
Recommended Storage Configuration for Consolidation
Alternative Storage Configurations
Cluster Configuration Options
Isolating Management Roles
Schema Consolidation Recommendations
Maintenance Considerations

Migrating Databases to Exadata Database Machine

Migration Best Practices: Overview
Performing Capacity Planning
Database Machine Migration Considerations
Choosing the Right Migration Path
Logical Migration Approaches
Physical Migration Approaches
Post-Migration Best Practices
Migrating to Database Machine Using Transportable Tablespaces

Bulk Data Loading using Oracle DBFS

Bulk Data Loading Using Oracle DBFS: Overview
Preparing the Data Files
Staging the Data Files
Configuring the Staging Area
Configuring the Target Database
Loading the Target Database

Exadata Database Machine Platform Monitoring Introduction

- Monitoring Technologies and Standards
- Simple Network Management Protocol (SNMP)
- Intelligent Platform Management Interface (IPMI)
- Integrated Lights Out Manager (ILOM)
- Exadata Storage Server Metrics, Thresholds, and Alerts
- Automatic Diagnostic Repository (ADR)
- Enterprise Manager Cloud Control 12c
- Enterprise Manager Database Control

Configuring Enterprise Manager Cloud Control 12c to Monitor Exadata Database Machine

- Enterprise Manager Cloud Control 12c Architecture: Overview
- Cloud Control Monitoring Architecture for Exadata Database Machine
- Configuring Cloud Control to Monitor Exadata Database Machine
- Pre-discovery Configuration and Verification
- Deploying the Oracle Management Agent
- Discovering Exadata Database Machine
- Discovering Additional Targets
- Post-discovery Configuration and Verification

Monitoring Exadata Storage Servers

- Exadata Metrics and Alerts Architecture
- Monitoring Exadata Storage Server with Metrics and Alerts
- Isolating Faults with
- Monitoring Exadata Storage Server with Enterprise Manager: Overview
- Monitoring Hardware Failure and Sensor State
- Monitoring Exadata Storage Server Availability
- Comparing Metrics Across Multiple Storage Servers

Monitoring Exadata Database Machine Database Servers

- Monitoring Database Servers: Overview
- Monitoring Hardware
- Monitoring the Operating System
- Monitoring Oracle Grid Infrastructure
- Monitoring Oracle Database
- Monitoring Oracle Management Agent
- Database Monitoring with Enterprise Manager Cloud Control 12c

Monitoring the InfiniBand Network

- InfiniBand Network Monitoring: Overview
- InfiniBand Network Monitoring with
- Monitoring the InfiniBand Switches
- Monitoring the InfiniBand Switch Ports
- Monitoring the InfiniBand Ports
- Monitoring the InfiniBand Fabric:
- Monitoring the InfiniBand Fabric:

Monitoring Other Exadata Database Machine Components

- Monitoring the Cisco Ethernet Switch
- Monitoring the Sun Power Distribution Units
- Monitoring the KVM Switch

Other Useful Monitoring Tools

Exachk: Overview
Running Exachk
Exachk Daemon
DiagTools: Overview
Using ADRCI on Exadata Storage Servers
Imageinfo: Overview
Imagehistory: Overview
OSWatcher: Overview

Backup and Recovery

Using RMAN with Database Machine
General Recommendations for RMAN
Disk-Based Backup Strategy
Disk-Based Backup Recommendations
Disk-Based Backup on
Tape-Based Backup Strategy
Tape-Based Backup Architecture and Recommendations
Backup and Recovery of Database Machine Software

Exadata Database Machine Maintenance Tasks

Database Machine Maintenance: Overview
Powering Database Machine Off and On
Safely Shutting Down a Single Exadata Storage Server
Replacing a Damaged Physical Disk
Replacing a Damaged Flash Card
Moving All Disks from One Cell to Another
Using the Exadata Cell Software Rescue Procedure

Exadata Database Machine: Patching, Automated Support Ecosystem & Cloud Service Overview

Introducing Exadata Cloud Service
Service Configuration Options & Service Connection Options
Service Architecture & Availability
Management Responsibilities
Storage Configuration & Management Details
Simple Web-Based Provisioning & Management
REST APIs
Migrating to Exadata Cloud Service