

Exadata Database Machine Administration Workshop Ed 3

Duration: 5 Days

What you will learn

This Exadata Database Machine Administration Workshop Ed 3 training introduces you to Oracle Exadata Database Machine. You'll learn about the various Exadata Database Machine features and configurations, with emphasis on the unique capabilities delivered by Exadata Storage Server.

Learn To:

Describe Exadata Storage Server and how is it 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.

Benefits to You

Maximize the efficiency and effectiveness of your Exadata Database Machines by understanding and implementing the best practices taught in this course.

Gain Hands-On Experience

Best-practice recommendations are highlighted throughout; and, where possible, the topics are reinforced through participation in structured hands-on lab exercises.

Audience

Database Administrators

Sales Consultants

System Administrator

Technical Administrator

Technical Consultant

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, including Automatic Storage Management (ASM) and Real Application Clusters (RAC)

Suggested Prerequisites

Oracle Database 12c: Administration Workshop

Oracle Database 12c: Administration Workshop Ed 2 NEW

Oracle Database 12c: Backup and Recovery Workshop

UNIX and Linux Essentials

Course Objectives

Configure I/O Resource Management

Monitor Exadata Database Machine health and optimize performance

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

Complete the initial configuration of Exadata Database Machine

Describe various recommended approaches for migrating to Exadata Database Machine

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

Patching Exadata Database Machine

Patching and Updating: Overview

Maintaining Exadata Storage Server Software

Maintaining Database Server Software

Assisted Patching Using OPlan

Assisted Patching Using

Maintaining Other Software

Recommended Patching Process

Test System Recommendations