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.

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 or 12c, including Oracle Clusterware and Automatic Storage Management (ASM).

Suggested Prerequisites
Oracle Database 12c: Administration Workshop Ed 2

Oracle Database 12c: Backup and Recovery Workshop Ed 2

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

UNIX and Linux Essentials

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