

Exadata Database Machine: 12c Administration Workshop Ed 1

Duration: 5 Days

What you will learn

This course introduces students to Oracle Exadata Database Machine. Students learn about the various Exadata Database Machine features and configurations, with emphasis on the unique capabilities delivered by Exadata Storage Server. The course lessons cover the features and capabilities of the Exadata Database Machine X6 product family.

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.

Hands-On Experience

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

Benefits To You

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

A Live Virtual Class (LVC) is exclusively for registered students; unregistered individuals may not view an LVC at any time. Registered students must view the class from the country listed in the registration form. Unauthorized recording, copying, or transmission of LVC content may not be made.

Audience

Database Administrators

Sales Consultants

System Administrator

Technical Administrator

Technical Consultant

Related Training

Required Prerequisites

Prior knowledge and understanding of Oracle Database 11g Release 2, including Automatic Storage Management (ASM) and Real Application Clusters (RAC)

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

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

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

Configure I/O Resource Management

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 (demonstration)