

Exadata and Database Machine Administration Seminar

Duration: 2 Days

What you will learn

The first section of this course introduces you to Exadata Storage Server X2-2 (formerly known as Exadata Storage Server Version 2). You'll learn about the architecture and key capabilities of Exadata, along with how to configure, monitor and optimize it.

Learn To:

Describe what Exadata is and how it differs from traditional database storage.

List the key capabilities and features of Exadata and DBM.

Configure DBM.

Implement Exadata security.

Maintain DBM and perform various maintenance tasks.

Monitor DBM using alerts, thresholds, metrics, current activities, SQL plans, V\$ views and database statistics.

Maintain, monitor and optimize the Database Machine after initial configuration.

Part 2

The second section of this course introduces you to the Oracle Exadata Database Machine. You'll learn about the various Database Machine configurations, while reviewing the installation and configuration process. This will help you make appropriate up-front configuration decisions.

You'll also review various options for migrating to the Database Machine, while learning how to select the best approach. Where possible, the topics are reinforced through demonstrations.

Audience

Data Warehouse Administrator

Database Administrators

Database Designers

Technical Administrator

Related Training

Required Prerequisites

Oracle Database 11g: Administration Workshop II Release 2

Oracle Database 11g: Administration Workshop I Release 2

Oracle 11g: RAC and Grid Infrastructure Overview Seminar Release 2

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Suggested Prerequisites

Networking (inc. Infiniband)
Oracle Enterprise Linux: System Administration
Relevant Hardware Training
System and Storage Administration Concepts

Course Objectives

Describe the key capabilities of Exadata and Database Machine
Identify the benefits of using Database Machine for different application classes
Describe the architecture of Database Machine and its integration with Oracle Database, Clusterware and ASM
Complete the initial configuration of Database Machine
Describe various recommended approaches for migrating to Database Machine
Configure Exadata I/O Resource Management
Monitor Database Machine health and optimize performance

Course Topics

Introduction

Course Objectives
Audience and Prerequisites
Course Scope
Course Contents
Terminology
Additional Resources

Exadata Overview

Traditional Enterprise Database Storage Deployment
Exadata Storage Deployment & Exadata Implementation Architecture Overview
Introducing Exadata
Exadata Hardware Details (Sun Fire X4270 M2) & Exadata Specifications
InfiniBand Network
Classic Database I/O and SQL Processing Model
Exadata Smart Scan Model & Exadata Smart Storage Capabilities
Exadata Hybrid Columnar Compression Architecture Overview, Exadata Smart Flash Cache & Exadata Storage Index

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Exadata Architecture

- Exadata Software Architecture Overview
- Exadata Software Architecture Details
- Exadata Smart Flash Cache Architecture
- Exadata Monitoring Architecture
- Disk Storage Entities and Relationships
- Interleaved Grid Disks
- Flash Storage Entities and Relationships
- Disk Group Configuration

Exadata Configuration

- Exadata Installation and Configuration Overview
- Initial Network Preparation
- Configuration of New Exadata Servers
- Exadata Administrative User Accounts
- Configuring a New Exadata Cell
- Important I/O Metrics for Oracle Databases
- Testing Performance Using CALIBRATE
- Configuring the Exadata Cell Server Software & Configuring ASM and Database Instances for Exadata

Exadata Performance Monitoring and Maintenance

- Exadata Metrics and Alerts Architecture
- Monitoring Exadata with Metrics, Monitoring Exadata Cells with Alerts & Monitoring Exadata Cells with Active Requests
- Monitoring SQL Execution Plans & Smart Scan Execution Plan Example
- Monitoring Exadata from Your Database, Monitoring Exadata with Wait Events & Monitoring Exadata with Enterprise Manager
- Additional Monitoring Tools and Utilities & Cell Maintenance Overview
- Automated Cell Maintenance Operations
- Replacing a Damaged Physical Disk & Replacing a Damaged Flash Card
- Moving All Disks from One Cell to Another & Using the Exadata Software Rescue Procedure

Exadata and I/O Resource Management

- I/O Resource Management Concepts & Plans
- IORM Architecture
- Enabling Intra database Resource Management
- Intra database Plan Example

Enabling IORM for Multiple Databases

Inter database Plan Example & Category Plan Example

Complete Example

Using Database, I/Os Metrics

Optimizing Database Performance with Exadata

Optimizing Performance

Flash Memory Usage

Compression Usage

Index Usage

ASM Allocation Unit Size

Minimum Extent Size

Database Machine Overview and Architecture

Introducing Database Machine

Database Machine X2-2 Full Rack & X2-2 Database Server Hardware Details (Sun Fire X4170 M2)

Database Machine X2-8 Full Rack

X2-8 Database Server Hardware Details (Sun Fire X4800)

Database Machine Capacity & Database Machine Performance

Database Machine X2-2 Architecture & InfiniBand Network Architecture

X2-2 Leaf Switch Topology & Full Rack Spine and Leaf Topology

Scale Performance and Capacity & Scaling Out to Multiple Full Racks

Database Machine Configuration

Database Machine Implementation Overview & Configuration Worksheet Overview

Configuration Worksheet Example

Configuring ASM Disk Groups with Configuration Worksheet

Generating the Configuration Files

Other Pre-Installation Tasks

The Result After Installation and Configuration

Supported Additional Configuration Activities

Unsupported Configuration Activities

Migrating Databases to Database Machine

Migration Best Practices Overview

Performing Capacity Planning

Database Machine Migration Considerations

Choosing the Right Migration Path

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- Logical Migration Approaches
- Physical Migration Approaches
- Other Approaches
- Post-Migration Best Practices

Bulk Data Loading with Database Machine

- Bulk Data Loading Overview
- Preparing the Data Files
- Staging the Data Files
- Configuring the Staging Area
- Configuring the Target Database
- Loading the Target Database

Backup and Recovery with Database Machine

- Using RMAN with Database Machine
- General Recommendations for RMAN
- Disk Based Backup Strategy
- Disk Based Backup Configuration
- Tape Based Backup Strategy & Tape Based Backup Configuration
- Hybrid Backup Strategy
- Restore and Recovery Recommendations
- Backup and Recovery of Database Machine Software

Monitoring and Maintaining Database Machine

- ILOM Overview
- DCLI Overview
- InfiniBand Diagnostic Utilities
- Database Machine Support Overview
- Patching and Updating Overview
- Maintaining Exadata Software
- Maintaining Database Server Software
- Maintaining Other Software

New Features in Update Release 11.2.1.3.1

- New Features Overview
- Auto Service Request (ASR)
- The ASR process
- ASR requirements

Oracle Linux 5.5

Enhanced operating system security

Pro-active disk quarantine

Other new features

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