

Oracle Database 12c: Clusterware & RAC Admin Accelerated Ed 1

Duration: 5 Days

What you will learn

This Oracle Database 12c: Clusterware & RAC Admin Accelerated training covers 8 days worth of content in only 5 days. It starts with the Oracle Database 12c: Clusterware Administration course (4 days) and then covers the Oracle RAC database architecture(4 days); learn how these products work together. In this course, you will be introduced to Oracle Database Exadata Cloud Service.

Learn To:

Perform Grid Infrastructure pre-installation tasks.

Install both Standard and Flex clusters.

Add and remove nodes from a cluster in addition to upgrading and patching existing Grid Homes.

Manage and administer both Standard Clusters and Policy-Managed Clusters.

Use Oracle Clusterware to make applications highly available.

Install Oracle RAC software.

Create cluster databases.

Administer both administrator and policy-managed Oracle RAC databases.

Monitor and address performance issues.

Learn about services in a RAC environment as well as highly available connection features including Application Continuity and Transaction Guard.

Create and administer a RAC One Node Database.

Create and manage multitenant RAC databases.

Gain an understanding of the Oracle Database Exadata Cloud Service.

Benefits to You

By taking this course, you'll know how to make applications highly available using Oracle Clusterware and RAC. You'll walk away with the ability to install, configure, manage and troubleshoot both Oracle Clusterware and Oracle RAC software. Ensure fast, reliable, secure and easy to manage performance as you learn to optimize database workloads, lower IT costs and deliver a higher quality of service by enabling consolidation onto database clouds.

Audience

Administrator

Database Administrators

Support Engineer

Technical Administrator

Technical Consultant

Related Training

Required Prerequisites

Oracle Database 12c: Oracle Automatic Storage Management Administration

Oracle Database 12c: Grid Infrastructure Administration

Working knowledge of Oracle Database 11g: Release 2, including Clusterware, ASM and RAC

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Suggested Prerequisites

Oracle Database 11g: RAC Administration Release 2

Oracle Grid Infrastructure 11g: Manage Clusterware and ASM - Release 2

Course Objectives

Configure the RAC database to use ARCHIVELOG mode and the fast recovery area

Configure RMAN for the RAC environment

Gain an understanding of the Oracle Database Exadata Cloud Service

Understand effect of node failure in Flex Clusters

Understand the scope and capabilities of what-if command evaluation

Perform the different types of what-if command evaluation

Install Grid Infrastructure for Standard and Flex clusters

Configure ASM disk groups

Perform the prerequisite steps for extending a cluster

Describe the benefits of Oracle RAC

Convert a single-instance Oracle database to RACs

Understand Flex Clusters architecture and components

Define redo log files in a RAC environment

Define undo tablespaces in a RAC environment

Start and stop RAC databases and instances

Modify initialization parameters in a RAC environment

Course Topics

Introduction to Grid Infrastructure

- What is a Cluster?
- What is a Flex Cluster?
- Clusterware Characteristics
- Oracle Clusterware
- Hardware and Software Concepts (High level)
- Shared Storage Overview

Oracle Clusterware Architecture

- Cluster Storage Requirements
- Clusterware Initialization and OHASD
- Clusterware Process Architecture
- Location Independent Names, Addresses and Name Resolution (GNS, SCAN, VIP..)
- Shared GNS Background and Architecture
- Configuring shared GNS
- Migrating to shared GNS
- Moving GNS to Another Cluster

Flex Cluster Architecture

- Flex Cluster Architecture
- Configuring Flex Cluster
- Flex Clusters and Node Failure

Grid Infrastructure Pre-Installation Tasks

- Shared Storage for Oracle Clusterware
- Checking System Requirements
- Single Client Access Name for the Cluster
- Redundant Interconnect Usage
- Kernel Requirements
- Groups and Users
- Shell Settings
- Oracle Validated Configuration

Installing Grid Infrastructure

- Installing Oracle Grid Infrastructure
- Installing Flex Cluster
- Verifying the Oracle Clusterware Installation

Managing Cluster Nodes

- Adding Oracle Clusterware Homes
- Prerequisites for Running addNode.sh
- Adding a Node with addNode.sh
- Configuring the node role
- Removing a Node from the Cluster

Traditional Clusterware Management

- Oracle Clusterware startup and shutdown
- Administering the Voting Disk file
- Administering the Oracle Cluster Registry Disk file
- Network Administration

What-If Command Evaluation
Clusterware Admin Tools Review

Policy-Based Cluster Management

Policy-Based Cluster Management Overview
Server Categorization
Policy Set

Patching Grid Infrastructure

Out-of-Place Oracle Clusterware Upgrade
Types of Patches
Obtaining Oracle Clusterware Patches
Rolling Patches
Installing a Rolling Patchset with OUI
OPatch Overview
Installing a Rolling Patch with OPatch
OPatch Automation

Troubleshooting Oracle Clusterware

Diagnostic Framework Support for CRS
Cluster Health Monitor Enhancements Overview
Component level checks - cluvfy with -comp
Resource Debugging - Java Tools and Dynamic Debugging
Troubleshooting Node Evictions
Log files and Diagnostic Collection
The oclumon Utility

Making Applications Highly Available

Overview of Using Oracle Clusterware to Enable HA
Oracle Clusterware HA Components
Resource Management Options
Server Pools
Overall flow diagram of HA lifecycle (crs_profile, crs_register, crs_start...)
Clusterware Resource Modeling
Creating an Application VIP
ONS and FAN overviews

RAC Databases Overview & Architecture

Overview of Oracle RAC
RAC One Node
Cluster-Aware Storage Solutions
Benefits of Using RAC
Scaleup and Speedup
I/O Throughput Balanced
Global Resources
RAC and Flex ASM

Installing and Configuring Oracle RAC

Installing the Oracle Database Software
Installation options
Creating the Cluster Database
Post-installation Tasks

Single Instance to RAC Conversion
Cleaning Up Unsuccessful Installs

Oracle RAC Administration

Parameters and RAC - SPFILE, Identical and Unique Parameters
Instance Startup, Shutdown and Quiesce
Undo Tablespaces
Redo Threads
Use Enterprise Manager Cluster Database Pages
RAC Alerts
RAC Metrics
Session management on RAC instances

RAC Backup and Recovery

Instance Failure And Recovery In RAC - LMON and SMON
Redo Threads and Archive Log Configurations and Admin
Parameter Settings Affecting Parallel Recovery and MTTR
Instance Failure And Recovery In RAC - LMON and SMON
RAC and the Fast Recovery Area
RMAN Configuration
RMAN Admin For RAC: Channels, Instances, Backup Distribution
RMAN Restore And Recovery RAC Considerations

RAC Global Resource Management and Cache Fusion

Globally Managed Resources and Management
Library Cache Management
Row cache management
Buffer cache fusion
Buffer Cache Management Requirements
Accessing single blocks in RAC
Multi-block read considerations in RAC
Undo and read consistency considerations in RAC

RAC Monitoring and Tuning

OCPU and Wait Time Latencies
Wait Events for RAC
Common RAC Tuning
Session and System Statistics
RAC specific V\$ Views
Automatic Database Diagnostic Monitor for RAC

Managing High Availability of Services in a RAC Environment

Oracle Services
Services for Policy - and Administrator-Managed Databases
Creating Services
Managing Services
Use Services with Client Applications
Services and Connection Load Balancing
Services and Transparent Application Failover
Services and the Resource Manager

Upgrading and Patching RAC

- Overview of Upgrades and Patching
- Release and Patch Set Upgrades
- PSU, CPU and Interim Patches
- Merge Patches
- Performing Out Of Place Database Upgrades
- Planning and Preparing for Upgrade
- Performing Out of Place Release Install or Upgrade
- Post Upgrade Tasks

Application Continuity

- What is AC?
- What problem does it solve?
- Benefits of AC
- How AC works
- AC Architecture
- Side Effects
- Restrictions
- Application requirements

Design for High Availability

- Causes of Planned and Unplanned Down Time
- Oracle's Solution to Down Time
- RAC and Data Guard
- Maximum Availability Architecture
- Fast-Start Failover
- Hardware Assisted Resilient Data
- Database High Availability Best Practices
- RAID Configuration for High Availability

Oracle Database Exadata 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