

## Oracle Database 12c: RAC Administration

**Duration:** 4 Days

### What you will learn

This Oracle Database 12c: RAC Administration training will teach you about Oracle RAC database architecture. Expert Oracle University instructors will deep dive into Global Resources and Cache Fusion.

Learn To:

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.

### Benefits to You

Ensure fast, reliable, secure and easy to manage performance. Optimize database workloads, lower IT costs and deliver a higher quality of service by enabling consolidation onto database clouds.

### Audience

Administrator

Database Administrators

### Related Training

#### *Required Prerequisites*

Oracle Database 12c: Grid Infrastructure Administration

Oracle Database 12c: Oracle Automatic Storage Management Administration

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

Oracle Database 12c: ASM Administration

Oracle Database 12c: Clusterware Administration

#### *Suggested Prerequisites*

Oracle Database 11g: RAC Administration

## Course Objectives

Describe the Oracle Clusterware architecture

Describe how Grid Plug and Play affects Clusterware

Describe the benefits of Oracle RAC

Explain the necessity of global resources

Describe global cache coordination

Install the Oracle database software

Create a cluster database

Perform post-database-creation tasks

Convert a single-instance Oracle database to RACs

Explain the principles and purposes of clusters

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

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

Configure RMAN for the RAC environment

## Course Topics

### **Grid Infrastructure Overview and Review**

What is a Cluster?

What is a Flex Cluster

Clusterware Characteristics

Oracle Clusterware

Hardware and Software Concepts (High level)

### **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

## **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

## Managing High Availability of Connections

Types of Workload Distribution

Client-Side Load Balancing

Server-Side Load Balancing

Runtime Connection Load Balancing and Connection Pools

Fast Application Notification

The Load Balancing Advisory FAN Event

Server-Side Callouts

Configuring the Server-Side ONS

## 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

## Quality of Service Management

QoS Management concepts

Describe the benefits of using QoS Management

QoS Management components

QoS Management functionality

## RAC One Node

RAC One Node Concepts

Online database migration

Adding Oracle RAC One Node Database to an Existing Cluster

Convert an Oracle RAC One Node database to a RAC database

Convert an Oracle RAC database to a RAC One Node database

Use DBCA to convert a single instance database to a RAC One Node database

## 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