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 multitennant 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

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

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