

## Oracle Database 12c R2: Clusterware Administration

**Duration:** 4 Days

### What you will learn

This Oracle Database 12c R2: Clusterware Administration training will explore general cluster concepts and Oracle Clusterware architecture. Work with expert Oracle University instructors through interactive instruction and hands-on exercises to reinforce your learning. In this course, you will be introduced to Oracle Database Exadata Cloud Service.

Learn To:

Perform Grid Infrastructure pre-installation tasks.

Describe available cluster configuration options.

Install Standalone Flex Clusters.

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

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

Monitor and Troubleshoot Oracle Clusterware.

Use Oracle Clusterware to make applications highly available.

Benefits to You

Learn how to make applications highly available using Oracle Clusterware. You'll walk away with the ability to install, configure, manage, monitor and troubleshoot standalone flex clusters. Furthermore, you will have developed the skills to upgrade and patch Clusterware environments.

### Related Training

#### *Required Prerequisites*

Working knowledge of Oracle Database 11g: Release 2 on Linux Operating System

#### *Suggested Prerequisites*

Oracle Database 12c R2: Administration Workshop

Oracle Database 12c R2: Administration Workshop Ed 3

Oracle Database 12c R2: Install and Upgrade Workshop

Oracle Database 12c R2: Install and Upgrade Workshop

Oracle Database 12c R2: Managing Multitenant Architecture

Working knowledge of Oracle Clusterware, ASM & RAC on Linux

### Course Objectives

Configure ASM disk groups

Perform the prerequisite steps for extending a cluster

Delete a node from a cluster

Explain the principles and purposes of 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

Add a Leaf node and a Hub node to a Flex cluster

Understand Flex Clusters architecture and components

Understand effect of node failure in Flex Clusters

Verify the installation

Describe Cluster hardware best practices

Describe the Oracle Clusterware architecture

Describe Clusterware architecture

Install and configure Flex Clusters

Gain an understanding of the Oracle Database Exadata Cloud Service

## Course Topics

### Introduction to Clusterware

- Cluster in general
- Oracle Clusterware Characteristics
- Oracle Clusterware Architecture and Cluster Services Overview
- Oracle Clusterware Requirements: OS, Public/Private Networks, and IP addresses
- Grid Naming Service (GNS), Shared GNS, and Highly Available GNS
- GNS Configuration Options
- Single Client Access Name (SCAN)

### Cluster Configuration Options

- Oracle Standalone Clusters
- Oracle Domain Services Cluster
- Oracle Member Cluster for Oracle Databases
- Oracle Member Cluster for Applications
- Oracle Extended Clusters

### Grid Infrastructure Pre-Installation Tasks

- Shared Storage for Oracle Clusterware
- Sizing Storage for Oracle Standalone Cluster
- Grid Infrastructure Management Repository Details
- Checking System Requirements
- Single Client Access Name for the Cluster
- Redundant Interconnect Usage
- Kernel Requirements
- Groups and Users

### Grid Infrastructure Installation

- Performing an image-based Grid Infrastructure Installation
- Choosing a Cluster Configuration Option
- Grid Plug and Play Support for Flex Cluster Configuration
- Configuring Shared GNS
- 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

- Clusterware Admin Tools Review
- Oracle Clusterware startup and shutdown
- Administering the Voting Disk file
- Administering the Oracle Cluster Registry Disk file
- Network Administration
- Reasoned What-If Command Evaluation

### Policy-Based Cluster and Capacity Management

- Policy-Based Cluster Management Overview

- Server Categorization
- Policy Set
- Load-Aware Resource Placement
- Server Weight-Based Node Eviction

### **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

### **Monitoring and Troubleshooting Oracle Clusterware**

- Using Oracle Autonomous Health Framework Overview
- Cluster Verify Utility (CVU)
- Cluster Health Monitor (CHM)
- Cluster Health Advisor (CHA)
- Trace File Analyzer (TFA) Collector
- Using the Cluster Resource Activity Log (CALOG)
- Using Oracle Clusterware Diagnostic and Alert Log Data
- Node Eviction

### **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
- Clusterware Resource Modeling
- Creating an Application VIP
- Clusterware Resource Group