

## Oracle Database 12c: Clusterware Administration

**Duration:** 4 Days

### What you will learn

This Oracle Database 12c: 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.

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.

Gain an understanding of the Oracle Database Exadata Cloud Service.

### Benefits to You

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

### Audience

Administrator

Database Administrators

### Related Training

#### *Required Prerequisites*

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

#### *Suggested Prerequisites*

Oracle Database 11g: Administração do RAC Release 2

Oracle Database 11g: RAC Administration Release 2

Oracle Grid Infrastructure 11g: Gerenciamento do Clusterware e do ASM

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

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 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

## **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