Oracle Database 12c R2: Clusterware Administration

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.

Prerequisites

Suggested Prerequisite

- Working knowledge of Oracle Clusterware, ASM & RAC on Linux

  Required Prerequisite

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

  Audience

- Administrator

- Database Administrator

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

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- 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

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..)

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- 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

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- 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

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- 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