

## Oracle 11g: RAC and Grid Infrastructure Administration Accelerated Release 2

**Duration:** 5 Days

### What you will learn

In this intensive course, you'll learn about the Oracle Grid Infrastructure products. This includes Oracle Automatic Storage Manager (ASM), ASM Cluster File System and Oracle Clusterware.

#### Learn To:

Describe the Oracle Database 11g Grid Infrastructure.

Administer both Policy and Administrator managed RAC databases.

Install and configure Grid Infrastructure.

Describe Oracle Database 11g RAC enhancements and new features.

Describe Grid Plug and Play.

Use Oracle Clusterware to make applications highly available.

### Oracle Clusterware

You'll also learn to administer the Oracle Clusterware and storage products using both command line utilities and graphical tools. Administration of ASM and ACFS will be done using both command line and graphical user interface clients.

### Troubleshoot & Debug

This course will help you leverage the Oracle Clusterware to make applications highly available, supporting monitoring and failover to other nodes. You'll learn to troubleshoot the Oracle Clusterware by examining log files, enabling debugging and enabling tracing for various utilities.

### RAC Database Administration

Instructors will review RAC database administration in the Oracle Grid Infrastructure environment. Learn to administer cluster databases using Enterprise Manager and command-line utilities like SRVCTL, CRSCTL, and SQL\*Plus.

### New Connection Architecture

You'll also study the new connection architecture and how to make those connections highly available. Review backup and recovery issues relative to cluster database environments.

This is an accelerated course, covering 7 days worth of content in only 5 days. Because of this extra content, the duration of classes can be slightly longer than usual. This course is based on Oracle Database 11g Release 2.

### Audience

Data Warehouse Administrator

Database Administrators

Database Designers

Support Engineer

Technical Administrator

## **Related Training**

### *Required Prerequisites*

Oracle Database Administration experience

Oracle Database 11g: Administration Workshop I Release 2

### *Suggested Prerequisites*

Oracle Database 11g: Administration Workshop II Release 2

Oracle Database: Introduction to SQL

## **Course Objectives**

Understand Oracle Clusterware architecture

Describe how Grid Plug and Play affects Clusterware

Describe Automatic Storage Management (ASM) architecture

Perform Grid Infrastructure installation and create RAC database

Demonstrate Clusterware management proficiency

Manage application resources

Troubleshoot Oracle Clusterware

Administer ASM Instances and disk groups

Administer ASM Cluster File Systems

Install Oracle Database 11gR2 software and create RAC database

Manage RAC databases

Manage backup and recovery for RAC

Determine RAC-specific tuning components

Configure and manage services in a RAC environment

Describe high availability architectures

## **Course Topics**

## **Grid Infrastructure Concepts**

- What is a Cluster
- Grid Foundation Components
- Oracle Clusterware Architecture
- Oracle Clusterware Software and Storage
- Describe ASM Architecture
- Creating and Managing ASM Disk Groups
- Creating and Managing ASM Cluster Filesystems
- Job Role Separation

## **Grid Infrastructure Installation and Configuration**

- Hardware Requirements
- Network Requirements
- DNS and DHCP Configuration
- Grid Plug and Play Considerations
- Single Client Access Names
- Post installation tasks

## **Administering Oracle Clusterware**

- Managing Clusterware with Enterprise Manager
- Determining the Location of the Oracle Clusterware Configuration Files
- Backing Up and Recovering the Voting Disk
- Adding, Deleting, or Migrating Voting Disks
- Locating the OCR Automatic Backups
- Oracle Local Registry
- Migrating OCR Locations to ASM
- Managing Network Settings

## **Managing Oracle Clusterware**

- Prerequisite Steps for Extending a Cluster
- Using addNode.sh to Add a Node to a Cluster
- Rolling Patches, And Rolling Upgrades
- Comparing Software Versions With the Active Version
- Installing A Patchset With the OUI Utility
- Installing A Patch With The opatch Utility

## **Oracle Clusterware High Availability**

- Oracle Clusterware high availability components
- Contrasting policy-managed and administration managed databases
- Server pool functionality
- The Generic and Free Server Pools
- Application placement policies
- Application Virtual IPs
- Managing application resources
- High availability events

## **Troubleshooting Oracle Clusterware**

- Oracle Clusterware Log Files
- Gathering Log Files Using diagcollection.pl
- Resource Debugging
- Component-level Debugging
- Tracing For Java-based Tools

## **Administering ASM Instances**

- ASM Initialization Parameters
- Adjusting ASM Instance Parameters in SPFILEs
- Starting and Stopping ASM Instances Using srvctl
- Starting and Stopping ASM Instances Using ASMCA and ASMCMD
- Starting and Stopping ASM Instances Containing Cluster Files
- Starting and Stopping the ASM Listener

## **Administering ASM Disk Groups**

- Creating And Deleting ASM Disk Groups
- ASM Disk Group Attributes
- ASM Disk Group Maintenance Tasks
- Preferred Read Failure Groups
- Viewing ASM Disk Statistics
- Performance And Scalability Considerations For ASM Disk Groups

## **ASM Files, Directories, and Templates**

- Using Different Client Tools to Access ASM Files
- Fully Qualified ASM File Name Format
- Creating and Managing ASM files, Directories and Aliases
- Managing Disk Group Templates
- Managing ASM ACL With Command Line Utilities
- Managing ASM ACL with Enterprise Manager

## **Administering ASM Cluster File Systems**

- ASM Dynamic Volume Manager
- Managing ASM Volumes
- Implementing ASM Cluster File System
- Managing ASM Cluster File System (ACFS)
- ACFS Snapshots
- Using Command Line Tools To Manage ACFS

## **Real Application Clusters Database Installation**

- Installing The Oracle Database Software
- Creating A Cluster Database
- Post-database Creation Tasks
- Single-Instance Conversion Using the DBCA
- Single-Instance Conversion Using rconfig
- Background Processes Specific to Oracle RAC

## **Oracle RAC Administration**

- Enterprise Manager Cluster Database Pages
- Redo Log Files In A RAC Environment
- Undo Tablespace In A RAC Environment
- Starting And Stopping RAC Databases And Instances
- Initialization Parameters In A RAC Environment
- Transparent Data Encryption and Wallets in RAC
- Quiescing RAC Databases

## **Managing Backup and Recovery for RAC**

- Protecting Against Media Failure
- Parallel Recovery in RAC
- Archived Log File Configurations
- RAC Backup and Recovery Using EM
- Archived Redo File Conventions in RAC
- Channel Connections to Cluster Instances
- Distribution of Backups

### **Monitoring and Tuning the RAC Database**

- Determining RAC-Specific Tuning Components
- Tuning Instance Recovery in RAC
- RAC-Specific Wait Events, Global Enqueues, and System Statistics
- Implementing the Most Common RAC Tuning Tips
- Using the Cluster Database Performance Pages
- Using the Automatic Workload Repository in RAC
- Using Automatic Database Diagnostic Monitor in RAC

### **Services**

- Configure and Manage Services in a RAC environment
- Using Services with Client Applications
- Using Services with the Database Resource Manager
- Use Services with the Scheduler
- Configuring Services Aggregation and Tracing
- Managing Services From the Command Line
- Managing Services With Enterprise Manager

### **Design for High Availability**

- Designing a Maximum Availability Architecture
- Determine the Best RAC and Data Guard Topologies
- Data Guard Broker Configuration files in a RAC Environment
- Identifying Successful Disk I/O strategies