



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

What you will learn

In this intensive Training, students will learn about the Oracle Grid Infrastructure products. This includes Oracle Automatic

Storage Manager (ASM), ASM Cluster File System and Oracle Clusterware. Students will 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. Students will learn how to leverage the Oracle Clusterware to make applications highly available, supporting monitoring and failover to other nodes. Students will learn to troubleshoot the Oracle Clusterware by examining log files, enabling debugging, and enabling tracing for various utilities. Students will learn about RAC database administration in the Oracle Grid Infrastructure environment. Students will learn to administer cluster databases using Enterprise Manager and command-line utilities like SRVCTL, CRSCTL, and SQL\*Plus. Students will study the new connection architecture and how to make those connections highly available. Backup and recovery issues relative to cluster database environments will also be studied.

This is an accelerated Training, covering seven days' worth of content in only five days. Because of the extra content to

be accommodated each day, the duration of classes each day can be slightly longer than usual.



This Training is based on Oracle Database 11g Release 2.

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

Audience

Data Warehouse Administrator

Database Administrators

Database Designers

Support Engineer

Technical Administrator

Prerequisites

Required Prerequisites

Oracle Database Administration experience

Suggested Prerequisites

Oracle Database: Introduction to SQL

Oracle Database 11g: Administration Workshop II DBA Release 2



## Oracle Database 11g: Administration Workshop I DBA Release 2

### Training 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

### Training 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

Troubleshooting the Oracle Cluster Registry

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

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 Tablespaces 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