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

**Duration:** 5 Days

## What you will learn

This Oracle Grid Infrastructure 11g: Manage Clusterware and ASM training training will teach you about the Oracle Grid Infrastructure components. This includes Oracle Automatic Storage Manager (ASM), ASM Cluster File System and Oracle Clusterware.

Learn To:

Describe the Oracle Database 11g Grid Infrastructure.
Configure and manage ASM and ACFS.
Install and configure Grid Infrastructure.
Use Oracle Clusterware to make applications highly available.
Describe Grid Plug and Play.
Troubleshooting Grid Infrastructure.
Administer the Oracle Clusterware and storage products using both command line utilities and graphical tools.
Add and remove nodes.
Upgrade or patch the Grid Infrastructure environment.

Benefits to You

By enrolling in this course, you'll be able to ensure fast, reliable, secure and easy to manage performance. Optimize database workloads, lower IT costs and deliver a higher quality of service by enabling smooth and rapid consolidation within your Datacenter. Furthermore, you'll develop the skills to leverage the Oracle Clusterware to make applications highly available, supporting monitoring and failover to other nodes.

Administer ASM and ACFS

Administration of ASM and ACFS will be done using both command line and graphical user interface clients. You will learn to troubleshoot the Oracle Clusterware by examining log files, enabling debugging and enabling tracing for various utilities. New materials and labs have been added to enhance customer experience with the latest information.

Please Note:

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

## Audience

Data Warehouse Administrator
Database Administrators

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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

## 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

## Course Topics

**Grid Infrastructure Concepts**
Oracle Grid Infrastructure
What is a Cluster?
What Is Clusterware?
Oracle Clusterware
Oracle Clusterware Architecture and Services
Goals for Oracle Clusterware
Oracle Clusterware Networking
Grid Naming Service

**Oracle Clusterware Architecture**
Oracle Grid Infrastructure for a Cluster

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Oracle Cluster Registry
CSS Voting Disk Function
Oracle Local Registry and High Availability
Oracle Clusterware initialization
Clusterware Startup Details
Controlling Oralce Clusterware
Verifying the Status of Oracle Clusterware

**Grid Infrastructure Pre-Installation Tasks**
Pre-installation Planning
Shared Storage Planning for Grid Infrastructure
Sizing Shared Storage for Oracle Clusterware
Storing the OCR in ASM
Installing ASMLib
Grid Infrastructure Pre-installation Tasks
Oracle Grid Infrastructure 11g Installation
Checking System Requirements

**Grid Infrastructure Installation**
Installing Grid Infrastructure
Choosing and Installation Type
Grid Plug and Play Support
Cluster Node Information
Specify Network Interface Usage
Storage Option Information
Specify Cluster Configuration: Typical Installation
Install Locations: typical Installation

**Adding and Removing Cluster Nodes**
Adding Oracle Clusterware Homes
Prerequisite Steps for Running addnode.sh
Adding a node with addNode.sh
Completing OUI Node Addition
Removing a Node from the Cluster
Deleting a Node from the Cluster
Deleting a Node from a Cluster (GNS in Use)

**Administering Oracle Clusterware**
Managing Oracle Clusterware
Managing Clusterware with Enterprise Manager
Controlling Oracle Clusterware
Controlling Oracle High Availability Services
Verifying the Status of Oracle Clusterware
Determining the location of Oracle Clusterware Configuration Files
Checking the Integrity of Oracle Clusterware Configuration Files
Backing Up and recovering the Voting Disk

**Upgrading and Patching Grid Infrastructure**
Out-of-Place Oracle Clusterware Upgrade
Oracle Clusterware Upgrade
Types of Patches
Patch Properties

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Configuring the Software Library
Setting Up Patching
Starting the Provisioning Daemon
Obtaining Oracle Clusterware Patches

**Troubleshooting Oracle Clusterware**
Golden Rule in Debugging Oracle Clusterware
Monitoring Oracle Clusterware
Cluster Health Monitor
oclumon Utility
oclumon debug Command
clumon dumpnodeview Command
oclumon manage Command
Oracle Clusterware Main Log Files

**Making Applications Highly Available with Oracle Clusterware**
Oracle Clusterware High Availability (HA)
Oracle Clusterware HA Components
Resource Management Options
Server Pools
GENERIC and FREE Server Pools
Assignment of Servers to Server Pools
Server Attributes and States
Creating Server pools with srvctl and crsctl

**ASM: Overview**
What is Oracle ASM?
ASM and ASM Cluster File System
ASM Key Features and Benefits
ASM Instance Designs: Noncluster ASM and Oracle Databases
ASM Instance Designs: Clustered ASM for Clustered Databases
ASM Instance Designs: Clustered ASM for Mixed Databases
ASM System Priviledges
ASM OS Groups with Role Separation

**Administering ASM**
Managing ASM with ASMCA
Starting and Stopping ASM Instances by using ASMCA and ASMCMD
Starting and Stopping ASM Instances by using srvctl
Starting and Stopping ASM Instances by using SQL *Plus
Starting and Stopping ASM Instances containing Cluster Files
ASM Initialization Paramenters
ASM_DISKGROUPS
Disk Groups Mounted at Startup

**Administering ASM Disk Groups**
Disk Group: Overview
Creating A New Disk Group with ASMCMD
Creating an ASM Disk Group with ASMCA
Creating an ASM Disk Group: Advanced Options
Creating a Disk Group with Enterprise Manager
Disk Group Attributes

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V$ASM_ATTRIBUTE
Compatibility Attributes

**Administering ASM Files, Directories and Templates**
ASM Clients
Interaction between Database Instances and ASM
Accessing ASM Files by using RMAN
Accessing ASM Files by using XML DB
Accessing ASM Files by using DBMS_FILE_TRANSFER
Accessing ASM Files by using ASMCMD
Fully Qualified ASM File Names
Other ASM File Names

**Administering ASM Cluster File Systems**
ASM Files and Volumes
ACFS and ADVM Architecture: Overview
ADVM Processes
ADVM Restrictions
ASM Cluster File System
ADVM Space Allocation
Striping Inside the Volume
Creating an ACFS Volume

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