Oracle Database 12cR2 RAC and Grid Infrastructure Administration

Duration: 5 Days **Course Code: O12CRAC**

Overview:

Oracle Database 12cR2 RAC and Grid Infrastructure Administration Course Overview

English - Please note this course is only available in English.
Nederlands - Let op: deze training is alleen in het Engels beschikbaar.
Français - Veuillez noter que ce cours est uniquement disponible en anglais.
This Oracle Database 12cR2 RAC and Grid Infrastructure Administration course introduces the general fe

Target Audience:

Who will the Course Benefit?

This Oracle Database 12cR2 RAC and Grid Infrastructure Administration course is designed for experienced database administrators who are required to plan,implement and administer Oracle 12cR2 Real Application Clusters configurations for Oracle databases.

Objectives:

- Course Objectives
- The objectives of this Oracle Database 12cR2 RAC and Grid Infrastructure Administration course are to provide the skills needed to plan,implement,manage and troubleshoot Oracle Clusterware and RAC database configurations in an Oracle Grid Infrastructure environment.

Prerequisites:

A good working knowledge of Oracle Database Administration is required. These skills can be obtained by attendance on the pre-requisite Administration and Backup and Recovery courses.

This course is run on a Linux operating system,a good working knowledge of UNIX/Linux is required. This knowledge can be gained by attendance on the pre-requisite Linux Introduction course.

Where Oracle 12cR2,18c and 19c courses are listed in the Pre-requisite and Follow-On Courses section,these are interchangeable.

Follow-on-Courses:

Further Learning

- Oracle Database 19c Data Guard
- Oracle Database 19c Install & Upgrade
- Oracle Database 19c DBA Performance Tuning & Management
- Oracle Database 12cR2,18c and 19c New Features for Administrators

Content:

Oracle Database 12cR2 RAC and Grid Infrastructure Administration Training Course Course Contents - DAY 1

Course Introduction

- Administration and Course Materials
- Course Structure and Agenda
- Delegate and Trainer Introductions

Session 1: ORACLE REAL APPLICATION CLUSTERS OVERVIEW

- Overview of Oracle RAC
- Oracle RAC Features
- Oracle RAC Technology Hierarchy
- Oracle RAC Capabilities
- Oracle RAC Components
- Oracle RAC One Node Overview
- Benefits of using RAC
- Tools for Installing,Configuring and Managing Oracle RAC

Session 2: ORACLE GRID INFRASTRUCTURE OVERVIEW

- Cluster Overview
- Flex Cluster Overview
- Grid Foundation Components and Architecture
- Oracle Clusterware Components and RAC
- Oracle Clusterware Software and Storage
- Oracle Storage Subsystems
- File Types used by a RAC Database
- Methods used to Share Database Files across a Cluster
- RAC Multitenant Database
- ASM Architecture
- Create and Manage ASM Disks Groups
- Create and Manage ASM Cluster Filesystems
- An Overview of RAC Services
- Network Requirements and Configuration
- Single Client Access Names
- Overview of Grid Plug and Play

Session 3: CONFIGURE SERVERS FOR INSTALLATION

- Oracle RAC Pre-installation Tasks
- Job Role Separation
- Create Oracle Groups,User Accounts and Directories
- Validate and Prepare the Hardware and the Operating System
- Configure RAC Nodes for Remote Access using SSH
- Configure the Network for RAC
- Configure the Startup Commands for the Oracle RAC Nodes
- ASM Storage Management Configuration Methods

Session 7: ASM INSTANCE ADMINISTRATION

- ASM Management Overview
- ASM Storage Components in RAC
- Oracle Automatic Cluster File System (ACFS)
- ASM Initialization Parameters
- Creation an Ownership of an ASM Instance
- Administer ASM Instances and Disk Groups with EM
- Administer ASM Instances and Disk Groups with asmca
- Administer ASM Instances with srvctl
- Administer ASM with the asmcmd Command Line Tool

Session 8: ASM DISK GROUP ADMINISTRATION

- Create and Delete ASM Disk Groups
- Create ASM Data Files
- ASM Disk Group Attributes
- Flex ASM
- ASM Disk Group Maintenance Tasks
- Preferred Read Failure Groups
- ASM Disk Statistics
- ASM Storage Limits
- Tuning ASM Rebalance Operations
- ASM Disk Scrubbing
- Active Session History (ASH) for ASM

Session 9: RAC MANAGEMENT COMMANDS

- RAC Management Commands
- RAC Administration with svrctl
- svrctl Cluster Database Configuration Tasks
- svrctl Cluster Database Administration Tasks
- Check the Current Configuration
- svrctl Command Summary
- Administer Databases and Instances
- Administer Services and Node Applications
- Bring a Cluster Database online and offline
- Manage Application Resources
- Introduction to CRS
- Cluster Services
- What-if command line evaluation with eval

Session 10: MANAGING THE DATABASE WORKLOAD USING SERVICES

- Manage the Database Workload using Services
- Configure Services for High Availability
- Create and Administer Services
- Service Administration using EM Cloud

Session 15: ORACLE CLUSTERWARE TROUBLESHOOTING

- Overview of Oracle Clusterware Troubleshooting
- Hardware,Storage and Network Problems with RAC
- The Oracle Clusterware Alert Log
- Trace and Incident Files
- Other Diagnostic Data
- Failed,Missing or Offline Cluster Resources
- Oracle Clusterware Log File Locations
- The Clusterware Resource Activity Log
- The Diagnostics Collection Tool
- Troubleshoot the OCR and Voting Disk
- Debug Resources
- Debug a Component Level
- CRS,CCS and EVM Components
- Oracle Clusterware Troubleshooting Tools and Utilities Oracle Database 12cR2 RAC and Grid Infrastructure Administration Training Course Course Contents - DAY 5

Session 16: ADD AND DELETE NODES AND CLUSTERS

- Grid Plug and Play (GPnP)
- Prepare a New Node
- Extend the Oracle Grid Infrastructure Home to the New Node
- Extend the Oracle RAC Home Directory
- Add the New Node to the Cluster
- Create an Instance on the New Node
- Delete an Instance from the Cluster Database
- Remove a Node from the Cluster

Session 17: MANAGE ORACLE SOFTWARE AND APPLY PATCHES

- Overview of Upgrades and Patching
- Patches and Patch Sets
- Obtain Patches
- Apply Rolling Patches to a RAC System
- Apply a Patch with the opatch Utility
- Upgrade the Oracle Software

Session 18: MULTITENANT ARCHITECTURE IN A RAC ENVIRONMENT

- Overview of Multitenant Architecture
- Create a RAC CDB and PDB
- Use the CDB and PDB Default Services
- Drop a PDB

Session 19: OVERVIEW OF RAC ONE NODE

- Overview of RAC One Node
- Online Database Migration
- Add an Oracle RAC One Node Database

- Configure ASM and the udev Device Manager
- Udev SCSI Rules
- Install and Configure ASMLIB
- ASM Filter Drivers (ASMFD) Oracle Database 12cR2 RAC and Grid Infrastructure Administration Training Course Course Contents - DAY 2

Session 4: INSTALL ORACLE GRID INFRASTRUCTURE AND REAL APPLICATION CLUSTERS

- The Clusterware Role
- Requirements for Oracle Clusterware
- Pre-installation Steps
- The Voting Disk,OCR and GIMR
- Oracle Clusterware Installation Stages
- Install the Oracle Grid Infrastructure for a Cluster
- Use the Cluster Verification Utility
- Install Oracle Database Software and Create a Cluster Database
- Verify the Installation
- Oracle Clusterware Daemons and Log Files
- Clusterware Interconnect Best Practices
- Post Installation Tasks
- Clean Up Failed Installations
- TNS Configuration
- Convert a Single Instance Database to a RAC Database
- Use the DBCA for Single Instance Conversion
- RAC Specific Background Processes

Session 5: RAC CLUSTER DATABASE AND DATABASE INSTANCE ADMINISTRATION

- Administer Oracle RAC using Enterprise Manager
- Policy Managed and Administrator Managed Databases
- RAC Initialization Parameters
- Password File Management
- Manage Undo Tablespaces in a RAC Environment
- Temporary Tablespace Configuration
- Manage Redo Log Files and Groups in a RAC Environment
- Oracle Enterprise Manager Cluster Database Pages
- Manage Sessions on RAC Databases
- Start and Stop Oracle RAC Databases and Instances
- Administer Database Storage

Session 6: ADMINISTER ORACLE CLUSTERWARE COMPONENTS

- CRS Resources and the Cluster Ready Services Stack
- Cluster Processes
- Use crsctl Commands to Stop,Start and Administer Clusterware
- Backup and Recover Voting Disks
- Control
- Service Administration using srvctl
- Configure Oracle Net to Support Services
- Connection Failover
- Transparent Connection Failover
- Load Balancing
- Configure Service Level Thresholds
- Configure Clients for Failover
- Fast Application Notification (FAN)
- Fan Callouts
- Server and Client Side Oracle Notification Services

Session 11: HIGH AVALABILITY OF CONNECTIONS

- RAC High Availability Framework
- Database High Availability Best Practices
- RAID Configuration for High Availability
- Causes of Planned and Unplanned Down Time
- Failure Detection with Cluster Services
- Oracle RAC and Hardware Failover Oracle Database 12cR2 RAC and Grid Infrastructure Administration Training Course Course Contents - DAY 4

Session 12: RAC CACHE FUSION AND GLOBAL RESOURCE MANAGEMENT

- Cache Fusion Overview
- RAC Locking Mechanism
- Buffer Cache Fusion Processing
- Oracle RAC Cache Fusion Accelerator
- Result Caching
- Library and Row Cache Management
- Management Requirements of the Buffer Cache
- Access Single Blocks in RAC
- Multi Block Read Considerations in RAC
- Undo and Read Consistency Issues in RAC

Session 13: BACKUP AND RECOVER A RAC DATABASE

- Overview of RAC Backup and Recovery
- Instance Failure and Recovery in RAC
- The LMON and SMON processes
- Redo Threads and Archive Log Configurations
- Configure a Fast Recovery Area for use with RAC
- Tune Instance Recovery in RAC
- Parallel Recovery in RAC
- Initiate Archiving
- Configure RMAN Backup and Recovery Settings
- Backup a RAC Database using RMAN
- Restore and Recover a RAC Database using RMAN
- Display Backup Reports
- Best Practices and Tips for Backup and Recovery
- to an Existing Cluster
- Convert a Single Instance Database to a RAC One Node Database
- Convert an Oracle RAC One Node Database to a Complete RAC Database

Session 20: OVERVIEW OF QUALITY OF SERVICE MANAGEMENT

- Overview of Quality of Service Management (QOS)
- QOS Components
- QOS Functionality

Session 21: OVERVIEW OF APPLICATION CONTINUITY FOR JAVA

- Overview of Application Continuity (AC)
- AC Architecture
- AC Restrictions
- Application Requirements

- Add and Remove Voting Disks
- The ocrcheck Utility
- The ocrdump Command
- Administer the Oracle Cluster Registry (OCR)
- Locate OCR Automatic Backups
- Backup and Restore OCR
- Troubleshoot the OCR with ocrcheck

Oracle Database 12cR2 RAC and Grid Infrastructure Administration Training Course Course Contents - DAY 3

Session 14: RAC PERFORMANCE MONITORING AND TUNING

- Monitoring and Performance Guidelines
- RAC Monitoring Tools
- RAC Performance Recommendations
- Workload Partitioning
- CPU and Wait Time Latches
- Session and System Statistics
- RAC Specific V$ Views
- Analyze RAC Performance Issues
- Use OSWatcher
- Create a Monitoring Plan
- AWR and Statspack Reports
- Monitor RAC Cluster Interconnect Performance
- Cache Coherency Times
- RAC Wait Events of Interest
- Undesirable Global Cache Statistics
- Important RAC Wait Events
- Global Cache Wait Events
- Important Cache Fusion Views
- Monitor the GES Processes
- Monitor and Tune using Enterprise Manager

Further Information:

For More information, or to book your course, please call us on 0800/84.009

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