

This hands-on course teaches students all aspects of Oracle® 10g RAC administration. Students will begin with a solid foundation in Oracle Clusterware and RAC architecture. Students will then install and configure both Clusterware and the database software, as well as cover the administration of both pieces of software using command line utilities. Important topics such as failover, flashback, and backup and recovery are all covered in detail. Students will get hands-on experience with Automatic Storage Management. The course ends with troubleshooting and tuning a RAC system.

Audience: Database administrators new to the RAC environment.

Prerequisites: *Oracle 10g Database Administration* and at least 6 months of administration experience recommended.

Number of Days: 5 days

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| <p>1. Course Introduction
Course Objectives
Course Overview
Using the Workbook
Suggested References</p> <p>2. Cluster Architecture
Cluster Architecture
Shared Storage
Nodes and Interconnects
Virtual IP Addresses
Oracle Software
Oracle Cluster Registry (OCR)
The RAC Voting Disk</p> <p>3. Oracle Clusterware
What is Oracle Clusterware?
Oracle Clusterware Components
Oracle Clusterware Processes
Oracle Clusterware and Shared Storage
Oracle Clusterware Preinstallation Steps
Node Preparation
Configuring SSH User Equivalency
Installing Oracle Clusterware
cluvfy – The Cluster Verification Utility
Oracle Clusterware Postinstallation Steps</p> <p>4. Installing DB Software and Creating a RAC Database
Installation Overview
Configuring the OS Environment</p> | <p>Verifying System Readiness with the CVU
Installing the Database Software
Troubleshooting Installation Setup
Recommended Postinstallation Tasks
Running the VIPCA
Creating a Cluster Database Using DBCA
Database Pre-Creation Tasks
Initialization Parameters</p> <p>5. RAC Database Architecture
Oracle Single-Instance Architecture
Overview of RAC
RAC Architecture
RAC Instances and Parameter Files
RAC Database Components
RAC Instance Background Processes
Global Resource Directory
Overview of Cache Fusion
Cache Fusion Components – GES and GCS
Cache Fusion Components – Resource Master and GRD
Cache Fusion Background Processes
Application Connection to RAC</p> <p>6. Managing Oracle Clusterware
About Oracle Clusterware
Backing Up and Recovering Voting Disks
Adding and Removing Voting Disks</p> |
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- The OCR
 - Changing the OCR Configuration
 - Adding and Removing an OCR Location
 - Backing Up and Recovering the OCR
 - Restoring from Automatic OCR Backups
 - Moving or Replacing the OCR
 - Repairing the OCR Configuration
 - Troubleshooting the OCR
- 7. RAC Instance Management**
 - Overview of RAC Instance Management
 - Starting and Stopping a RAC Database
 - Starting and Stopping a RAC Instance
 - RAC Database Identical Parameters
 - RAC Database Unique Parameters
 - Changing Parameter Values
 - Administering Undo Tablespaces in RAC
 - Administering Redo Logs in RAC
- 8. RAC Utilities**
 - The ocrcheck Utility
 - The ocrdump Utility
 - The crs_stat Utility
 - The crsctl Utility
 - The Server Control (SRVCTL) Utility
 - SRVCTL ADD
 - SRVCTL CONFIG
 - SRVCTL ENABLE and DISABLE
 - SRVCTL GETENV
 - SRVCTL MODIFY
 - SRVCTL RELOCATE
 - SRVCTL STATUS
 - SRVCTL REMOVE
 - SRVCTL START
 - SRVCTL STOP
- 9. Services**
 - Overview of Services
 - Types of Services
 - Creating Services with DBCA
 - Creating Services with SRVCTL
 - Preferred and Available Instances for Services
 - Using Services
 - Managing Services
 - Service Views
 - Tracing with Services
- 10. Failover**
 - Transparent Application Failover (TAF)
 - Client-Side vs. Server-Side TAF
 - Configuring TAF on the Client
 - Configuring TAF on the Server
 - Using OEM to Configure TAF
 - Using SRVCTL to Configure TAF
 - Using DBCA to Configure TAF
 - The DMBS_SERVICE Package
 - Connecting to the Database with TAF
 - Monitoring TAF Connections
- 11. RAC Backup and Recovery**
 - Overview of RAC Backup and Recovery
 - Log Archiving in RAC
 - Undo Tablespaces in RAC
 - Using Flashback Features in RAC
 - Deploying a Flash Recovery Area in RAC
 - Performing RMAN Backups of a RAC Database
 - Performing Non-RMAN Backups
 - Preparing to Restore and Recover with RMAN
 - Recover the RAC Database with RMAN
 - Recovering Without RMAN
- 12. Cluster Management**
 - Overview of Cluster Management Tasks
 - Extending the Clusterware Home Directory
 - Extending the ASM Home Directory
 - Extending the Database Software Home Directory
 - Creating a Listener on the New Node
 - Creating the New Instance
 - Verifying the New Instance
 - Removing a Node
- 13. Automatic Storage Management**
 - ASM Overview
 - ASMLib
 - Installing ASM
 - Creating an ASM Instance
 - ASM Initialization Parameters
 - Accessing an ASM Instance
 - ASM Startup and Shutdown
 - Creating a Disk Group
 - Changing a Disk Group
 - Creating and Managing a Database

- Using Oracle-Managed Files
- Creating and Managing a Tablespace
- Creating and Managing Redo Logs
- Creating and Managing Control Files
- Creating and Managing Archive Logs
- 14. ASM in a RAC Environment**
 - Overview of ASM and RAC
 - Migrating a RAC Database to ASM
 - Overview of Recovery Manager (RMAN) and ASM
 - Creating ASM Instances for a RAC Database
 - Migrating SPFILEs
 - Migrating Tablespaces
 - ASM and RAC Specifics
- 15. RAC Troubleshooting**
 - The Oracle Clusterware Alert Log
 - Clusterware Component Log Files
 - Using crsctl to Diagnose Cluster Issues
 - Using diagcollection.pl
 - Checking Interconnect Settings
 - cluvfy – Verifying Clusterware Component Integrity
 - cluvfy – Verifying Cluster Registry Integrity
 - cluvfy – Verifying Cluster Integrity
 - RAC Database Alerts
 - The racdiag.sql Script
 - The oradebug Utility
- 16. RAC Tuning**
 - RAC Tuning Methodology
 - Using Performance Views in RAC
 - Monitoring Cache Fusion
 - Global Cache Latencies
 - Monitoring Cache Transfers
 - OEM – Cluster Database Performance
 - OEM – RAC-Related Reports
 - Using AWR in the RAC Environment
 - Generating AWR Reports
 - Analyzing AWR Reports
 - Using ADDM in the RAC Environment
 - Analyzing ADDM Reports
 - RAC Tuning Tips
- 17. Appendix – Preparing a RAC Node**
 - Checking the Hardware Requirements
 - Identifying Network Requirements
 - Verifying the Installed Operating System and Software Requirements
 - Configuring Operating System Users and Groups
 - Generating RSA and DSA Keys
 - Adding the Keys to an Authorized Key File
 - Configuring SSH User Equivalency
 - Configuring the Operating System Environment
 - Configuring the Network
 - Verifying the Network Configuration
 - Preparing the Operating System and Software
 - Configuring Installation Directories and Shared Storage
 - Choosing Directories