

# Oracle 11g DBA

## Operating System Fundamentals & UNIX Essentials

### Unix Introduction

- OS Structure
- File System concepts
- Working with Unix

### Core Commands

- Basic Commands
- File Permissions
- Redirection & piping
- Filters and Regular Expressions
- VI Editor

### Other Concepts

- Process Architecture
- Crontab
- Shell program
- Disk utility commands
- Memory utility commands

## I. Introduction

### Oracle Fundamentals

- Oracle Environment
- Oracle Products, Versions & Editions
- Dictionary Concepts
- DBA Roles & Responsibilities
- Oracle Features
- Understanding grid computing

### Oracle SQL & PL/SQL Concepts

Introduction to SQL and PL/SQL  
DDL, DML, TCL & SELECT  
Database Objects  
Procedures, Cursors, Triggers

## Oracle Installation

- Understanding OS Requirements
- Pre & Post install procedures
- Installation on Unix/Linux
- Environment Variables
- Directory Structure & Services
- Working with OEM

## Oracle Instance Architecture

- Oracle Flexible Architecture
- SGA, PGA
- Background Processes
- Client & Server Processes
- Buffer Cache
- Dirty List & LRU List
- Redolog Concepts
- Checkpoint Concepts
- Shared Pool areas
- Processing SQL Statements
- Pfile & SPfile
- Dynamic SGA
- Automatic Memory Management
- Oracle Memory Management Views
- Control files

## Tablespaces

- Storage Mechanisms
- Creation & Altering
- Temporary & Permanent
- Oracle Managed Files(OMF)
- Auto extending & Resizing
- Restricting Access
- System & SYSAUX Tablespaces
- Automatic Datafile Management
- Working with UNDO Tablespaces
- Multiple block size Concepts
- Multiple Tablespaces & groups
- Bigfile Tablespaces
- DMT & LMT Options

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## Blocks, Extents & Segments

- Row chaining & Row migration
- Free block Lists & Offsets
- Extents Parameters
- Extent Allocation Algorithm
- Different Type of Segments
- Automatic Segment Space Management
- Resumable Space Allocation

## UNDO Management

- Undo Mechanism
- Flashback Mechanism
- Undo Tablespaces
- Transaction Table
- Read Consistency
- Automatic UNDO Management
- Retention Management
- Using UNDO Advisor

## Maintenance

- Startup & Shutdown
- OEM Overview
- Startup Events
- Shutdown Events
- Startup Services
- Auto Startup & Shutdown
- Quiescing the database

## Redolog File Management

- Changing db Status
- Automative Archiving
- Mirroring of Redolog Files
- Parameters for Archiving
- Duplexing Archive Log Files
- Time based log switching

## Customizing databases

- Creation of DB Using Commands
- Creation of DB Using dbca
- Dictionary Creation
- Control files Creation

## Data Management

- Data Pump Architecture
- Export & Imports
- Using Sql Loader
- Bulk Loading
- Transportable Tablespaces

## Health Check & Daily Activity

- Alert logs
- Health Monitor:dbms\_hm
- DBA Shell scripts for monitoring

## Miscellaneous

- Mirroring of Control Files
- V\$ files for Monitoring
- Viewing Sessions
- Terminating Sessions
- Restricting Sessions

## Security

### User Management

- Authentication Mechanisms
- Password File Authentication
- User Creation, Alteration
- Specifying Quota & Privileges
- User quotas for Undo space
- Product User Profiles
- Roles & Set Role Command
- Profiles & Password Management

### Auditing

- Session Auditing
- Statement Auditing
- Object Auditing
- Fine grain Auditing
- Uniform Audit Trails

## Miscellaneous

- Virtual Private Database
- VPD Policies

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## Networking

### Architecture

- Different Layers in Oracle Network
- Oracle NET, NI, TNS, NR
- Listener Architecture
- Connection Manager Concept
- Names Server Concepts
- Names Resolution
- Shared Server Process Architecture
- Shared Server Configurations

### Administration

- Configuring Client & Server
- Configuring Listeners
- Dynamic Connection Manager Configuration
- Multiple Listeners
- Utilities-LSNRCTL, CMCTL, NAMESCTL
- Easy Connect Naming Method
- Net Service name wizard
- Names Wizard
- Network Troubleshooting

## Distributed Databases

### Distributed Databases

- Homogeneous and Heterogeneous
- Location Transparency
- Database Links
- Global Database Names
- Two-Phase Commit
- In-Doubt Transactions

## Replication

- Basic and Advanced Replication
- Snapshots & Materialized Views
- Fast, Complete Refreshing
- Readonly & updatable MViews
- Advanced M.Views

## Backup & Recovery

- Backup Strategies & Schedules
- Online & offline backups
- Different failures
- SCN role in recovery
- Roll forward & roll backward
- Complete Media Recovery
- Disaster recovery through reset logs
- Incomplete Media Recoveries
- Point – in time recoveries
- Loss of Control file recovery
- Recovering Loss of data file not in backup
- NoArchivelog Mode Recoveries
- Full Offline Recovery
- Working with Log Miner
- Block Recovery

## Flashbacks

- Oracle Flashback Options
- Flash Recovery Area
- Flashback Query
- Recyclebin
- Flashback Transaction

## RMAN

- Working with Recovery catalog
- RMAN Configuration
- Backups using RMAN
- Incremental Backups
- Recoveries using RMAN
- RMAN scripts
- Flashback using RMAN
- Block Recovery Manager

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## High Availability

### Data Guards(DG)

- High Availability Basics
- Data Guard Basics
- Architecture
- Physical & logical Standbys
- Configuring Dataguards
- Recovering Scenarios

### Automatic Storage Management

- Disk Management Concepts
- SAN & NAS Overview
- ASM Architecture
- Understanding disk groups
- ASM Instances

### RAC at a Glance

- Clustering Basics
- Oracle RAC Concepts
- Architecture
- Configuration Concepts
- Oracle Cluster ware Overview

## Performance Tuning

### Basics

- Performance Evaluation
- Common Problems
- Alert Log, Trace Files, and Events
- Dynamic Performance Views

### Memory Tuning

- Tuning SGA Areas
- Tuning PGA
- Tuning sorts
- Understanding latches & wait events

### Tuning I/O

- Exploring Oracle Disk I/O
- Using iostat & filestat
- Disk stripping & load balancing
- Diving data across tablespaces
- Using Partitions

## Oracle Object Tuning

- Understanding High Water mark
- Tuning Tables. Indexes
- Index Rebuilding
- Table Re-Organization

## SQL Tuning

- Understanding SQL parsing
- Full table scans & Index skip scans
- Using Explain Plan
- Optimizer hints
- SQL Trace
- Sql performance tips

## Diagnosis & Tools

- Monitoring System Activity
- TKPROF
- working with STATSPACK
- working with ADDM

## Miscellaneous

- Working with Oracle Support
- Patch Management
- Log Service Requests
- Metalink