

# ORACLE 12c DBA

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## COURSE CONTENT

### Exploring Oracle Database Architecture

- List the major architectural components of Oracle Database
- Explain memory structures and background processes
- Correlate logical and physical storage structures
- Describe pluggable databases

### Managing the Database Instance

- Start and stop the Oracle database instance and components
- Modify database initialization parameters
- Describe the stages of database startup & shutdown options
- Access dynamic performance views & view alert log

### Managing Database Storage Structures

- Describe the storage of table row data in blocks
- Create and manage tablespaces & obtain information

### Administering User Security

- Create and manage database user accounts:
- Grant and revoke privileges
- Create and manage roles & profiles

### Managing Data Concurrency

- Describe the locking mechanism and how Oracle manages concurrency
- Monitor and resolve locking conflicts

### Managing Undo Data & Temp

- Explain DML and undo data generation
- Monitor and administer undo data
- Describe the difference between undo data and redo data
- Configure undo retention & Guarantee undo retention
- Enable temporary undo, Use the Undo Advisor

### Configuring the Oracle Network Environment

- Create Listeners, Net Service aliases
- Use the Listener Control Utility to manage Oracle Net Listener

- Use tnsping to test Oracle Net connectivity
- Identify when to use shared servers and when to use dedicated servers

### **Implementing Oracle Database Auditing**

- Describe DBA responsibilities for security and auditing
- Enable and create unified auditing policies
- Maintain the audit trail

### **Moving Data**

- Explain the general architecture of Oracle Data Pump
- Describe ways to move data, Create and use directory objects
- Use Data Pump Export and Import to move data between Oracle DBs
- Use SQL\*Loader to load data from a non-Oracle DB (or user files)
- Use external tables to move data via platform-independent files

### **Backup and Recovery Concepts**

- Describe database architecture as it relates to backup and recovery
- Describe NOARCHIVELOG mode & tools for backup and recovery
- Perform basic backup and recovery

### **Configuring for Recoverability**

- Configure and manage RMAN settings, Configure FRA
- Configure the control files & redo log files for recoverability
- Configure ARCHIVELOG mode and the archived redo log files for recoverability

### **Using the RMAN Recovery Catalog**

- Describe the use of the RMAN recovery catalog, Create Catalog
- Register a database in the RMAN recovery catalog

### **Backup Strategies and Terminology**

- Describe Oracle backup solutions, RMAN backup types
- Describe, compare, and determine your backup strategy
- Schedule backups accordingly, perform whole backups

### **Performing Backups**

- Perform full and incremental backups
- Use Oracle-suggested backup strategy, Report and manage backups
- Begin refining your basic backups:
  - Configure Block Change tracking, Perform incremental level backups
  - Recover an incremental level 0 backup with level 1 incremental

### **Improving Your Backups**

- Compress backups, Use media manager
- Create multi-section backups of very large files
- Create proxy copies, duplexed backup sets, archival backups

- Back up other files:
  - Back up a control file to trace
  - Back up archived redo log files, ASM metadata
  - Catalog additional backup files

### **Using RMAN-Encrypted Backups**

- Describe and create RMAN-encrypted backups
- Use Transparent-mode, Password-mode & Dual-mode encryption

### **Diagnosing Database Failures**

- Detect and repair database corruption
- Use the Automatic Diagnostic Repository (ADR)
- Analyze instance recovery with ADRCI
- Use the Data Recovery Advisor

### **Restore and Recovery Concepts**

- Understand how to employ the best Oracle Database recovery technology for your failure situation
- Describe instance or crash recovery
- Describe complete and point-in-time recovery
- Describe recovery through RESETLOGS

### **Performing Recovery, Part 1**

- Perform the appropriate type of restore and recovery
- Recover from media failures in data files
- Perform complete and incomplete or “point-in-time” recoveries

### **Performing Recovery, Part 2**

- Recover from the loss of the server parameter file
- Recover from control file and redo log file failures
- Re-create the password authentication file
- Recover index and read-only tablespaces
- Review the automatic recovery of the tempfile
- Describe the basic procedure of restoring the database to a new host

### **Performing Point-in-Time Recovery**

- Distinguish and describe point-in-time recovery (PITR) of table, tablespace, and database
- List what operations occur when you perform a point-in-time recovery
- Determine the correct target time for the point-in-time recovery
- Perform automated TSPITR, Perform table recovery from backups

### **Using Flashback Technologies**

- Understand flashback technologies from various types of errors
- Configure your database to use flashback technologies
- Perform flashback query, version query, transaction backout
- Perform flashback table, recyclebin, flashback data archive

### **Using Flashback Database**

- Describe Flashback Database architecture
- Configure your database to support Flashback Database

### **Managing Backup Space or Transporting Data**

- Transport tablespaces between databases by using image copies or backup sets
- Transport databases by using data files or backup sets

### **Duplicating a Database ( Database Cloning )**

- List the purposes and create duplicate database with RMAN
- Duplicate a database based on a running instance

### **Performing Database Maintenance**

- Manage the Automatic Workload Repository (AWR)
- Use the Automatic Database Diagnostic Monitor (ADDM)
- Describe and use the advisory framework
- Set alert thresholds, Use server-generated alerts

### **Managing Performance**

- Enterprise Manager to monitor performance
- Automatic Memory Management (AMM)
- The Memory Advisor to size memory buffers

### **Managing Performance: SQL Tuning**

- Manage optimizer statistics
- Use the SQL Tuning Advisor to:
  - Identify SQL statements that are using the most resources
  - Tune SQL statements that are using the most resources
- Use the SQL Access Advisor to tune a workload

### **Managing Resources by Database Resource Manager**

- Configure the Database Resource Manager
- Access and create resource plans, Create consumer groups
- Map consumer groups to plans, Activate a resource plan
- Monitor the Resource Manager
- Automating Tasks by Using Oracle Scheduler

### **Managing Space**

- Describe how the Oracle Database server automatically manages space
- Save space by using compression
- Control deferred segment creation & Use the Segment Advisor
- Reclaim wasted space using the segment shrink
- Manage resumable space allocation

## **Container and Pluggable Database Architecture**

- Describe the multitenant architecture
- Describe the root and pluggable database containers
- Differentiate the root from a pluggable database
- Explain pluggable database plugging
- List impacts in various areas

## **CDB and PDB Creation**

- Configure and create a CDB, Create a PDB from PDB\$SEED
- Plug or clone a non-CDB into a CDB
- Clone a local or remote PDB into a CDB
- Unplug and plug a PDB from one CDB to another CDB
- Explore the instance and structure of PDBs
- Migrate a pre-12.1 non-CDB database to CDB

## **Managing a CDB and PDBs**

- Connections to CDB / PDB, Start up and shut down a CDB
- Open and close PDBs
- Change the different modes and settings of PDBs
- Evaluate the impact of parameter value changes

## **Managing Tablespaces and Users in CDB and PDBs**

- Permanent & temporary tablespaces in CDB and PDBs
- Common and local users, roles and privileges

## **Backup, Recovery, and Flashback CDBs and PDBs**

- Perform CDB and PDB backups
- Recover CDB and PDB from essential file loss
- Perform flashback database

## **Managing Performance**

- Describe activity tracking with Heat Map
- Describe Automatic Data Optimization
- Use views and procedures to monitor ADO
- Move a data file online, Move a partition online

## **Miscellaneous**

- Describe the new RMAN enhancements
- Perform cross-platform data transport
- Use Table Recovery

## **Data Guard Architecture and Configuration**

**Oracle Linux Installation**

**Oracle Grid Infrastructure Installation**

**Administering ASM Instance & Disk Groups**

**Oracle Database Software Instance & Creating Database using DBCA**

**Oracle Database Patching**

**Oracle Database Upgrades**

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