

# **Oracle DBA (10g, 11g) Training Course Content**

## **Introduction (Database Architecture)**

- Describe course objectives
- Explore the Oracle 10g database architecture

## **Installing the Oracle Database Software**

- Explain core DBA tasks and tools
- Plan an Oracle installation
- Use optimal flexible architecture
- Install software with the Oracle Universal Installer (OUI)

## **Creating an Oracle Database**

- Create a database with the Database Configuration Assistant (DBCA)
- Create a database design template with the DBCA
- Generate database creation scripts with the DBCA

## **Managing the Oracle Instance**

- Start and stop the Oracle database and components
- Use Enterprise Manager (EM)
- Access a database with SQL\*Plus and iSQL\*Plus
- Modify database initialization parameters
- Understand the stages of database startup
- View the Alert log

- Use the Data Dictionary

## **Managing Database Storage Structures**

- Describe table data storage (in blocks)
- Define the purpose of tablespaces and data files
- Understand and utilize Oracle Managed Files (OMF)
- Create and manage tablespaces
- Obtain tablespace information

## **Administering User Security**

- Create and manage database user accounts
- Authenticate users
- Assign default storage areas (tablespaces)
- Grant and revoke privileges
- Create and manage roles
- Create and manage profiles
- Implement standard password security features
- Control resource usage by users

## **Managing Schema Objects**

- Define schema objects and data types
- Create and modify tables
- Define constraints

- View the columns and contents of a table
- Create indexes, views and sequences
- Explain the use of temporary tables
- Use the Data Dictionary
- Manage data through SQL
- Monitor and resolve locking conflicts

### **Managing Undo Data**

- Explain DML and undo data generation
- Monitor and administer undo
- Describe the difference between undo and redo data
- Configure undo retention
- Guarantee undo retention
- Use the undo advisor

### **Implementing Oracle Database Security**

- Describe DBA responsibilities for security
- Apply the principal of least privilege
- Enable standard database auditing
- Specify audit options
- Review audit information
- Maintain the audit trail

## **Configuring the Oracle Network Environment**

- Create additional listeners
- Create Net Service aliases
- Configure connect-time failover
- Control the Oracle Net Listener
- Test Oracle Net connectivity
- Identify when to use shared versus dedicated servers

## **Backup and Recovery Concepts**

- Identify the types of failure that may occur in an Oracle Database
- Describe ways to tune instance recovery
- Identify the importance of checkpoints, redo log files, and archived log files
- Configure ARCHIVELOG mode

## **Performing Database Backups**

- Create consistent database backups
- Back your database up without shutting it down
- Create incremental backups
- Automate database backups
- Monitor the flash recovery area

## **Performing Database Recovery**

- Recover from loss of a control file
- Recover from loss of a redo log file
- Perform complete recovery following the loss of a data file

## **Performing Flashback**

- Describe Flashback database
- Restore the table content to a specific point in the past with Flashback Table
- Recover from a dropped table
- View the contents of the database as of any single point in time with Flashback Query
- See versions of a row over time with Flashback Versions Query
- View the transaction history of a row with Flashback Transaction Query

## **Moving Data**

- Describe available ways for moving data
- Create and use directory objects
- Use SQL\*Loader to load data from a non-Oracle database (or user files)
- Explain the general architecture of Data Pump
- Use Data Pump Export and Import to move data between Oracle databases

- Use external tables to move data via platform-independent files

## **Configuring Recovery Manager**

- Recovery Manager Features and Components
- Using a Flash Recovery Area with RMAN
- Configuring RMAN
- Control File Autobackups
- Retention Policies and Channel Allocation
- Using Recovery Manager to connect to a target database in default NOCATALOG mode
- Displaying the current RMAN configuration settings
- Altering the backup retention policy for a database

## **Using Recovery Manager**

- RMAN Command Overview
- Parallelization of Backup Sets
- Compressed Backups
- Image Copy
- Whole Database and Incremental Backups
- LIST and REPORT commands
- Enable ARCHIVELOG mode for the database
- Use Recovery Manager

## **Recovering from Non-critical Losses**

- Recovery of Non-Critical Files
- Creating New Temporary Tablespace
- Recreating Redo Log Files, Index Tablespaces, and Indexes
- Read-Only Tablespace Recovery
- Authentication Methods for Database Administrators
- Loss of Password Authentication File
- Creating a new temporary tablespace
- Altering the default temporary tablespace for a database

## **Incomplete Recovery**

- Recovery Steps
- Server and User Managed Recovery commands
- Recovering a Control File Autobackup
- Creating a New Control File
- Incomplete Recovery Overview
- Incomplete Recovery Best Practices
- Simplified Recovery Through RESETLOGS
- Point-in-time recovery using RMAN

## **Flashback**

- Flashback Database Architecture
- Configuring and Monitoring Flashback Database
- Backing Up the Flash Recovery Area
- Using V\$FLASH\_RECOVERY\_AREA\_USAGE
- Flashback Database Considerations
- Using the Flashback Database RMAN interface
- Using Flashback Database EM Interface
- Managing and monitoring Flashback Database operations

### **Dealing with Database Corruption**

- Block Corruption Symptoms: ORA-1578
- DBVERIFY Utility and the ANALYZE command
- Initialization parameter DB\_BLOCK\_CHECKING
- Segment Metadata Dump and Verification
- Using Flashback for Logical Corruption and using DBMS\_REPAIR
- Block Media Recovery
- RMAN BMR Interface
- Dumping and Verifying Segment Metadata

### **Monitoring and Managing Storage I**

- Database Storage Structures
- Space Management Overview



- Oracle-Managed Files (OMF)
- Row Chaining and Migrating
- Proactive Tablespace Monitoring
- Managing Resumable Space Allocation
- SYSAUX Tablespace
- Monitoring table and index space usage

## **Monitoring and Managing Storage II**

- Automatic Undo Management
- Redo Log Files
- Table Types
- Partitioned Tables
- Index-Organized Tables (IOT)
- Managing index space with SQL
- Configure optimal redo log file size
- View “Automatic Tuning of Undo Retention”

## **VLDB Support**

- Creating Bigfile Tablespaces
- Packages and data dictionary changes to support VLDB
- Creating and maintaining temporary tablespace groups (TTG)

## **Automating Tasks with the Scheduler**

- Scheduler Concepts
- Creating a Job Class and a Window
- Managing Jobs, Programs, Chains, Events, Schedules, priority
- Viewing and Purging Job Logs
- Creating a program and a schedule
- Creating a job that uses a program and a schedule
- Altering the program and schedule for the job and observing the behavior change of the job
- Monitoring job runs

## **Workshop**

- Workshop Methodology, requirements, and setup
- Scenario 1: Database performance
- Scenario 2: Finding and Tuning Inefficient SQL
- Scenario 3: SGA Management – REDO
- Scenario 4: Running out of Undo Space
- Scenario 5: Missing datafile
- Scenario 6: Managing space in a tablespace – REDO
- Scenario 7: Missing TEMP data file