



# Oracle 10g (Basic + Advanced)

**DBA Track Preparation for OCP**

Be the best Oracle Fighter



### Corporate Trainer's Profile

Corporate Trainers are having the experience of 4 to 12 years in development , working with TOP CMM level 5 companies (Project Leader /Project Manager ) qualified from NIT/IIT/IIM and work exp in USA and UK.



### CMM (Capability Maturity Model) level Project Standard:-

The Capability Maturity Model (CMM) is a method for evaluating the maturity of organizations on a scale of 1 to 5. Get the Opportunities to work on Client Projects Of US/UK, which follow the all standard of CMM level 5 Company.



## BASIC

### **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  
Describe the main concepts and functionality of Automatic Storage Management (ASM)

### **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

### **Managing Data and Concurrency**

Manage data through SQL  
Identify and administer PL/SQL Objects  
Describe triggers and triggering events  
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**

- Use Enterprise Manager for 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

### **Proactive Maintenance**

- Use statistics
- Manage the Automatic Workload Repository (AWR)
- Use the Automatic Database Diagnostic Monitor (ADDM)
- Describe advisory framework
- Set alert thresholds
- Use server-generated alerts
- Use automated tasks

### **Performance Management**

- Use Enterprise Manager pages to monitor performance
- Use the SQL Tuning Advisor
- Use the SQL Access Advisor
- Use Automatic Shared Memory Management
- Use the Memory Advisor to size memory buffers
- Use performance related dynamic views
- Troubleshoot invalid or unusable objects

### **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

## ADVANCED

### Introduction

- Grid Computing
- Oracle Enterprise Manager 10g Product Controls
- Database Architecture Review

### 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

### Oracle Secure Backup

- Installation and Configuration
- Implement the Oracle suggested strategy
- RMAN and Oracle Secure Backup
- Database and File-system files backup/restore to tape
- Using obtool and web interface to configure Oracle Secure Backup devices (CLI/GUI)
- Configuring EM for Oracle Secure Backup and test backup to tape (EM)
- Using RMAN to backup your database to tape (CLI)
- Using the OB Web tool to backup file system files

### 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 Memory**

- Oracle Memory Structures
- Automatic Shared Memory Management
- SGA Tuning Principles
- Database Control and Automatic Shared Memory Management
- Behavior of Auto-Tuned and Manual SGA Parameters
- Resizing SGA\_TARGET
- PGA Management Resources
- Using the Memory Advisor

### **Automatic Performance Management**

- Identifying Tunable Components
- Oracle Wait Events and System Statistics
- Troubleshooting and Tuning Views
- Direct Attach to SGA for Statistic Collection
- Workload Repository
- Advisory Framework
- ADDM Scenarios and Usage Tips
- Using the SQL Tuning and SQL Access Advisor

### **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"

### **Automatic Storage Management**

- ASM General Architecture and Functionalities
- Dynamic Performance View Additions
- Managing an ASM Instance
- ASM Disk Groups
- Using asmcmd Command Line
- Migrating Your Database to ASM Storage
- Creating an ASM instance in a separate Oracle Home
- Migrating a tablespace to use ASM storage

### **VLDB Support**

- Creating Bigfile Tablespaces
- Packages and data dictionary changes to support VLDB
- Creating and maintaining temporary tablespace groups (TTG)
- Partitioning and Partitioned Indexes
- Skipping unusable indexes
- Creating and using hash-partitioned global indexes
- DML Error Logging
- Interpreting Bigfile ROWIDs

### **Managing Resources**

- Database Resource Manager Concepts and Configuration
- Creating a New Resource Plan
- Active Session Pool Mechanism
- Maximum Estimated Execution Time
- Creating a Complex Plan
- Administering and Monitoring Resource Manager
- Resource Plan Directives
- Creating Resource Consumer Groups

### **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

### **Database Security**

- Virtual Private Database: Overview
- Creating a Column-Level Policy
- Writing a Policy Function
- Policy Types
- Column level VPD with column masking
- Transparent Data Encryption
- Setting the listener password
- Implement VPD

### Data Movement

- External Tables Concepts
- Creating a Directory object and External Table
- Data Pump
- Transport Database
- RMAN CONVERT DATABASE Command
- Transport Tablespace
- Create a Directory Object
- Create a Temporary Table

### Using Globalization Support

- Globalization Support Features
- Encoding Schemes
- Database Character Sets and National Character Sets
- Specifying Language-Dependent Behavior
- Locale Variants
- Using Linguistic Comparison and Sorting
- Data Conversion Between Client and Server Character Sets
- Determining the Default NLS Settings

### 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

### Soft Copy available for

1. Core Java + Advance Java + J2EE + Struts + Hibernate
2. Dotnet - Visual Studio - 2008
2. Embedded System + Mobil Communication Application
3. TESTING
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