

## Course Outline

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# Oracle Database 12c: Backup and Recovery Workshop

**Duration:** 5 days (30 hours)

### Learning Objectives:

- Describe Oracle Database backup methods and recovery operations that can be used to resolve database failure.
- Describe the Oracle Database architecture components related to backup and recovery operations.
- Plan effective backup and recovery procedures.
- Configure the database for recoverability.
- Use Recovery Manager (RMAN) to create backups and perform recovery operations.
- Use the Data Recovery Advisor to diagnose and repair failures.
- Use Oracle Flashback Technologies to recover from human error.
- Perform an encrypted database backup and restore.
- Perform tablespace point-in-time recovery.
- Describe additional high availability features such as Oracle Data Guard.

### Target Audience

- Database Administrators
- Data Warehouse Administrator
- Support Engineer
- Technical Consultant
- Technical Administrator

### Prerequisites:

- Knowledge of Oracle Database 12c
- Knowledge of SQL and PL/SQL
- Oracle Database 12c: Administration Workshop NEW

### Topics Covered:

- Introduction
  - Curriculum Context
  - Assess your Recovery Requirements
  - Categories of failures
  - Oracle Backup and Recovery Solutions
  - Oracle Maximum Availability Architecture
  - Oracle Secure Backup
  - Benefits of using Oracle Data Guard
  - Basic Workshop Architecture

- Getting Started
  - Core Concepts of the Oracle Database, Critical for Backup and Recovery
  - Oracle DBA Tools for Backup and Recovery
  - Connecting to Oracle Recovery Manager (RMAN)
  - Quick Start: A Problem-Solution Approach
- Configuring for Recoverability
  - RMAN commands
  - Configuring and managing persistent settings
  - Using the Fast Recovery Area (FRA)
  - Control File
  - Redo Log File
  - Archiving Logs
- Using the RMAN Recovery Catalog
  - Creating and Configuring the Recovery Catalog
  - Managing Target Database Records in the Recovery Catalog
  - Using RMAN Stored Scripts
  - Maintaining and Protecting the Recovery Catalog
  - Virtual Private Catalogs
- Backup Strategies and Terminology
  - Backup Solutions Overview and Terminology
  - Balancing Backup and Restore Requirements
  - Backing Up Read-Only Tablespaces
  - Best Practices for Data Warehouse Backups
  - Additional Backup Terminology
- Performing Backups
  - RMAN Backup Types
  - Incrementally Updated Backups
  - Fast Incremental Backup
  - Block Change Tracking
  - Oracle-Suggested Backup
  - Reporting on Backups
  - Managing Backups
- Improving Your Backups
  - Compressing Backups
  - Using a Media Manager
  - Creating RMAN Multisection Backups, Proxy Copies, Duplexed Backup Sets and Backups of Backup Sets
  - Creating and Managing Archival Backups
  - Backing Up Recovery Files
  - Backing Up the Control File to a Trace File
  - Cataloging Additional Backup Files
  - Backing Up ASM Disk Group Metadata
- Using RMAN-Encrypted Backups
  - Creating RMAN-Encrypted Backups
  - Using Transparent-Mode Encryption
  - Using Password-Mode Encryption
  - Using Dual-Mode Encryption
- Diagnosing Database Failures
  - Reducing Problem Diagnosis Time
  - Automatic Diagnostic Repository
  - Interpreting RMAN Message Output and Error Stacks
  - Data Recovery Advisor
  - Diagnosing Data File Loss (file system and ASM)
  - Handling Block Corruption
- Restore and Recovery Concepts
  - Restoring and Recovering
  - Instance Failure and Instance/Crash Recovery
  - Media Failure
  - Complete Recovery (Overview)
  - Point-in-Time Recovery (Overview)
  - Recovery Through RESETLOGS
- Performing Recovery, Part 1
  - RMAN Recovery in NOARCHIVELOG Mode

- Performing Complete Recovery (of critical and noncritical data files)
  - Restoring ASM Disk Groups
  - Recovery with Image Files
  - Performing Point-in-Time (PITR) or Incomplete Recovery
  - Table Recovery from Backups
- Performing Recovery, Part 2
  - Recovery of Server Parameter File, Control File
  - Redo Log File Loss and Recovery
  - Password Authentication File Re-creation
  - Index, Read-Only Tablespace, and Tempfile Recovery
  - Restoring the Database to a New Host
  - Disaster Recovery
  - Restoring RMAN Encrypted Backups
- RMAN and Oracle Secure Backup
  - Oracle Secure Backup Overview
  - Oracle Database Disk and Tape Backup Solution
  - Backing Up the Fast Recovery Area to Tape
  - Defining Retention for RMAN Backups
  - RMAN and Oracle Secure Backup Basic Process Flow
  - Integration with Cloud Control
  - RMAN Database Backup to Tape
- Performing Tape Backups and Restores
  - Scheduling Backups with EM
  - Oracle-Suggested Backup
  - RMAN and OSB Process Flow
  - RMAN and Oracle Secure Backup Jobs
  - Managing Database Tape Backups
  - Performing Database Recovery
  - RMAN Automatic Failover to Previous Backup
- Using Flashback Technologies
  - Flashback Technology: Overview and Setup
  - Using Flashback Technology to Query Data
  - Flashback Table
  - Flashback Transaction (Query and Backout)
  - Flashback Drop and the Recycle Bin
  - Flashback Data Archive
- Using Flashback Database
  - Flashback Database Architecture
  - Configuring Flashback Database
  - Performing Flashback Database
  - Best Practices for Flashback Database
- Managing Backup Space or Transporting Data
  - Transporting Tablespaces
  - Transporting Databases
- Duplicating a Database
  - Using a Duplicate Database
  - Choosing Database Duplication Techniques
  - Creating a Backup-up Based Duplicate Database
  - Understanding the RMAN Duplication Operation
  - Using Cloud Control to Clone a Database
- RMAN Performance and Tuning
  - Tuning Principles
  - RMAN Multiplexing
  - Diagnosing Performance Bottlenecks
  - Restore and Recovery Performance Best Practices
- Backup and Recovery Workshop
  - Workshop Structure
  - Workshop Approach to Solving Failure Scenarios
  - Business Requirements for Database Availability and Procedures