

Oracle DBA, Oracle Developer, Java, Android, SQL Server, Linux, C, C++, MySQL PHP, HTML, CSS, Java Script, MySQL DBA, Postgresql DBA, ASP.Net

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## Oracle 12c – Backup and Recovery Workshop

(40 Hours)

- **Audience**

Data Warehouse Administrator  
Database Administrators  
Support Engineer  
Technical Administrator  
Technical Consultant

- **Related Training**

Required Prerequisites  
Knowledge of Oracle Database 12c  
Knowledge of SQL and PL/SQL  
Oracle Database 12c: Administration Workshop Ed 2  
Suggested Prerequisites  
Using Oracle Enterprise Manager Cloud Control 12c  
Using Oracle Enterprise Manager Cloud Control 12c Ed 2

- **Course 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.

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- **Course Topics**
  - **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
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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

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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

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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

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- **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