# Oracle Database 23ai: New Features for Administrators Training

Duration: **3 Day**

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## Overview

Oracle Database 23ai: New Features for Administrators introduces database administrators to the latest capabilities, enhancements, and management improvements available in Oracle Database 23ai.

The course focuses on key administration areas including performance, database architecture, availability, security, manageability, and sharding. Participants explore new tools and features designed to simplify database operations and improve efficiency across modern Oracle Database environments. Key topics include Blockchain Tables, cross-platform data migration with RMAN, Lock-Free Reservations, Wide Columns, Automatic Transaction Rollback, SecureFiles improvements, and new database sharding capabilities.

## Prerequisites

Participants should have practical database administration experience with a modern version of Oracle Database.

## Outline

### Module 1: Blockchain Table

### Oracle Database 23ai Blockchain Table Enhancements

- Learning objectives
- Blockchain Table overview
- Blockchain Table User Chains
- Blockchain Table Delegate Signer
- Blockchain Table Countersignature
- Module summary

### Module 2: Availability

### Simplified Cross-Platform Database Migration Using RMAN Backups

- Learning objectives
- General overview
- Transport methods using Recovery Catalog
- Transport methods in NOCATALOG mode
- Transport methods over a Network Link
- General prerequisites
- Method-specific prerequisites
- Recovery Catalog approaches for PDBs

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- Transporting a PDB with a pre-existing backup using Recovery Catalog
- Transporting a PDB with multiple incremental backups using Recovery Catalog
- Recovery Catalog approaches for Tablespaces
- Recovery Catalog methods for Tablespace migration
- Transporting a Tablespace with a pre-existing backup using Recovery Catalog
- Transporting a Tablespace with multiple incremental backups using Recovery Catalog
- Transport operations based on multiple incremental backups
- Transport methods in NOCATALOG mode
- NOCATALOG mode for PDBs
- Rapid PDB transport with NOCATALOG
- Transporting a PDB with a pre-existing backup in NOCATALOG mode
- Transporting a PDB with multiple incremental backups in NOCATALOG mode
- NOCATALOG mode for Tablespaces
- Rapid Tablespace transport with NOCATALOG
- Transporting a Tablespace with a pre-existing backup in NOCATALOG mode
- Transporting a Tablespace with multiple incremental backups in NOCATALOG mode
- Transport methods using a Network Link
- Rapid PDB transport over a Network Link
- Transporting PDBs by incrementally restoring backups over the network
- Additional Network Link transport approaches
- Transporting Tablespaces over a Network Link
- Rapid Tablespace transport over a Network Link
- Transporting Tablespaces by incrementally restoring backups over the network
- Module summary

## Automatic Transaction Rollback

- Learning objectives
- General overview
- Using Automatic Transaction Rollback
- How Automatic Transaction Rollback operates
- Additional usage scenarios
- Monitoring
- Benefits
- Module summary

## Automatic Transaction Quarantine

- Learning objectives
- General overview
- Automatic Transaction Quarantine workflow
- Monitoring quarantined transactions
- Resolving quarantined transactions
- Resolution examples
- Dropping quarantined transactions
- Quarantined transaction escalation
- Module summary

## Flashback Log Placement

- Learning objectives
- Flashback Log overview

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- Flashback Log parameters
- Flashback Log management
- Module summary

### Module 3: Database Architecture

### Unrestricted Direct Loads

- Learning objectives
- Direct Load behavior before Oracle Database 23ai
- Direct Load enhancements in Oracle Database 23ai
- Benefits
- Module summary

### Lock-Free Reservations

- Learning objectives
- Comparing optimistic and lock-free approaches
- The optimistic approach
- The lock-free approach
- Handling frequently modified values
- Lock-Free Reservations
- Lock-Free Reservation features
- Benefits of Lock-Free Reservations
- Functional requirements
- Create, modify, and delete operations
- Lock-Free Journal Table
- Journal Table restrictions
- Working with Lock-Free Reservations
- Related views
- Module summary

### Unrestricted Parallel DML

- Learning objectives
- Parallel DML overview
- Parallel DML enhancements in Oracle Database 23ai
- Benefits
- Module summary

### Wide Columns

- Learning objectives
- Limitations and challenges in previous releases
- Benefits
- Increased column limits
- Performance considerations
- Module summary

### Improved Hybrid Columnar Compression Performance

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- Learning objectives
- HCC before Oracle Database 23ai
- HCC enhancements in Oracle Database 23ai
- Database compatibility
- Performance improvements
- Module summary

## Module 4: Performance

### Fast Inserts Enhancements

- Learning objectives
- Fast Ingest overview, also known as Deferred Inserts
- Using Fast Ingest
- New enhancements
- Benefits
- Management options
- Module summary

### Accelerating SecureFiles LOB Write Performance

- Learning objectives
- General overview
- Performance benefits
- Module summary

### Data Storage Improvements

- Learning objectives
- SecureFiles
- Traditional SecureFiles shrinking
- Advantages of Automatic SecureFiles Shrinking
- High-level architecture and behavior
- Controlling Automatic SecureFiles Shrink
- Automatic Storage Compression
- Automatic Storage Compression and Automatic Clustering
- Benefits of Automatic Storage Compression
- Controlling Automatic Storage Compression
- Module summary

## Module 5: Data Analytics

### Oracle Database 23ai Automatic SQL Plan Management Enhancements

- Learning objectives
- Automatic SQL Plan Management overview
- SPM Evolve Advisor
- Benefits

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- Problems addressed by the feature
- Recommended usage scenarios
- How to use the feature
- Module summary

## Module 6: Manageability

### Time and Date Handling Changes

- Learning objectives
- Enhanced Time Zone data upgrades
- Considerations when Time Zone definitions change
- Optimizing Time Zone file upgrades
- Benefits of enhanced Time Zone updates
- Tables containing TIMESTAMP WITH TIME ZONE data
- New parameter in the init.ora file
- Configuring database parameters
- SYSDATE and SYSTIMESTAMP
- Date and time management in Oracle Database
- Database time versus operating system time
- Database-specific time in Oracle Database 23ai
- Example of configuring database-specific time
- Module summary

## Module 7: Security

### Oracle Database 23ai Security Enhancements

- Learning objectives
- Database security overview
- Pluggable Database Hybrid Read-Only Mode
- Read-Only users and sessions
- New Developer Role
- Simplified Schema Privileges
- Example of Simplified Schema Privileges
- Auditing object actions at column level
- Controlling Unified Auditing authorizations with Database Vault
- Extended Microsoft Azure Active Directory integration for additional Oracle Database environments
- Module summary

## Module 8: Sharding

### Oracle Database 23ai Sharding Enhancements

- Learning objectives

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- Database Sharding concepts
- Oracle Database Sharding architecture
- New Sharding capabilities in Oracle Database 23ai
- RAFT-based Sharding Native Replication
- Directory-Based Sharding
- Coordinated Backup and Restore for Sharded Databases
- Centralized Backup Recovery
- Automatic bulk data movement when a Sharding Key is updated
- Partition Set Split/Move operations with bulk data movement
- Module summary