# Oracle Database 23ai: Administration Workshop Training

Duration: **5 Day**

IT Academy

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## Overview

Oracle Database 23ai: Administration Workshop is a five-day instructor-led course designed to give database administrators the practical knowledge and skills required to manage Oracle Database 23ai in enterprise environments.

The course covers the essential administration tasks involved in creating, configuring, securing, monitoring, and maintaining Oracle Database systems, with particular emphasis on Oracle Multitenant architecture and the administration of Container Databases (CDBs) and Pluggable Databases (PDBs).

Combining instructor-led sessions with extensive hands-on labs, the course gives participants practical experience with real-world Oracle Database administration tasks. Learners also explore capabilities available in Oracle Database 23ai, including automation, performance optimization, high availability, and AI-enabled database features.

The architectural concepts, administration principles, and management techniques covered in this course also remain relevant to Oracle AI Database 26ai.

## Prerequisites

Participants are expected to have:

- Basic knowledge of relational database concepts
- Experience working with SQL and Oracle Database
- Familiarity with Linux or Windows operating systems
- An understanding of fundamental database administration concepts
- Previous experience with Oracle Database environments is beneficial

## Who Should Attend

This course is suitable for:

- Oracle Database Administrators
- Database Support Engineers
- Infrastructure and Systems Administrators responsible for Oracle environments
- Database professionals moving to Oracle Database 23ai
- IT professionals who want to strengthen their Oracle Database administration skills

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## What You Will Learn

After completing this course, participants will be able to:

- Explain Oracle Database architecture, memory structures, and process architecture.
- Create and manage Oracle databases using DBCA and SQL-based approaches.
- Administer Container Databases (CDBs) and Pluggable Databases (PDBs).
- Configure Oracle Net Services, listeners, and database connectivity.
- Manage database storage, tablespaces, undo data, and space utilization.
- Administer users, roles, privileges, and resource limits.
- Implement auditing, compliance monitoring, and database security controls.
- Load and transport data with Oracle Data Pump, SQL*Loader, and external tables.
- Configure automated maintenance tasks and monitor database performance.
- Analyze SQL execution and apply Oracle performance tuning techniques.

## Outline

### Module 1: Introduction to Oracle Database

- Explore Oracle Database server architecture and instance configurations
- Understand Oracle Multitenant Container Database concepts and architecture
- Review memory structures, process architecture, and background processes
- Explore database sharding concepts
- Review Oracle Database architecture tools

### Module 2: Accessing an Oracle Database

- Connect to an Oracle Database instance
- Review administration tools including SQL*Plus, Oracle SQL Developer, DBCA, and Oracle Enterprise Manager
- Evaluate available tools for database administration and management
- Explore Oracle Enterprise Manager and Cloud Control capabilities

### Module 3: Creating an Oracle Database with DBCA

- Plan an Oracle Database deployment
- Select database templates and character set options
- Create databases with Database Configuration Assistant (DBCA)
- Use DBCA in both interactive and silent modes

### Module 4: Creating an Oracle Database with SQL Commands

- Create a Container Database (CDB) using SQL
- Configure database files and Pluggable Database support with SQL clauses
- Review available options for manual CDB creation
- Understand key considerations when creating databases without DBCA

### Module 5: Starting and Shutting Down Database Instances

- Start Oracle Database instances

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- Shut down instances using different shutdown modes
- Open and close Pluggable Databases
- Configure PDBs to open automatically

### Module 6: Managing Database Instances

- Work with initialization parameters
- View and modify database instance settings
- Use diagnostic resources including alert logs, trace files, and the Automatic Diagnostic Repository
- Query Dynamic Performance Views and the Oracle Data Dictionary

### Module 7: Oracle Net Services Overview

- Understand Oracle Net Services architecture and components
- Review how clients establish connections to Oracle Database instances
- Explore listener concepts and Oracle Net configuration tools
- Compare Dedicated Server and Shared Server architectures

### Module 8: Configuring Naming Methods

- Configure database network connections
- Understand name resolution and user session connectivity
- Work with Easy Connect, Local Naming, and Directory Naming
- Use database services for workload management

### Module 9: Configuring and Administering the Listener

- Review Oracle Net Listener architecture
- Configure dynamic and static service registration
- Manage listener behavior and database service registration
- Support reliable client connectivity to Oracle databases

### Module 10: Configuring a Shared Server Architecture

- Understand Shared Server Architecture
- Compare Shared Server and Dedicated Server configurations
- Enable and manage Shared Server operations
- Review SGA and PGA configuration considerations

### Module 11: Creating PDBs from Seed

- Provision new Pluggable Databases
- Create PDBs from PDB$SEED
- Use file conversion clauses and Oracle Managed Files
- Review tools and approaches available for PDB creation

### Module 12: Other Techniques for Creating PDBs

- Clone, plug in, and relocate Pluggable Databases
- Migrate non-CDB databases into Multitenant environments
- Explore PDB cloning, relocation, and migration approaches
- Use DBCA and SQL-based methods to provision PDBs

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### Module 13: Managing PDBs

- Manage PDB modes, settings, and lifecycle operations
- Configure PDB-specific initialization parameters
- Administer PDB connectivity and configuration settings
- Perform PDB maintenance and removal tasks

### Module 14: Database Storage Overview

- Understand Oracle logical and physical storage structures
- Review segments, extents, blocks, tablespaces, and data files
- Understand default tablespaces in Multitenant databases
- Monitor tablespace space usage

### Module 15: Creating and Managing Tablespaces

- Create, alter, and drop tablespaces
- Configure permanent and temporary tablespaces
- View tablespace information and manage database files
- Implement Oracle Managed Files

### Module 16: Improving Space Usage

- Manage database space allocation and storage efficiency
- Improve storage use with Oracle space management features
- Apply compression and segment management techniques
- Resolve common database space usage problems

### Module 17: Managing Undo Data

- Understand undo data and transaction processing
- Compare undo and redo data
- Configure undo retention and undo tablespaces
- Use temporary undo
- Monitor undo behavior

### Module 18: Creating and Managing User Accounts

- Create Oracle Database users in Multitenant environments
- Manage common users, local users, and schema-only accounts
- Configure authentication options
- Assign quotas and manage user account settings

### Module 19: Configuring Privilege and Role Authorization

- Grant and revoke system, schema-level, and object privileges
- Use roles to simplify privilege administration
- Configure privileges within a Multitenant environment
- Review Oracle-supplied roles and secure role management

### Module 20: Configuring User Resource Limits

- Create and manage profiles

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- Configure password and account locking policies
- Define resource limits for users
- Assign profiles within a Multitenant architecture

### Module 21: Implementing Oracle Database Auditing

- Understand database auditing and compliance monitoring
- Create and manage Unified Audit Policies
- Configure system-wide, object-specific, and conditional auditing
- Implement Fine-Grained Auditing
- Archive and purge audit trail records

### Module 22: Introduction to Loading and Transporting Data

- Understand Oracle data movement architecture
- Review Oracle Data Pump capabilities
- Explore SQL*Loader concepts
- Identify suitable data loading and transport approaches

### Module 23: Loading Data

- Load data into Oracle tables with SQL*Loader
- Create and manage SQL*Loader control files
- Use different loading methods and Express Mode
- Load data into tables inside a PDB

### Module 24: Transporting Data

- Use Oracle Data Pump Export and Import clients
- Transport data between non-CDB, CDB, and PDB environments
- Use Full Transportable Export/Import
- Apply RMAN options for cross-platform data transport
- Move tablespaces and data with reduced downtime

### Module 25: Using External Tables to Load and Transport Data

- Understand external table concepts and benefits
- Use ORACLE_LOADER and ORACLE_DATAPUMP access drivers
- View and manage external table information
- Support data loading and transport with external tables

### Module 26: Automated Maintenance Tasks Overview

- Understand Oracle's proactive database maintenance infrastructure
- Review predefined automated maintenance tasks
- Understand maintenance windows and automated task components
- Explore how automated maintenance supports database health

### Module 27: Managing Automated Maintenance Tasks and Windows

- Configure automated maintenance tasks
- Enable and disable maintenance activities
- Create and manage maintenance windows

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- Configure resource allocation for maintenance operations

### Module 28: Database Monitoring and Performance Tuning Overview

- Understand performance management activities
- Use Automatic Workload Repository
- Use Automatic Database Diagnostic Monitor
- Review the Oracle Advisory Framework
- Apply a structured performance tuning methodology

### Module 29: Monitoring Database Performance

- Configure and respond to server-generated alerts
- Monitor database server statistics and metrics
- Review wait events, sessions, and services
- Use performance monitoring information to identify problems

### Module 30: Analyzing SQL and Optimizing Access Paths

- Understand Oracle SQL tuning and optimization techniques
- Manage Optimizer Statistics and execution plans
- Use SQL Tuning Advisor
- Use SQL Access Advisor
- Use SQL Performance Analyzer
- Analyze and improve SQL query performance