

Oracle Database 23ai: Administration Workshop

Duration: 5 Days

Course Outlines:

1 Introduction to Oracle Database

- Objectives
- Oracle Database Server Architecture: Overview
- Oracle Database Instance Configurations
- Oracle Multitenant Container Database: Introduction
- Oracle Multitenant Container Database: Architecture
- Oracle Database Memory Structures
- Shared Pool
- Database Buffer Cache
- Redo Log Buffer
- Large Pool
- Java Pool and Streams Pool
- Program Global Area (PGA)
- Process Architecture
- Process Structures
- Database Writer Process (DBWn)
- Log Writer Process (LGWR)
- Checkpoint Process (CKPT)
- System Monitor Process (SMON)
- Process Monitor Process (PMON)
- Recoverer Process
- Archiver Processes (ARCn)
- Database Sharding: Introduction
- Oracle Database Server: Interactive Architecture Diagram

2 Accessing an Oracle Database

- Objectives
- Connecting to an Oracle Database Instance
- Oracle Database Tools
- Database Tool Choices
- SQL*Plus
- Oracle SQL Developer
- Oracle SQL Developer: Connections
- Oracle SQL Developer: DBA Actions
- Database Configuration Assistant (DBCA)
- Oracle Enterprise Manager Database Express
- Enterprise Manager Cloud Control 13c Features
- Oracle Enterprise Manager Component Overview
- Single Pane of Glass for Enterprise Management
- Oracle Enterprise Manager Database Management

3 Creating an Oracle Database by Using DBCA

- Objectives
- Planning the Database
- Choosing a Database Template
- Choosing the Appropriate Character Set
- How are character sets used?
- Setting NLS_LANG Correctly on the Client
- Using the Database Configuration Assistant
- Using DBCA in Silent Mode

4 Creating an Oracle Database by Using a SQL Command

- Objectives
- Creating a Container Database (CDB)
- Creating a CDB by Using a SQL Command: Example
- Using the SEED FILE_NAME_CONVERT Clause
- Using the ENABLE PLUGGABLE DATABASE Clause

5 Starting Up and Shutting Down a Database Instance

- Objectives
- Starting the Oracle Database Instance
- Shutting Down an Oracle Database Instance
- Comparing SHUTDOWN Modes
- Opening and Closing PDBs
- Configuring PDBs to Automatically Open
- Summary

6 Managing Database Instances

- Objectives
- Working with Initialization Parameters
- Initialization Parameters
- Modifying Initialization Parameters
- Viewing Initialization Parameters
- Working with the Automatic Diagnostic Repository
- Automatic Diagnostic Repository
- Viewing the Alert Log
- Using Trace Files
- Administering the DDL Log File
- Querying Dynamic Performance Views
- Considerations for Dynamic Performance Views
- Data Dictionary: Overview
- Querying the Oracle Data Dictionary

7 Oracle Net Services: Overview

- Objectives
- Connecting to the Database Instance
- Oracle Net Services: Overview
- Defining Oracle Net Services Components
- Tools for Configuring and Managing Oracle Net Services
- Oracle Net Listener: Overview
- The Default Listener
- Comparing Dedicated and Shared Server Architecture

8 Configuring Naming Methods

- Objectives
- Establishing Oracle Network Connections
- Connecting to an Oracle Database Instance
- Name Resolution
- Establishing a Connection
- User Sessions
- Naming Methods
- Easy Connect
- Local Naming
- Directory Naming
- Using Database Services to Manage Workloads
- Creating Database Services

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COURSE OUTLINE

9 Configuring and Administering the Listener

- Objectives
- Review: Oracle Net Services Overview
- Oracle Net Listener: Overview
- The Default Listener
- Configuring Dynamic Service Registration
- Configuring Static Service Registration

10 Configuring a Shared Server Architecture

- Objectives
- Shared Server Architecture: Overview
- Comparing Dedicated and Shared Server Architecture: Review
- Enabling Shared Server
- Controlling Shared Server Operations
- SGA and PGA Usage
- Shared Server Configuration Considerations

11 Creating PDBs from Seed

- Objectives
- Provisioning New Pluggable Databases
- Tools
- Creating a New PDB from PDB\$SEED
- Using the FILE_NAME_CONVERT Clause
- Using OMF or the PDB_FILE_NAME_CONVERT Parameter

12 Using Other Techniques to Create PDBs

- Objectives
- Cloning Regular PDBs
- Migrating Data from a Non-CDB into a CDB
- Plugging a Non-CDB into CDB Using DBMS_PDB
- Replicating a Non-CDB into a CDB by Using GoldenGate
- Cloning a Non-CDB or Remote PDB
- Using DBCA to Clone a Remote PDB
- Plugging an Unplugged Regular PDB into CDB
- Plugging in a PDB Using an Archive File
- Cloning Remote PDBs in Hot Mode
- Near-Zero Downtime PDB Relocation
- Using DBCA to Relocate a Remote PDB
- Proxy PDB: Query Across CDBs Proxying Root Replica
- Creating a Proxy PDB

13 Managing PDBs

- Objectives
- Changing the PDB Mode
- Modifying PDB Settings
- Impact of Changing Initialization Parameters
- Changing Initialization Parameters: Example
- Using the ALTER SYSTEM Command in a PDB
- Configuring Host Name and Port Number per PDB
- Dropping PDBs

14 Database Storage Overview

- Objectives
- Database Storage Architecture
- Logical and Physical Database Structures
- Segments, Extents, and Blocks
- Tablespaces and Data Files
- Default Tablespaces in a Multitenant Container Database
- SYSTEM and SYSAUX Tablespaces
- Types of Segments
- How Table Data Is Stored
- Database Block Content
- Understanding Deferred Segment Creation
- Controlling Deferred Segment Creation
- Monitoring Tablespace Space Usage

15 Creating and Managing Tablespaces

- Objectives
- Creating Tablespaces
- Creating a Tablespace: Clauses
- Creating Permanent Tablespaces in a CDB
- Defining Default Permanent Tablespaces
- Temporary Tablespaces
- Altering and Dropping Tablespaces
- Viewing Tablespace Information
- Implementing Oracle Managed Files (OMF)
- Enlarging the Database
- Moving or Renaming Online Data Files
- Examples: Moving and Renaming Online Data Files

16 Improving Space Usage

- Objectives
- Space Management Features
- Block Space Management
- Row Chaining and Migration
- Free Space Management Within Segments
- Allocating Extents
- Using Unusable Indexes
- Using Temporary Tables
- Creating Global Temporary Tables
- Creating Private Temporary Tables
- Table Compression: Overview
- Table Compression: Concepts
- Compression for Direct-Path Insert Operations
- Advanced Row Compression for DML Operations
- Specifying Table Compression
- Using the Compression Advisor
- Resolving Space Usage Issues
- Reclaiming Space by Shrinking Segments
- Shrinking Segments
- Results of a Shrink Operation
- Managing Resumable Space Allocation
- Using Resumable Space Allocation
- Resuming Suspended Statements
- What operations are resumable?

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COURSE OUTLINE

17 Managing Undo Data

- Objectives
- Undo Data: Overview
- Transactions and Undo Data
- Storing Undo Information
- Comparing Undo Data and Redo Data
- Managing Undo
- Comparing SHARED Undo Mode and LOCAL Undo Mode
- Configuring Undo Retention
- Categories of Undo
- Guaranteeing Undo Retention
- Changing an Undo Tablespace to a Fixed Size
- Temporary Undo: Overview
- Temporary Undo Benefits
- Enabling Temporary Undo
- Monitoring Temporary Undo

18 Creating and Managing User Accounts

- Objectives
- Database User Accounts
- Oracle-Supplied Administrator Accounts
- Creating Oracle Database Users in a Multitenant Environment
- Creating Common Users in the CDB and PDBs
- Creating Schema-Only Accounts
- Authenticating Users
- Using Password Authentication
- Using Password File Authentication
- Using OS Authentication
- OS Authentication for Privileged Users
- Assigning Quotas

19 Configuring Privilege and Role Authorization

- Objectives
- Privileges
- System Privileges
- System Privileges for Administrators
- Schema-Level Privileges
- New Developer Role and Simplified Schema Privileges
- Object Privileges
- Granting Privileges in a Multitenant Environment
- Granting Privileges: Example
- Using Roles to Manage Privileges
- Assigning Privileges to Roles and Assigning Roles to Users
- Oracle-Supplied Roles
- Granting Roles in a Multitenant Environment
- Granting Roles: Example
- Making Roles More Secure
- Revoking Roles and Privileges
- Granting and Revoking System Privileges
- Granting and Revoking Object Privileges

20 Configuring User Resource Limits

- Objectives
- Profiles and Users
- Creating Profiles in a Multitenant Architecture
- Creating Profiles: Example
- Profile Parameters: Resources
- Profile Parameters: Locking and Passwords
- Oracle-Supplied Password Verification Functions
- Assigning Profiles in a Multitenant Architecture

21 Implementing Oracle Database Auditing

- Objectives
- Database

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