

# Oracle Database 19c: Multitenant Architecture

**Duration: 4 Days**

## Course Description:

This Oracle Database: Managing Multitenant Architecture course covers all aspects of the multitenant architecture, providing detailed information on the components of an Oracle multitenant container database and its regular and application pluggable databases. You learn why and how to create and manage a multitenant container database and its regular and application pluggable databases, with storage structures appropriate for the business applications. You practice cold and hot cloning, plugging unplugged pluggable databases in multitenant container databases using various methods.

In addition, you learn how to create common and local users and administer database security to meet your business requirements by using encryption, Database Vault and auditing and you will learn how to create a database deployment in the Cloud.

## Course Objectives:

Upon completion of this course, the student will be able to:

- Understand the multitenant architecture.
- Create and manage a multitenant container database and pluggable databases.
- Understand regular and application pluggable databases.
- Manage storage within a multitenant container database and pluggable databases.
- Manage security within a multitenant container database and regular and application pluggable databases.
- Monitor performance and manage resources within a multitenant container database and pluggable databases.
- Perform backup, recover and flashback operations on a multitenant container database and regular and application pluggable databases.
- Perform particular operations like Oracle Data Pump transportation, loading, encrypting, auditing.
- Manage the CDB and PDBs in specific configurations like Data Guard, Database Vault.

## Course Outlines:

### Overview

- Overview

### CDB Basics

- CDB Basics
- Practice 1-1: Discovering Practices Environment
- Practice 1-2: Setting and Validating OEMCC Named Credentials
- Practice 1-3: Exploring CDB and PDB using Enterprise Manager Cloud Control
- Practice 1-4: Using Enterprise Manager Express

### CDB and Regular PDBs

- CDB and Regular PDBs
- Practice 2-1: Exploring CDB Architecture and Structures
- Practice 2-2: Creating a New CDB
- Practice 2-3: Creating a New PDB

### Application PDBs and Application Installation

- Application PDBs and Application Installation
- Practice 3-1: Installing an Application in an Application Container
- Practice 3-2: Upgrading an Application in an Application Container
- Practice 3-3: Querying Data Across Application PDBs in CDB

### PDB Creation

- PDB Creation
- Practice 4-1: Cloning Remote PDBs in Hot Mode
- Practice 4-2: Cloning an Application Container
- Practice 4-3: Unplugging and Plugging Application Containers
- Practice 4-4: Converting a Regular PDB to an Application PDB
- Practice 4-5: Relocating PDBs
- Practice 4-6: Querying Data Across CDBs by Using Proxy PDBs
- Practice 4-7: Dropping Unnecessary PDBs

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## COURSE OUTLINE

### CDB and PDB Management

- CDB and PDB Management
- Practice 5-1: Starting Up and Shutting Down a CDB
- Practice 5-2: Opening and Closing PDBs
- Practice 5-3: Renaming a PDB
- Practice 5-4: Setting Parameter Values for PDBs
- Practice 5-5: Renaming PDB Services

### Storage

- Storage
- Practice 6-1: Managing Permanent and Temporary Tablespaces
- Practice 6-2: Managing UNDO Tablespaces

### Security

- Security
- Practice 7-1: Managing Common and Local Users, Privileges, and Roles
- Practice 7-2: Managing Common and Local Objects in Application Containers
- Practice 7-3: Enabling Common Users to View Information About PDB Objects
- Practice 7-4: Managing PDB Lockdown Profiles
- Practice 7-5: Auditing Operations in PDBs
- Practice 7-6: Managing PDB Keystores
- Practice 7-7: Unplugging and Plugging Encrypted PDBs

### Backup and Duplicate

- Backup and Duplicate
- Practice 8-1: RMAN Whole CDB Backup
- Practice 8-2: RMAN PDB Backup
- Practice 8-3: Duplicating a PDB into an Existing CDB
- Practice 8-4: Duplicating an On-Premises CDB for Cloud

### Recovery and Flashback

- Recovery and Flashback
- Practice 9-1: RMAN Recovery from SYSTEM PDB Data File Loss
- Practice 9-2: RMAN Recovery from Nonessential PDB Data File Loss
- Practice 9-3: PDB PITR
- Practice 9-4: Recovering a Plugged PDB by Using Preplug-in Backups
- Practice 9-5: Flashing Back an Application Upgrade by Using Restore Points

### Performance

- Performance
- Practice 10-1: Monitoring Performance at the CDB and PDB Levels
- Practice 10-2: Getting Performance ADDM Recommendations at CDB and PDB Levels
- Practice 10-3: Monitoring SQL Executions at PDB Level

### Resources Allocation

- Resources Allocation
- Practice 11-1: Managing PDB Performance Profiles
- Practice 11-2: Managing Resource Allocation Between PDBs
- Practice 11-3: Avoiding Excessive Session PGA Memory Usage in PDBs

### Data Movement

- Data Movement
- Practice 12-1: Performing a Full Transportable Export/Import from a 12c non-CDB into an 18c PDB
- Practice 12-2: Performing a Full Transportable Export/Import from a 18c PDB into an 19c PDB

### Upgrade Methods

- Upgrade Methods
- Practice 13-1: Upgrading an 18c Regular PDB to a 19c Application PDB
- Practice 13-2: Plugging Remote PDBs Through XTTS
- Practice 13-3: Upgrading an 18c CDB to a 19c CDB

### Miscellaneous

- Miscellaneous

### Consolidated Database Replay Procedures

- Consolidated Database Replay Procedures

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