

Oracle Database 18c: Managing Multitenant Architecture Ed 1

Duration: 4 Days

What you will learn

This course covers all aspects of the multitenant architecture, providing detailed information on the components of a CDB and its regular and application PDBs. You learn why and how to create and manage a CDB and its regular and application PDBs, with storage structures appropriate for the business applications. You practice cold and hot cloning, plugging unplugged PDBs in CDBs using various methods.

In addition, you learn how to ensure the security within the containers of the CDB. You create common and local users, grant common and local privileges and roles, and administer database security to meet your business requirements by using encryption, Database Vault and auditing.

This course includes CDB and PDBs backup, duplicate, recovery and flashback procedures.

You learn how to monitor the performance and manage resources within a CDB and its PDBs, and within each PDB.

It introduces the data movement capabilities between non-CDBs and PDBs, and between PDBs.

Finally, it is also covers the procedures of upgrading an Oracle Database 12.2 CDB to an Oracle Database 18c CDB or an Oracle Database 12.2 PDB to an Oracle Database 18c PDB.

Related Training

Required Prerequisites

Oracle Database 18c: Administration Workshop

Oracle Database 18c: Administration Workshop

Suggested Prerequisites

Basic knowledge of Linux operating system

Working knowledge of SQL and use of PL/SQL packages

Course Objectives

Manage PDB snapshots

Encrypt data in PDBs and isolate PDB keystore

Monitor performance in CDBs and PDBs

Audit users in CDB and PDBs

Protect data with Database Vault policies in CDB and PDBs

Manage a CDB fleet

Manage resource allocation between PDBs and within a PDB

Use Data Pump operations from a non-CDB or CDB into a PDB

Upgrade 12c CDBs or PDBs to 18c

Configure and create a CDB

Create

clone

unplug

plug

relocate

proxy

switch over and drop PDBs

Startup and shutdown CDBs and PDBs

Manage tablespaces in CDB and PDBs

Manage common and local users

roles

privileges

profiles

objects in CDBs and PDBs

Manage PDB lockdown profiles

Backup

duplicate

recover and flashback CDB and PDBs

Course Topics

CDB Basics

Describe the multitenant architecture

Describe the CDB root and pluggable database containers

Differentiate the CDB root from a pluggable database

Understand the terminology of commonality

List impacts in various areas

CDB and Regular PDBs

Configure and create a CDB

Provision new PDBs

Create a new PDB from the CDB seed

Explore the instance

Explore the structure of PDBs

Explore the Automatic Diagnostic Repository (ADR)

Application PDBs and Application Installation

Describe application containers in CDBs

Explain the purpose of application root and application seed

Define application PDBs

Create application PDBs

Explain application installation on top of application containers

Install, upgrade and patch an application

Describe the commonality concept in application contexts

Use a dynamic container map

PDB Creation

Clone a regular PDB

Clone an application PDB

Unplug and plug a non-CDB

Unplug and plug a regular PDB

- Unplug and plug an application container
- Convert regular PDBs to application PDBs
- Configure and use the local UNDO mode
- Perform hot cloning and relocation

CDB and PDB Management

- Establish connections to CDB and PDB
- Start up and shut down a CDB
- Open and close PDBs
- Avoid service name conflicts
- Start PDB service
- Change the different modes and settings of PDBs
- Evaluate the impact of parameter value changes
- Configure host name and port number per PDB

Storage

- Manage permanent tablespaces in CDB and PDBs
- Manage temporary tablespaces in CDB and PDBs
- Manage the UNDO tablespaces in CDB root and PDB

Security

- Manage common and local users, roles, privileges and profiles in PDBs
- Manage common and local objects in application containers
- Enable common users to access data in PDBs
- Manage PDB lockdown profiles
- Audit users in CDB and PDBs
- Manage other types of policies in application containers
- Protect data with Database Vault policies in CDB and PDBs
- Encrypt data in PDBs

Backup and Duplicate

- Backup CDB and PDBs
- Use RMAN backups to plug unplugged PDBs
- Duplicate PDBs
- Duplicate an active PDB into an existing CDB
- Duplicate a CDB as encrypted
- Validate CDBs and PDBs

Recovery and Flashback

- Recover a PDB from essential file damage
- Recover a PDB from non-essential file damage
- Reuse preplugin backups after conversion of a non-CDB to a PDB
- Reuse preplugin backups after plugging/relocating a PDB into another CDB
- Perform CDB flashback
- Perform PDB flashback
- Use clean restore points to complete PDB flashback
- Manage PDB snapshots

Performance Monitoring

- Monitor operations in a CDB and PDBs
- Monitor performance in a CDB and PDBs
- Manage SGA and PGA limits at the PDB level

- Manage AWR snapshots at the CDB and PDB levels
- Run ADDM tasks for CDB and PDB recommendations
- Manage application shared object statistics
- Control query DOP involving the containers() construct
- Control PDB IO rate limits

Resources Allocation

- Manage resource allocation between PDBs and within a PDB
- Enable parallel statement queuing at PDB level
- Manage PDB performance profiles
- Avoid excessive session PGA

Data Movement

- Export from a non-CDB and import into a PDB
- Export from a PDB and import into a PDB
- Export from a PDB and import into a non-CDB
- Use SQL*Loader to load data into a PDB

Upgrade methods

- Upgrade 12.2 CDB to 18c
- Upgrade 12.2 PDBs to PDBs in 18c
- Plug in a remote PDB through XTTS into a target CDB

Miscellaneous

- Describe the limits of data replication
- Describe XStreams usage with PDB and CDB
- Describe Data Guard with CDB and PDB
- Schedule operations in a PDB using Oracle Scheduler
- Mine PDB statements using LogMiner