

Oracle Database 12c R2: Managing Multitenant Architecture

Duration: 4 Days

What you will learn

During the Oracle Database 12c Administration Workshop, students cover a brief overview of the multitenant container database and its pluggable databases. This 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.

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.

Benefits To You

During the Oracle Database 12c Backup and Recovery Workshop, students get an overview of how to backup and recover pluggable databases. This course presents multitenant container database and pluggable databases backup, recovery and flashback procedures.

To provide an acceptable response time to users and manage resources effectively, you learn how to monitor performance and manage resources within the multitenant container database and its pluggable databases, and within each pluggable database.

Another important aspect is the data movement between non-CDBs and pluggable databases, and between pluggable databases.

It is also important to understand the procedures of upgrading an Oracle Database 12.1 multitenant container database to an Oracle Database 12.2 multitenant container database or an Oracle Database 12.1 pluggable database to an Oracle Database 12.2 pluggable database.

Finally, students discover the way multitenant container database and pluggable databases are created and monitored in the Cloud.

Audience

Data Warehouse Administrator

Database Administrators

Database Designers

Support Engineer

Technical Administrator

Related Training

Required Prerequisites

Working knowledge of SQL and use of PL/SQL packages

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Suggested Prerequisites

Basic knowledge of Linux operating system

Course Objectives

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, encryption, auditing

Upgrade an Oracle Database 12.1 CDB or PDB to an Oracle Database 12.2 CDB or PDB

Monitor pluggable databases in the Cloud

Understand the multitenant architecture

Understand regular and application pluggable databases

Create and manage a multitenant container database and 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

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

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 an application
- Upgrade and patch applications
- Describe the commonality concept in application contexts

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, Recovery, and Flashback

- Backup CDB and PDBs
- Recover a PDB from essential file damage

- Recover a PDB from non-essential file damage
- Use RMAN backups to plug unplugged PDBs
- Duplicate PDBs
- Validate CDBs and PDBs
- Perform CDB flashback
- Perform PDB flashback

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
- 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 12.1 CDB to 12.2
- Upgrade 12.1 PDBs to PDBs in 12.2
- 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

PDBs in Cloud

- Create a database deployment in the Cloud
- Create PDBs in the Cloud database using DBaaS Monitor
- Understand encryption in a Cloud CDB and PDBs
- Manage PDBs in the Cloud database using DBaaS Monitor
- Migrate on-premises PDBs in a database deployment in the Cloud