

Oracle Database 12c R2: New Features for 12c R1 Administrators

Duration: 5 Days

What you will learn

The Oracle Database 12c R2: New Features for 12c R1 Administrators course is designed for existing 12c Release 1 DBAs. In addition to covering the New Features of R2, this course also introduces students to the Oracle Database Cloud Service.

Learn To:

Create and manage application containers and applications in multitenant container databases.

Manage resources in a multitenant container database and pluggable databases with Resource Manager performance profiles and new memory directives.

Perform pluggable database flashback.

Upgrade the multitenant container databases and pluggable databases.

Manage security by using enhancements in unified auditing, system privileges, Privilege Analysis, Data Redaction, Transparent Sensitive Data Protection and Transparent Data Encryption.

Manage data availability by using Recovery Manager, Oracle Data Pump features and SQL*Loader enhancements, and by performing enhanced online operations.

Increase the SQL performance by using the In-Memory Column-Store enhancements at deployment and SQL performance.

Tune the SQL performance by using the Optimizer Statistics Advisor and SQL join processing.

Monitor your databases by using DB operations enhancements.

Benefit from enhancements in partitioning methods.

Benefit from ADR automatic space file management.

Use the Trace File Analyzer collector to diagnose issues.

Use the new SQL*Plus history commands and SQL enhancements such as long identifiers.

Use the new SQLcl utility to benefit from commands and features missing from SQL*Plus itself.

Describe the Oracle Public Cloud services related to databases management.

Benefits To You

In the lessons, you learn the new and enhanced features of Oracle Database 12c Release 2 (12.2.0.1) amongst different areas such as Multitenant, security, availability, performance, diagnosability, manageability, partitioning and SQL.

You also learn how to easily deploy databases with Oracle Database Cloud Services, check automated backups and monitor your Cloud deployment with new Cloud tools.

Related Training

Required Prerequisites

Knowledge of Oracle Database 12c and particularly 12.1.0.2

Suggested Prerequisites

Oracle Database 12c R2: Install and Upgrade Workshop

Using Oracle Enterprise Manager Cloud Control 12c

Using Oracle Enterprise Manager Cloud Control 12c Ed 2

Course Objectives

Perform recovery and flashback operation on pluggable databases

Monitor multitenant container database and pluggable databases by using ADDM / AWR enhancements at PDB level

Manage resources in a multitenant container database and pluggable databases with Resource Manager performance profiles

Tune the SQL performance by using the Optimizer Statistics Advisor and SQL join processing

Benefit from enhancements in partitioning methods

Use the ADR automatic file space management

Use the SQLcl new utility as the new SQL command line interface

Create pluggable databases with new methods and local UNDO mode

Create and manage application containers and applications in multitenant container databases

Manage security in application containers

Manage data optimization in pluggable databases with heat map statistics and ADO policy eviction

Upgrade pluggable databases and multitenant container databases

Manage security by using enhancements in unified auditing

system privileges

Privilege Analysis

Data Redaction

Transparent Sensitive Data Protection & Data Encryption

Manage data availability by using Recovery Manager

Oracle Data Pump features and SQL*Loader enhancements and by performing online operations

Monitor your databases by using DB operations

Increase the SQL performance by using In-Memory Column-Store enhancements for deployment and SQL performance

Course Topics

Introduction

Global objectives of the course

Lessons grouped by area

Schedule of the week

Application Containers and Applications

Application root and application PDBs

Create and manage an application container

Install application in an application container

Patch application

Upgrade application

Impacts in Data Guard, Oracle GoldenGate, Oracle Streams, XStream, ADO and Heat Map

Security in PDBs

Create users commonly, locally in application containers

Grant privileges commonly, locally in application containers

Difference between common and local roles in application containers

Grant roles commonly, locally in application containers

Difference between common and local objects in application containers

Difference between common and local profiles in application containers

Manage PDB lockdown profiles

Create unified auditing policies operations in application containers

PDBs Creation Using New Methods

Create a PDB from CDB seed enhancements

Unplug into a PDB archive file and plug using the archive file
Create a local UNDO tablespace at PDB level
Hot cloning
Near-zero downtime PDB relocation
Create a remote proxy PDB

PDBs Recovery and Flashback

Shut down a PDB when an essential PDB datafile is missing
Flashback at PDB level
Flashback a PDB to a clean PDB restore point

Performance in PDBs

View CDB / PDB ADDM analysis
Manage SGA and PGA at the PDB level
Share resources between PDBs

Upgrade and Other Operations in PDBs

Upgrade a 12.1.0.2 CDB to 12.2
Upgrade a 12.1.0.2 PDB to 12.2 by using unplug / plug / upgrade
Use cross-platform non-CDB or PDB backupsets to import into a CDB

Privileges and User Profiles

New 12.2 SYSRAC administrative privilege
Password file enhancements
Grant administrative privileges to external users
Migrate the password file from pre-12 or 12.1 to 12.2
New system privilege INHERIT ANY REMOTE PRIVILEGES and object privilege INHERIT REMOTE PRIVILEGES
Enhance the security of administrative users
Pre-configure a maximum number of days in the user profile for which a user can remain inactive

Unified Auditing

Create and enable audit policies for all users to whom the role is granted directly
Capture VPD (Virtual Private Database) generated predicates

Data Redaction

New redaction format library in EM GUI
Redaction policy expression
New redaction functions

Data Encryption

Encrypt / decrypt / rekey tablespaces online
Specific tablespaces: SYSAUX, SYSTEM, UNDO and temporary
Complete the operations with ALTER TABLESPACE ENCRYPTION FINISH ENCRYPT|REKEY|DECRYPT

Transparent Sensitive Data Protection

Use TSDP with Unified Auditing
Use TSDP with Fine-Grained Auditing (FGA)
Use TSDP with Transparent Data Encryption (TDE)

Availability Enhancements

Non auto-login support for duplicate: Use encrypted backups whose decryption keys are in a non auto-login wallet
Update and drop the catalog without entering the UPGRADE CATALOG and DROP CATALOG commands twice: UPGR.

Automate the two step manual process into one recovery operation after missing logs found during RECOVER DATABASE
REPAIR FAILURE command
Transport Data Across Platforms
Steps to recover a table
Describe online redefinition supports

Oracle Data Pump, SQL*Loader and External Tables

Oracle Data Pump enhancements
SQL*Loader enhancements
External table enhancements

In-Memory Column Store

Dynamic parameter in 12.2 : INMEMORY_SIZE
Caches results of frequently evaluated expressions and virtual columns for subsequent reuse
Optimizing joined columns by creating join groups
Interaction with other products, features

SQL Tuning

SQL Performance Analyzer enhancements
SQL Plan Management enhancements
Statistics Gathering Performance Improvements: Optimizer Statistics Advisor
SQL Performance Analyzer (SPA) enhancements to make it resilient to certain workloads which can cause divergence
New ways of SQL processing
Continuous Adaptive Query Plans

Resource Manager and Other Performance Enhancements

Manage session PGA limit
Reduce Cursor Invalidations for DDLs
Describe the Advanced Index Compression (HIGH)
Define real-time materialized views with on query computation
Use ON STATEMENT refresh when a DML operation takes place on materialized views without the need to commit the transaction
Describe HCC data compression with ADO row-level policy

Partitioning

Explain auto-list partitioning
Composite partitioning
Explain multicolumn list partitioning
Read-only partition
Defer subpartition segment creation
Filter data during partition maintenance operations

Manageability

Start / stop a DBOP by specifying the Session ID and Serial#

Diagnosability

Set a retention target to ADR for an automatic delete of ADR files
Use the retention advisor
Install TFA Collector by default for RDBMS (with RDBMS root scripts)
Start TFA Collector
Allow Data Pump tracing to be changed without stopping and then restarting the job
MV refresh statistics

Oracle Database Cloud Services

Describe the Oracle Database Cloud Services console

Create a database deployment under 12.2

Database deployment backup and recovery automatic procedures

Differences between database deployments and on-premises databases

Migrate on-premises database to Oracle Database Public Cloud Services

SQL Enhancements

Describe the new SQLcl utility

Use new 128 bytes length for database objects

Recall SQL*Plus commands in the same session from memory

Use the new VALIDATE_CONVERSION function