

Oracle Database 12c R1: New Features for Administrators Ed 2

Duration: 5 Days

What you will learn

In the Oracle Database 12c: New Features for Administrators Ed 2 course, you'll learn about the new and enhanced features and options of Oracle Database 12c. Expert instructors will teach you how these features and options increase security, manageability and performance. In this course, you will be introduced to Oracle Database Cloud Service.

Learn To:

Manage the Oracle multitenant container databases and pluggable databases.

Configure Heat Map and use Automatic Data Optimization.

Benefit from Online Datafile Move.

Understand the new Temporal capabilities as well as In-Database Archiving with Row-archival.

Enforce security with the Unified Auditing, the new administrative privileges, Privilege Analysis, and Data Redaction.

Increase SQL performance with the Database In-Memory option, and Full Database In-Memory Caching and the Automatic Big Table Caching features.

Benefit from optimizer enhancements such as Adaptive Execution Plans and SQL Plan Directives, Real-Time ADDM and Compare Period ADDM.

Use enhanced features of Resource Manager in multitenant container databases and pluggable databases.

Understand how and when to use enhancements in Data Pump, partitioning, and SQL.

Gain an understanding of the Oracle Database Cloud Service

Benefits to You

Ensure fast, reliable, secure and easy to manage performance. Optimize database workloads, lower IT costs and deliver a higher quality of service by enabling consolidation onto database clouds.

Hands-on Practices and Demonstrations

Hands-on practices and available demonstrations help you learn how to use these new or enhanced features of Oracle

Database 12c. You'll explore using Oracle Enterprise Manager Cloud Control and other tools like Oracle Enterprise

Manager Database Express SQL Developer to manage, monitor and administer your data center. You will also learn about performance new features of the first patchset of Oracle Database 12c: Full Database In-Memory Caching, the In-Memory Column Store which is one of the most important features of the 12.1 first patchset, and Automatic Big Table Caching.

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Audience

Administrator
Database Administrators
System Administrator

Related Training

Required Prerequisites
Good knowledge of Oracle Database 11g
Suggested Prerequisites
Oracle Database 12c: Install and Upgrade Workshop
Using Oracle Enterprise Manager Cloud Control 12c Ed 2

Course Objectives

Explore new Oracle Data Pump features and SQL*Loader Express Mode
Create, manage and monitor multitenant container databases and pluggable databases and their resources consumption with Resource Manager
Manage datafile online operations, heat map and automatic data optimization, archive data using Row-archival or Temporal Validity and Temporal History
Manage security by using the new unified auditing, the new privileges, such as SYSBACKUP, the privilege analysis, and by creating and managing Data Redaction policies
Use the Recovery Manager enhancements
Manage the database performance with monitoring DB operations, Real-Time ADDM and Compare Period ADDM
Understand the new in-memory capabilities of the Database In-Memory, Full Database In-Memory Caching, and Automatic Big Table Caching
Tune the SQL performance using Adaptive Execution Plans, SQL Plan Directives and statistics enhancements
Use online operations during partition movement and compression, and other DDL operations
Use partial global partitioned indexes
Explain new SQL enhancements such as extended data type column and SQL row limiting clause
Gain an understanding of the Oracle Database Cloud Service

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Course Topics

Enterprise Manager and Other Tools

Enterprise Manager (EM) Cloud Control home page

Enterprise Manager Express home page versus Enterprise Manager Database Control

SQL Developer with new functionalities

OUI, DBCA

Basics of Multitenant Container Database (CDB)

Benefits of the multitenant architecture

Differences between the root container and pluggable database containers

Structure of the root

Structure of Pluggable Database (PDB)

CDB_xxx and DBA_xxx views

Impacts in Security, Data Guard, Oracle GoldenGate, Oracle Streams, XStream, and Scheduler

Configuring and Creating CDB and PDBs

Tools: DBCA and SQL*Plus

Configuration and creation of CDB

Exploring the Structure (CDB_xxx views and EM)

Tools used: SQL Developer, DBCA and SQL*Plus and EM Database Express

Create a new PDB from PDB\$SEED

Create a PDB from a non-CDB

Clone a PDB into the same CDB or into another CDB using DB links

Plug in an unplugged PDB

Managing CDB and PDBs

Connect to CDB as administrator

Connect to a PDB using a service name

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Start up a CDB

Open / Close a PDB (SQL*Plus, srvctl, EM)

Open / Close all PDBs

Shut down a CDB

Preserve or discard the PDBs open mode when the CDB restarts

Change PDB state

Managing Tablespaces, Common and Local Users, Privileges and Roles

Create permanent tablespaces in the root and PDBs

Manage common and local schemas and users in the root and PDBs

Manage system and object privileges to common and local grantees granted "commonly" or "locally"

Manage common and local roles granted "commonly" or "locally"

Managing Backup / Recovery / Flashback

Backup a whole CDB

Backup a PDB

Recover CDB from redo log files, control files, undo datafiles loss

Recover PDB from PDB datafiles loss

Flashback at CDB level

Explain the two methods of migration

Online Datafile Move and Automatic Data Optimization

Data classification in 12c: tablespace, group, object, row levels

Configure heat map

Automatic movement and compression

Compression levels and types

Policy declaration: simple declarative SQL extension

Customized automated action execution with user-defined function

Execution in scheduled maintenance windows and by MMON

Customized schedule with DBMS_ILM package

In-Database Archiving

Challenges of old data in tables and 11g solutions

In-database archiving new solutions

Use ROW ARCHIVAL clause to enable row lifecycle state for applications

Set ROW ARCHIVAL VISIBILITY for session level visibility control

Use predicate on ORA_ARCHIVE_STATE column

Temporal Validity versus Temporal History (Transaction Time of FDA)

New clause of CREATE / ALTER TABLE to set a Temporal Validity: PERIOD FOR

New SQL temporal data type

Auditing Enhancements

Review of 11g R2 audit trail implementation

Overview of the Unified Audit Trail

Enabling the Unified Audit Trail

Creating a separate tablespace for the unified audit trail

Granting the AUDIT_ADMIN role to a user for audit trail configuration and management

Configuring the Unified Audit Trail to set a tolerance level for loss of audit records

Creating audit policies

Privileges Enhancements

Implementing Separation of Duty for Database Administration Tasks

Using Database Privilege Analysis

Overview of Database Privilege Analysis

Granting the CAPTURE_ADMIN role to enable management of privilege captures

Creating and starting/stopping privilege captures

Viewing privilege profile data

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Querying DBA_PRIV_CAPTURES

Explaining the purpose of the default ORA\$DEPENDENCY profile

Oracle Data Redaction

Overview of Oracle Data Redaction

Types of Masking Policies

Administering the EXEMPT REDACTION POLICY system privilege to enable a user to view unmasked values

Managing Masking Policies

Best practices for defining policy expressions

Understanding Masking of Statements Containing Subqueries

Viewing Information About Masking Policies by Querying REDACTION_POLICIES and REDACTION_COLUMNS

General RMAN New Features and FDA Enhancements

Making Database Connections With RMAN

Using the SYSBACKUP Privilege

Using SQL, DESCRIBE Command, Duplication Operation with the NOOPEN option

Backing up and Restoring Very Large Files

Creating Multisection Backups

Transporting Data Across Platforms

Prerequisites and Limitations

Transporting Data: Processing steps

Monitoring DB Operations

Overview

Use cases

Current Tools

Define a DB operation

Monitoring: Bracketing an Operation

Monitoring the Progress of Operations

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DB Operation Tuning

DB Operation Active Report

Real-Time ADDM and Compare Period Advisor

Emergency Monitoring

Real time ADDM

Use cases

Goals

Define Workload dimensions

Reported items

Root Causes

Requirements for a report

ADR and Network Enhancements

ADR file types

New File types

New File locations

New command for ADRCI

Improve performance by Compression

Setup Compression

In-Memory Column Store

In-Memory Database option goals and benefits

Row format and columnar format

New SGA component:

IMCU synchronization

Deployment and behaviors

Compression ratio

New dictionary tables and added columns

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New statistics: IM %

In-Memory Caching

Setting up Full Database In-Memory Caching

Using Full Database In-Memory Caching

Explaining the two buffer replacement algorithms of Automatic Big Table Caching

Configuring Automatic Big Table Caching with PARALLEL_DEGREE_POLICY and

DB_BIG_TABLE_CACHE_PERCENT_TARGET initialization parameters

Using Automatic Big Table Caching

SQL Tuning

Adaptive Execution Plans

SQL Plan Directives

Statistics Gathering Performance Improvements

Histogram Enhancements

Enhancements to Extended Statistics

Adaptive SQL Plan Management

Resource Manager and Other Performance Enhancements

Manage resources between PDBs

Manage resources within a PDB

Manage resources with CDB and PDBs plans

Manage runaway queries

Control the in-memory database repopulation resource consumption

Automated maintenance tasks

Current Architecture: Unix multiprocess / one thread, NT/Windows one process / multithread

New Architecture: Multiprocess / MultiThread

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Index and Table Enhancements

Multiple indexes on the same set of columns as long as some characteristic is different

Create table with INVISIBLE columns

Support for invisible columns

Describe online redefinition supports

Explain LOCK timeout during FINISH_REDEF_TABLE

Describe the Advanced Row Compression

Using the following DDL statements in an online manner

Oracle Database Cloud Service: Overview

Database as a Service Architecture & Features and Tooling

Software Editions: Included Database Options and Management Packs

Automated Database Provisioning

Managing the Compute Node Associated with a Database Deployment

Backing Up and Recovering Databases on Database as a Service

Performing Recovery by Using the Service Console

Patching Database as a Service

Using the Oracle Database Cloud Service Console to Manage Patches