ORADB_MMA - Oracle Database 12c/19c/23ai: Managing Multitenant Architecture

Oracle - Oracle DBA - Sistemistica

Durata:	Lingue:	Certificazione:
3 Giorni	**Italiano**	**-**

Descrizione del corso

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.

Programma

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
- 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
- Start up a CDB
- Open / Close a PDB (SQL*Plus, srvctl, EM)
- Open / Close all PDBs
- Shut down a CDB
- Triggers ON PLUGGABLE DATABASE
- 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 and Migration

- 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

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
- Querying DBA_PRIV_CAPTURES
- Using mandatory INHERIT PRIVILEGES privilege to execute invoker's rights procedure

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
- DB Operation Tuning
- DB Operation Active Report

Schema and Data Changes

- Explain the Schema Change Plan flow
- Change requests
- Schema synchronization
- Explain the Data Comparison flow
- DBMS_COMPARISON package
- Guidelines and steps
- Comparison job and results

SQL Tuning

- Adaptive Execution Plans
- SQL Plan Directives
- Statistics Gathering Performance Improvements
- Histogram Enhancements
- Enhancements to Extended Statistics
- Adaptive SQL Plan Management

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

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
- Automated maintenance tasks
- Describe the Multi-process Multi-threaded Oracle architecture
- Learn how to use this architecture in Oracle 12c Database
- Demonstrate the changes to shutdown procedures

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
- Advanced Row Compression
- Describe online redefinition supports
- Explain LOCK timeout during FINISH_REDEF_TABLE
- Using DDL statements in an online manner

ADR and Network Enhancements

- ADR file types
- New File types
- New File locations
- New commands for ADRCI
- Improve performance by Compression
- Setup Compression

Oracle Data Pump, SQL*Loader, External Tables and Online Operations Enhancements

- Use FULL Transportable export and import
- Oracle Data Pump enhancements

- SQL*Loader enhancements
- SQL*Loader and External table common enhancements
- SQL*Loader Express Mode usage

Partitioning Enhancements

- Move a partition online
- ALTER TABLE … SPLIT PARTITION, ALTER TABLE … MERGE PARTITION , ALTER TABLE...ADD PARTITION Clauses: Overview
- Split Partition Operation Enhancement
- ALTER TABLE SPLIT SUBPARTITION
- Merge Partition Operation
- Add Partition Operation
- Drop Partition Operation
- ALTER TABLE DROP SUBPARTITION

SQL Enhancements

- Enumerate Increase in the length limits for VARCHAR2, NVARCHAR2, and RAW data types in Oracle SQL to 32767 (32k) byte
- Enumerate miscellaneous enhancements
- Using SQL Row limiting clause in a query