

Oracle Database 23ai: New Features for Administrators

Duration: 3 Days

Course Outlines:

1 Oracle AI Vector Search

- Objectives
- Oracle AI Vector Search Benefits
- Benefits of Oracle AI Vector Search
- VECTOR Data Type
- Examples
- The Complete Workflow
- Vector Embeddings
- Vector Embedding Models
- Import Embedding Models
- Basic Queries and Similarity Search
- Basic Queries
- Basic Queries: Comparison Operations
- Similarity Search
- Exact Similarity Search
- Vector Distance Metrics
- Vector Distance Metric Example: Exact Similarity Search
- Euclidean Metric
- Euclidean Squared Distance Metric Example
- Approximate Similarity Search
- Approximate Similarity Search or Exact Similarity Search?
- Approximate Similarity Search
- Approximate Similarity Search: HNSW
- Approximate Similarity Search: IVF

2 True Cache

- Objectives
- About True Cache
- True Cache Benefits
- True Cache: High-Level View
- True Cache: Good to Know
- True Cache Application Usage
- Concurrency Control
- Configuring and Deploying True Cache
- Configuring True Cache Overview
- Uniform Configuration
- Partition Configuration COLOCATION_TAG
- Partition Configuration Multiple Services
- True Cache Configuration Process Overview
- True Cache Best Practices
- Best Practices for Maximum Availability Architecture (MAA)
- Configuring and Deploying True Cache: With DBCA
- DBCA Prerequisites
- Configuring True Cache with DBCA
- Configuring True Cache Database Application Services
- Configuring and Deploying True Cache: Manually
- Manually Configuring True Cache: Prerequisites
- Manually Configuring True Cache: Simplified Steps

- Configuring Oracle True Cache: tnsnames.ora
- Configuring Oracle True Cache: tnanames.ora
- Configuring Oracle True Cache: Local Listener
- Configuring Oracle True Cache: Password File
- Configuring Oracle True Cache: Prepare PFILE
- Configuring Oracle True Cache: Initial True Cache Startup
- Configuring Oracle True Cache: Create True Cache Database Instance
- Configuring and Deploying True Cache: Application Services
- Configuring True Cache Database Application Services
- Creating Database Application Services on the Primary Database
- Verifying Database Application Services Are Created
- Starting Corresponding Database Application Services
- Configuring and Deploying True Cache: RAC Primary Database
- Deploying True Cache for an Oracle RAC Primary Database
- Configuring and Deploying True Cache: Verify Configuration
- Configuring Oracle True Cache: Verify Status
- Configuring Oracle True Cache: Verify Listener
- Configuring Oracle True Cache: Verify Application Services
- Configuring and Deploying True Cache: Enable DML Redirection
- Configuring Oracle True Cache: Enable DML Redirection
- Configuring and Deploying True Cache: Deploy in Containers
- Deploying True Cache in Containers
- Managing True Cache: Shutdown and Start
- Shutting Down and Starting True Cache
- Managing True Cache: Deleting True Cache
- Deleting True Cache: DBCA
- Deleting True Cache: Manually
- Monitoring True Cache
- Monitoring True Cache: V\$TRUE_CACHE View
- Monitoring True Cache: V\$TRUE_CACHE View Columns
- Monitoring True Cache: Automatic Workload Repository
- Using Oracle True Cache in Your Applications
- True Cache Application: JDBC
- Best Practices for Load Balancing in a Uniform Configuration
- Complementary Caching Features
- Test Application

3 Sharding New Features

- Objectives
- Database Sharding
- Oracle Database Sharding
- Oracle Database 23ai Sharding New Features
- Sharding Native Replication (RAFT-Based)
- Directory-Based Sharding
- Coordinated Backup and Restore for Sharded Databases
- Centralized Backup Recovery
- Automatic Bulk Data Move on Sharding Key Update
- Split/Move of a Partitionset with Bulk Data Movement

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COURSE OUTLINE

4 Automatic SQL Plan Management

- Objectives
- Automatic SQL Plan Management: Overview
- SPM Evolve Advisor
- Benefits
- Problems It Solves
- When to Use
- How to Use It

5 Automatic Transaction Rollback

- Objectives
- Overview
- Using Automatic Transaction Rollback
- Automatic Transaction Rollback
- Using Automatic Transaction Rollback
- Monitoring
- Benefits

6 Automatic Transaction Quarantine

- Objectives
- Overview
- Automatic Transaction Quarantine: Workflow
- Monitoring Quarantined Transactions
- Resolving Quarantined Transactions
- Resolving Quarantined Transactions Examples
- Dropping Quarantined Transactions
- Quarantined Transaction Escalation

7 Flashback Log Placement

- Objectives
- Flashback Log Overview
- Flashback Log Parameters
- Flashback Log Management

8 Simplified Database Migration Across Platforms Using RMAN Backups

- Objectives
- Overview
- Methods of Transporting with Recovery Catalog
- Methods of Transporting in NOCATALOG Mode
- Methods of Transporting Over Network Link
- Prerequisites Generic
- Prerequisites Specific
- Recovery Catalog Methods for PDBs
- Quickly Transport a PDB with Recovery Catalog
- Transport a PDB by Using a Pre-existing Backup with Recovery Catalog
- Transport a PDB Using Multiple Incremental Backups with Recovery Catalog
- Recovery Catalog Methods for Tablespaces
- Quickly Transport a Tablespace with Recovery Catalog
- Transport a Tablespace by Using a Pre-existing Backup with Recovery Catalog

- Transport a Tablespace Using Multiple Incremental Backups with Recovery Catalog
- Methods of Transporting in NOCATALOG Mode
- NOCATALOG Mode for PDBs
- Quickly Transport a PDB NOCATLOG
- Transport a PDB Using a Pre-existing Backup NOCATLOG
- Transport a PDB Using Multiple Incremental Backups NOCATLOG
- NOCATALOG Mode for Tablespaces
- Quickly Transport a Tablespace NOCATALOG
- Transport a Tablespace by Using a Pre-existing Backup NOCATALOG
- Transport a Tablespace Using Multiple Incremental Backups NOCATALOG
- Methods of Transporting Over Network Link
- Transporting PDBs Over Network Link
- Quickly Transport a PDB Over Network Link
- Transporting PDBs by Restoring Backups Incrementally Over the Network
- Transporting Tablespaces Over Network Link
- Quickly Transport a Tablespace Over Network Link
- Transporting Tablespaces by Restoring Backups Incrementally Over the Network

9 Lock-Free Reservations

- Objectives
- Optimistic vs Lock Free
- Optimistic Approach
- Lock-Free Approach
- Frequently Modified Values
- Lock-Free Reservations
- Lock-Free Reservation Features
- Lock-Free Reservation Benefits
- Functionality Requirements
- Create, Modify, Delete
- Lock-Free Journal Table
- Journal Table Restrictions
- Views

10 Wide Columns

- Objectives
- Prior Challenges
- Benefits
- Increase Column Limits
- Performance

11 Improved Performance Hybrid Columnar Compression (HCC)

- Objectives
- HCC Pre 23ai
- HCC in 23ai
- Database Compatibility
- Performance

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COURSE OUTLINE

12 Unrestricted Parallel DMLs

- Objectives
- Overview Parallel DML
- 23ai Parallel DML Improvements
- Benefits

13 Unrestricted Direct Loads

- Objectives
- Direct Loads Pre 23ai
- Direct Loads 23ai
- Benefits

14 Accelerate SecureFiles LOB Write Performance

- Objectives
- Overview
- Benefits

15 Fast Inserts Enhancements

- Objectives
- Fast Ingest Overview (aka Deferred Inserts)
- Fast Ingest Overview
- Using Fast Ingest
- Enhancements
- Benefits
- Management

16 Blockchain Tables

- Objectives
- Blockchain Table Overview
- Blockchain Table Row Versions
- Blockchain Table User Chains
- Blockchain Table Delegate Signer
- Blockchain Table Countersignature

17 Security New Features

- Objectives
- Database Security
- Pluggable Database Hybrid Read-Only Mode
- Read-Only User and Session
- New Developer Role
- Simplified Schema Privileges
- Simplified Schema Privileges: Example
- Audit Object Actions at the Column Level
- Ability to Control Authorizations for Unified Auditing with Database Vault
- Integration of Microsoft Azure Active Directory with Additional Oracle Database Environments

18 Data Storage Improvements

- Objectives
- SecureFiles
- Traditional SecureFiles Shrinking
- Automatic SecureFiles Shrinking: Advantages
- High-Level View
- Controlling Automatic SecureFiles Shrink
- Automatic Storage Compression
- Automatic Storage Compression and Automatic Clustering
- Automatic Storage Compression: Advantages
- Controlling Automatic Storage Compression

19 Time and Date Handling Changes

- Objectives
- Enhanced Time Zone Data Upgrade
- Time Zone Definitions Change: Considerations
- Optimizing Time Zone File Upgrade
- Benefits of Enhanced Time Zone Update
- Tables with TIMESTAMP WITH TIME ZONE Data
- New Parameter in the init.ora File
- Configuring Database Parameters
- SYSDATE and SYSTIMESTAMP
- Date and Time in Oracle Databases
- Database Time Versus OS System Time
- Database-Specific Time in Oracle Database 23ai
- Setting Database-Specific Time: Example

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