Oracle Database 12c and 18c New Features for 11gR2 Administrators

Duration: 5 Days **Course Code: O18CNF** **Delivery Method: Virtual Learning**

Overview:

Course Overview

English - Please note this course is only available in English.
Nederlands - Let op: deze training is alleen in het Engels beschikbaar.
Français - Veuillez noter que ce cours est uniquement disponible en anglais.
This Oracle Database 12c and 18c New Features for 11gR2 Administrators course is designed to give Oracle 11gR2 Database Administrators practical experience in using the new features that have been introduced in Oracle Database 12cR1,12cR2 and 18c.
The delegate will gain an appreciation of how the enhanced features of Oracle Database 12cR1,12cR2 and 18c may be implemented at their own site.
Note: The focus of this course is on the general new features that have been introduced in Oracle Database 12cR1,12cR2 and 18c. The course covers an overview only of container and pluggable databases. The Oracle 12c Container and Pluggable Database Administration course covers the new 12c Multitenant Architecture features in detail.
Exercises and examples are used throughout the course to give practical hands-on experience with the techniques covered.

Virtual Learning

This interactive training can be taken from any location, your office or home and is delivered by a trainer. This training does not have any delegates in the class with the instructor, since all delegates are virtually connected. Virtual delegates do not travel to this course, Global Knowledge will send you all the information needed before the start of the course and you can test the logins.

Target Audience:

Who will the Course Benefit?

This Oracle Database 12c and 18c New Features for 11gR2 Administrators course is designed for Oracle professionals who need to gain an understanding of and implement the new non Multitenant Architecture features and functionality introduced in Oracle Database 12cR1,12cR2 and 18c.

Objectives:

- Course Objectives
- The course aims to provide the delegate with the knowledge to be able to implement new features introduced in Oracle Database 12cR1,12cR2 and 18c.

Prerequisites:

Delegates attending the Oracle Database 12c and 18c New Features for 11gR2 Administrators course should have administration experience of Oracle Database 11.2. Knowledge of using PL/SQL packages is strongly recommended.

This course is run on a Linux operating system,therefore a good working knowledge of Linux/UNIX is required. This knowledge can be gained by attendance on the pre-requisite Linux Introduction course.

Follow-on-Courses:

Further Learning

- Oracle Database 18c Data Guard (O18CDG)
- Oracle 18c Container and Pluggable Database Administration (O18CCPA)

Content:

Oracle Database 12c and 18c New Features for 11gR2 Administrators Training Course Course Contents - DAY 1

Course Introduction

- Administration and Course Materials
- Course Structure and Agenda
- Delegate and Trainer Introductions

Session 1: CHANGES TO DATABASE MANAGEMENT TOOLS

- Enterprise Manager Express Home Page
- SQL Developer new functionality
- Changes to the OUI and the DBCA

Session 2: ORACLE DATABASE 12c AND 18c MULTITENANT ARCHITECTURE

- Overview of the Oracle Database 18c architecture
- An overview of a Container Database (CDB)
- The benefits of Multitenant Architecture
- The root container and Pluggable Database containers
- The structure of the Root Container
- The structure of a Pluggable Database (PDB)
- CDB_xxx and DBA_xxx Views
- Plan an installation
- System requirements and operating system prerequisites
- Install the Oracle Database 18c software with the OUI
- The Oracle Inventory
- Silent mode installation
- Database software de-install

Session 3: INSTALL THE ORACLE 12c OR 18c DATABASE SOFTWARE

- Plan an installation
- System requirements and operating system prerequisites
- Carry out pre-installation checks
- Set environment variables
- Install the Oracle Database software with the Oracle Universal Installer
- Silent mode installation

Session 4: CREATE A DATABASE WITH THE DATABASE CONFIGURATION ASSISTANT (DBCA)

- Select a database storage method
- Select a CDB or non-CDB database
- Create a Database using Silent Mode
- Create a 18c Demonstration Database using Silent Mode
- Create a database with the DBCA
- Read Only Oracle Homes in Oracle

Session 9: ONLINE DATAFILE MOVE AND AUTOMATIC DATA OPTIMIZATION

- Move datafiles online
- Data classification from 12c
- Configure a heat map
- Automatic movement and compression
- Compression levels and types

Session 10: IN DATABASE ARCHIVING

- Enhancements to Flashback Database Archive
- New In-database archiving solutions
- Use the ROW ARCHIVAL clause to enable row lifecycle state for applications
- Set the ROW ARCHIVAL VISIBILITY for session level visibility control
- Use predicate on ORA_ARCHIVE_STATE column
- Set a Temporal Validity: PERIOD FOR with the CREATE or ALTER TABLE clause
- SQL temporal data type

Session 11: ENHANCEMENTS TO DATABASE AUDITING

- Overview of database security
- Overview of database auditing in Oracle Database from 12c
- Security compliance
- Standard auditing
- new unified audit trail overview
- Create a tablespace for the Unified Audit Trail
- Separation of audit responsibilities with the AUDIT_ADMIN and AUDIT_VIEWER roles
- Configure the Unified Audit Trail
- Specify audit options
- Configure the Unified Audit Trail to set a tolerance level for lost of audit records
- Create audit policies for privilege,action and component auditing
- Audit policy enhancements
- Audit by role
- Purge old audit data Oracle Database 12c and 18c New Features for 11gR2 Administrators Training Course Course Contents - DAY 3

Session 12: ENHANCEMENTS TO PRIVILEGES AND PROFILES

- Implement the separation of duties for Database Administration tasks
- Changes to tablespace quotas
- Read object privileges
- New password verification functions
- Administrative user authentication enhancements
- Administrative password security

Session 19: PERFORMANCE TUNING NEW FEATURES

- Overview of performance tuning new features
- The Adaptive Optimizer
- Default values for OPTIMIZER_ADAPTIVE parameters
- Adaptive Query optimization enhancements in 12.2
- Continuous Adaptive Query plans
- The Optimizer Statistics Advisor rules,findings,recommendations and actions
- The Expression Statistics Store
- Enhancements to SQL Plan Management
- SQL Plan Directives
- Dynamic statistics
- Online statistics gathering for bulk loads
- Gather statistics concurrently for multiple tables
- Histogram enhancements
- Enhancements to extended statistics
- Overview of new ADDM Analysis features
- Emergency Monitoring
- Real time ADDM analysis
- Define Workload dimensions
- Enhancements to the SQL Performance Analyzer
- Execution plan capture from AWR
- Automatic Capture files
- The DBMS_SESSION.SLEEP Procedure

Session 20: RESOURCE MANAGER AND OTHER PERFORMANCE ENHANCEMENTS

- Automated maintenance tasks
- The Multithreaded Model using Threaded Execution
- Manage session PGA limit
- Reduce cursor invalidations for DDLs
- Advanced Index compression
- HCC data compression with an ADO Row-level policy Oracle Database 12c and 18c New Features for 11gR2 Administrators Training Course Course Contents - DAY 5

SESSION 21: ADR NEW FILE TYPES AND NETWORK COMPRESSION

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

SESSION 22: DATA PUMP AND SQL*LOADER ENHANCEMENTS

- Data Pump enhancements

Database 18c

Session 5: PREPARATION FOR UPGRADE TO ORACLE DATABASE 12c or 18c

- Methods used to perform upgrade
- Methods of data migration
- Direct upgrade supported releases
- The Database Upgrade Assistant(dbua)
- Upgrade process overview
- Rolling upgrade
- Create an upgrade test plan
- Carry out performance testing
- Run the Pre-Upgrade Information tool
- The ORAchk Utility
- Backup the database
- Install the Oracle Database 12cR2 software
- Create the new Oracle home

Session 6: PERFORM AN UPGRADE TO ORACLE DATABASE 12c or 18c

- The manual upgrade of an Oracle 11gR2 or 12c database
- Execute preupgrade.jar
- Upgrade a database with the Database Upgrade Assistant (DBUA)
- Post Upgrade Checks
- Deprecated database features and parameters
- Common installation errors
- Check the /etc/oratab file
- Check the database version
- Enterprise Manager Express configuration
- Carry out post upgrade tasks after a manual upgrade
- Migrate to unified auditing

Session 7: MIGRATE DATA WITH DATA PUMP

- Migrate data with Data Pump
- Transport a database
- Import data using a Data Pump network link

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Course Contents - DAY 2

Session 8: NEW TABLESPACES AND MANAGEMENT FEATURES

- Data storage overview
- Online rename and relocation of an active datafile
- Restrict PGA size
- Implement extended data types for VARCHAR2,NVARCHAR2 and RAW data types to 32767 bytes
- Temporary UNDO
- DDL Logging
- Private Temporary Tables

enhancements

- Schema Only Accounts
- Automatically lock inactive accounts
- Control definer's rights privileges for database links
- Database privilege analysis with Database Capture
- Grant the CAPTURE_ADMIN role to enable management of privilege captures
- Create,start and stop privilege captures
- Viewing privilege profile data
- Query the DBA_PRIV_CAPTURES view
- The default ORA$DEPENDENCY profile
- Execute the Invokers Rights privilege with the Inherit Privilege

Session 13: DATA REDACTION

- Overview of Oracle Data Redaction
- Types of data masking policies
- Administer the EXEMPT REDACTION POLICY system privilege to enable a user to view unmasked values
- Manage masking policies
- Understanding the masking of statements containing nested functions and subqueries
- Grant Data Redaction privileges to a user
- NULL as a redacted value
- Named policy expressions
- Miscellaneous Data Redaction enhancements
- Query the data dictionary to obtain information on masking policies

Session 14: DATA ENCRYPTION ENHANCEMENTS

- Transparent Data Encryption
- Create and open a Keystore
- Start a CDB and PDBs with a Keystore
- Table encryption
- Tablespace encryption
- Encrypt SYSTEM,SYSAUX and temporary tablespaces
- The ALTER TABLESPACE ENCRYPTION FINISH Clause
- Considerations when deciding to use online tablespace encryption

Session 15: TRANSPARENT SENSITIVE DATA PROTECTION

- New security features support for TSDP
- TSPD with Unified Auditing
- TSPD with Fine-Grained Auditing
- TSPD with TDE Column Encryption
- Auditing parameters used with TSDP policies
- TSDP data dictionary views

Session 16: NEW RMAN FEATURES

- The SYSBACKUP privilege
- Execute SQL statements in RMAN
- Turn off redo log generation
- Transport view as table
- Dumpfile compression
- Password encryption enhancements
- Use FULL Transportable export and import
- SQL*Loader enhancements
- SQL*Loader and External table common enhancements
- SQL*Loader Express
- External Table Enhancements

SESSION 23: PARTITIONING ENHANCEMENTS

- Move a partition online
- An overview of the ALTER TABLE ? SPLIT PARTITION,ALTER TABLE ? MERGE PARTITION,ALTER TABLE?ADD PARTITION clauses
- The split partition operation enhancement
- The merge partition operation
- The Add and drop partition operations
- New Oracle 12.2 partitioning strategies
- Automatic List Partitioning
- Multiple Column List Partitioning
- Multiple Column with Automatic List Partitioning
- Interval sub-partitioning
- Filter data during partition maintenance operations
- Convert a non-partitioned table to a partitioned table
- Read only partitions
- Defer segment creation for sub-partitioning

SESSION 24: DATABASE DIAGNOSTIC NEW FEATURES

- ADR New Features
- Set an ADR retention target
- The Retention Advisor
- The TFA Collector
- Install the TFA Collector
- Manage the TFA daemon
- Start and stop the TFA Collector
- Dynamic Data Pump tracing

SESSION 25: IN-MEMORY COLUMN STORE AND OTHER DATA CACHING FEATURES

- Full Database Caching Mode
- Smart Flash Cache Using Multiple Devices
- Automatic Big Table Caching
- The INMEMORY Column Store

SESSION 26: MONITORING DATABASE OPERATIONS

- Overview of DB monitoring operations
- Define a DB operation
- Bracketing an operation
- Monitoring the progress of operations
- DB Operation tuning
- DB Operation Active report

- Use the RMAN DESCRIBE Command
- RMAN syntax enhancements
- Enhanced table point in time recovery
- The enhanced REPAIR FAILURE command
- Create multi-section backups
- Table or partition recovery
- Restore and recover datafiles across the network
- Run the duplicate database operation with the NOOPEN option
- Backup and restore very large files
- Cross platform backup and restore
- Recover a database after missing redo logs found
- Duplicate a database using TDE
- RMAN duplication of TDE tablespaces
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Session 17: SCHEMA AND DATA CHANGES

- Create identity columns
- Create a table with invisible columns
- Set default values for table columns
- Truncate table cascade
- Session level sequences
- Create multiple indexes on the same set of columns
- Advanced Row Compression
- Cancel a SQL Statement in a Session
- The Schema Change Plan flow
- Change requests
- Schema synchronization
- The Data Comparison package
- Comparison job results

Session 18: SQL AND PL/SQL ENHANCEMENTS

- SQL*Plus Enhancements
- Last login time
- The login.sql file
- SQL*Plus command line history
- SQL*Plus performance settings options
- The SQLcl command line interface
- Longer object names
- Markup CSV
- Row limiting for Top-N result Queries
- The APPROX_COUNT_DISTINCT function
- Approximate query processing
- Conversion function enhancements
- PL/SQL Enhancements
- Implicit results on SQL*Plus
- WITH clause enhancements
- Real Time Materialized View enhancements
- PL/SQL Scope enhancements
- The deprecate pragma for PL/SQL
- Code coverage using DBMS_PLSQL_CODE_COVERAGE
- Package White Lists

Further Information:

For More information, or to book your course, please call us on 0800/84.009

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