Oracle Database 12cR2,18c and 19c New Features for Administrators

Duration: 5 Days **Course Code: ONF**

Overview:

Oracle Database 12cR2,18c and 19c New Features for Administrators 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 12cR2,18c and 19c New Features for Administrators course is designed to give O

Target Audience:

Who will the Course Benefit?

This Oracle Database 12cR2,18c and 19c New Features for 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 12cR2,18c and 19c into their databases where appropriate.

Objectives:

- Course Objectives
- The course aims to provide the delegate with the knowledge to be able to implement new features introduced in Oracle Database 12cR2,18c and 19c.

Prerequisites:

Delegates attending the Oracle Database 12cR2,18c and 19c New Features for Administrators course should have administration experience of Oracle Database 12.1. 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 19c Data Guard
- Oracle Database 19c RAC and Grid Infrastructure Administration

Content:

Oracle Database 12cR2,18c and 19c New Features for Administrators Training Course Course Contents - DAY 1

Course Introduction

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

Session 1: ORACLE DATABASE MULTITENANT ARCHITECTURE OVERVIEW

- Overview of the Oracle Database 19c 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

Session 2: PREPARE THE SERVER FOR ORACLE DATABASE SOFTWARE INSTALLATION

- Plan an installation
- System requirements and Operating System Prerequisites
- Optimal Flexible Architecture
- Software Pre-installation Tasks
- Carry out Pre-installation Checks
- Set Environment Variables
- Set Permissions to run root Configuration Scripts Automatically

Session 3: INSTALL THE ORACLE DATABASE SOFTWARE

- Interactive Oracle 19c Database Software Installation with the OUI
- The Oracle Inventory
- Silent mode installation
- Create a Response File
- Install with a Response File
- Oracle Database 19c RPM Installation
- 19c Image Based Client Installation
- 19c Automated Installation,Configuration and Patching
- Database Software De-installation

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

- Select a CDB or non-CDB database
- Create a Database with the DBCA
- Create a Database using Silent Mode
- Create a Database using a Response File with DBCA Silent Mode

Session 9: ENHANCEMENTS TO SECURITY PRIVILEGES AND PROFILES

- SYSRAC Administrative Privilege for RAC and Grid Infrastructure
- Administrative User Authentication Enhancements
- The READ Object Privilege
- Automatically Lock Inactive accounts
- Administrative Password Security Enhancements
- Schema Only Accounts from 18c
- Enhanced Security with Password Removal from Schema Only Accounts from 19c
- Grant Administrative Privileges to Schema Only Accounts
- 19c Privilege Analysis Available with an Enterprise Edition License
- 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 Oracle Database 12cR2,18c and 19c New Features for Administrators Training Course Course Contents - DAY 3

Session 10: NEW RMAN FEATURES

- Change to the Usage of the SYSBACKUP Privilege
- RMAN Syntax Enhancements
- Execute SQL Statements in RMAN
- Use the RMAN DESCRIBE Command
- The Enhanced SET NEWNAME Command
- Improvements to the Backup and Restore of Very Large Files
- Enhanced Table Point in Time Recovery
- The Enhanced REPAIR FAILURE Command
- Table or Partition Recovery Enhancements
- Recover a Database after Missing Redo Logs Found
- Run the DUPLICATE Operation with the NOOPEN Option
- Simplified Cross Platform Migration

Session 11: MISCELLANEOUS NEW FEATURES

- Automatic Memory Management Restrictions
- Overview of Temporary UNDO
- The Online Rename and Relocation of an

SESSION 19: DATABASE DIAGNOSTIC NEW FEATURES

- Automatic Diagnostic Repository (ADR) New Features
- Long Date Formats in the alert.log
- ADR New File Types and Locations
- The DDL and Debug Logs
- The ADRCI SHOW LOG Command
- Set an ADR Retention Target from 12.2
- The UNDO Retention Advisor
- The Trace File Analyzer (TFA) Collector
- Overview of the TFA
- Install the TFA Collector Prior to 19c
- Post Install of the TFA Collector Prior to 19c
- Download the Latest Version of the TFA for 19c
- Install the TFA Collector in 19c
- Automatic Startup of the TFA from the TFA Installation
- Manage the TFA daemon
- tfactl Help
- Start and stop the TFA Collector
- One Command Service Request Data Collections
- Quick System and Cluster Summary Reports
- Create a Database Operation
- Quarantined Objects

Session 20: TRANSPARENT SENSITIVE DATA ENCRTPTION (TDE) ENHANCEMENTS

- Overview of New Security Features Support for TDE
- Create,Open and Manage a Keystore
- Table Encryption Enhancements
- Encrypt and Decrypt a Tablespace Online
- Encrypt SYSTEM,SYSAUX and Temporary Tablespaces
- Duplicate a Database that uses TDE
- TSDP Policies for Unified Auditing
- TSDP with Fine-Grained Auditing
- TSDP with TDE Column Encryption
- TDE Column Encryption Encrypt Clause Settings used with TSDP Policies
- TSDP Data Dictionary Views

Session 21: DATA GUARD NEW FEATURES

- Use the DBCA to Create Standby Databases
- Automatic Password File Management
- Synchronous Redo Transport Enhancements
- Simple Repair of NOLOGGING Operations
- Shadow Lost Write Protection
- Perform Data File Block Comparison Between the Primary and a Standby
- Network Based Standby Database Recovery

- Create a Duplicate Database with DBCA Silent Mode from 19c
- Create a 19c Demonstration Database using Silent Mode
- Post Database Creation Tasks
- Delete a database with the DBCA Silent Mode
- Configure Read Only Oracle Homes in Oracle Database 18c/19c

Session 5: PREPARATION FOR UPGRADE TO ORACLE DATABASE

- Upgrade Process Overview
- Direct Upgrade Supported Releases
- Methods used to Perform Indirect Upgrades
- 19c Simplified Upgrade with Autoupgrade
- The Database Upgrade Assistant(dbua)
- Manual Upgrade
- Methods of Data Migration
- Rolling upgrade for Grid Infrastructure
- Create an Upgrade Test Plan
- Carry out Performance Testing
- Run the Pre-Upgrade Information Tool
- Carry out the Recommended Actions
- Check for Compatibility Issues
- Pre-configuration of the ORAchk Utility with Default Values
- Backup the database
- Create the New Oracle Home
- Install the Oracle Database Software
- Oracle 19c Upgrade of Expired Password Accounts

Session 6: PERFORM AN UPGRADE

- The Manual Upgrade of a Database to 19c
- Execute preupgrade.jar
- Upgrade a Database with the Database Upgrade Assistant (DBUA)
- Run the DBUA in Silent Mode
- Use the Oracle Database Autoupgrade Utility
- Post Upgrade Checks
- Manually Start a Failed Upgrade
- Common Installation Errors
- Carry out Post Upgrade Checks
- Check the /etc/oratab File
- Check the Database Version
- Run OPatch Commands
- Enterprise Manager Express Configuration
- Carry Out Post Upgrade Tasks
- Migrate to Unified Auditing
- Deprecated and Desupported Database Parameters
- Plug a Non-Container Database into a 19c Container Database Oracle Database 12cR2,18c and 19c New Features for Administrators Training Course Course Contents - DAY 2

Session 7: MIGRATE DATA WITH DATA PUMP

- Migrate data with Data Pump Active Data File
- Cancel a SQL Statement in a Session
- Online Redefinition Enhancements from 18c
- Use Private Temporary Tables from 18c
- Miscellaneous Data Masking Enhancements
- Overview of Oracle Data Redaction
- Miscellaneous Data Redaction Enhancements
- INMEMORY_SIZE Parameter Changes and Enhancements

Session 12: SQL ENHANCEMENTS

- SQL*Plus Enhancements
- The sqlcl Utility
- The login.sql File
- SQL*Plus Command Line History
- SQL*Plus Performance Settings Options
- The SQLcl Command Line Interface
- Longer Object Names
- Globalization Support at Table and Column Level
- Configure Extended Data Types
- Markup CSV
- New Approximate Functions
- LISTAGG DISTINCT
- Remove Duplicates from LISTAGG Results using DISTINCT
- Real-Time Materialized View Enhancements
- Approximate Query Processing and Real-Time Materialised Views

Session 13: PL/SQL ENHANCEMENTS

- Using the WITH Clause
- PL/SQL Enhancements
- DBMS_SESSION.SLEEP Replaces DBMS_LOCK.SLEEP
- PL/SCOPE Enhancements
- The Deprecate Pragma for PL/SQL
- Code coverage using DBMS_PLSQL_CODE_COVERAGE
- Control Definer's Rights for Database Links
- Package White Lists Enhancements

Session 14: PERFORMANCE RELATED NEW FEATURES

- Overview of Performance Tuning New Features
- Adaptive Query Optimization in an Oracle Database
- SQL Plan Management (SPM) Overview
- Automatic SQL Plan Capture Enhancements
- Configure the Automatic SPM Evolve Advisor Task to Run Hourly
- Automatic Resolution of SQL Plan Regressions
- The Optimizer Statistics Advisor
- Rules,Findings,Recommendations and Automatic Flashback of a Standby Database
- Flashback a Standby Database when the Primary is Flashed Back
- Automatically Replicate Restore Points from Primary to Standby
- Data Guard Broker New Features
- New Command Line Interface Properties
- The V$DATAGUARD_PROCESS View
- Create Scripts with the Broker DGMGRL Command Line Interface
- New Broker Commands
- New VALIDATE Commands
- Export and Import the Broker Configuration File
- Configure Multiple Failover Targets
- Dynamically Change Fast Start Failover Target using the Data Guard Broker
- Use Observer Only Mode to Test Fast Start Failover
- Set Multiple Observers

Session 22: ACTIVE DATA GUARD NEW FEATURES

- Connection Preservation During Role Transition
- Keep Buffer Cache at Role Change
- DML Operations on Active Data Guard
- Active Data Guard Redirection
- Network-Based Standby Recovery
- Support for the Diagnostic Pack
- Support for the SQL Tuning Advisor
- Use RMAN and Enterprise Manager to create Far Sync Instances
- Control Login Attempts
- RECOVER STANDBY DATABASE FROM SERVICE
- Create Global Temporary Tables
- Standby NOLOGGING for Load Performance
- Standby NOLOGGING for Data Availability

Session 23: APPLICATION CONTINUITY ENHANCEMENTS

- Application Continuity Overview
- Server Draining Prior to Stopping or Relocating Services
- Oracle Database Recognition of Request Boundaries
- Transparent Application Continuity
- Application Continuity after a Communication Failure Oracle Database 12cR2,18c and 19c New Features for Administrators Training Course SESSION ERRATA

Session A: DEMONSTRATION TABLES

Session B: CONTAINER AND PLUGGABLE DATABASE CRIB SHEET

- Connect to a Container Database as an

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

Session 8: ENHANCEMENTS TO DATABASE AUDITING

- Overview of Database Auditing
- Use Mixed Mode Auditing or Migrate to Pure Unified Auditing
- Unified Auditing Roles
- Create Audit Policies
- Audit by Role
- Enhancements to Unified Auditing
- Write Unified Audit Records to SYSLOG
- Changes to Audit Options
- Audit Top Level User Activities
- Purge old Audit Data
- Capture the Predicate Clause when using VPD
- Data Dictionary Enhancements
- Audit a Read-Only Database to the Operating System
- Use Oracle Data Pump to Export and Import the Unified Audit Trail

Actions
- The Expression Statistics Store
- Enhancements to the SQL Performance Analyzer
- Monitor the Usage of Indexes Oracle Database 12cR2,18c and 19c New Features for Administrators Training Course Course Contents - DAY 4

Session 15: BIG DATA AND DATA WAREHOUSE NEW FEATURES

- Reduce Cursor Invalidations for DDLs
- Automatic Indexing with DBMS_AUTO_INDEX
- Real Time Statistics Gathering during DML Operations
- Configure a Lightweight,High Frequency Statistics Gathering Job for Stale Statistics
- Advanced Index Compression
- SQL Statements Terminated by the Resource Manager Quarantined
- SQL Diagnostics and Repair Enhancements
- Bitmap-Based COUNT(DISTINCT) Rollup
- Scalable Sequences
- Polymorphic Tables Enhancements
- HCC Data Compression with an ADO Row-level policy

Session 16: PARTITIONING ENHANCEMENTS

- Oracle Partitioning Overview
- New Oracle Partitioning Strategies prior to 12.1
- Partitioning Strategies Introduced in 12.1
- New Partitioning Strategies from 12.2
- 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
- Online MERGE PARTITION and MERGE SUBPARTITION from 18c
- Hybrid Partitioned Tables - Integrate Internal and External Partitions

Session 17: DATA PUMP ENHANCEMENTS

- Oracle Data Pump New Features Introduced from 12c
- Data Pump Parallel Import and Export of Metadata
- The Usage of Wildcards in TRANSPORT_DATAFILES
- New Substitution Variables for Filenames

Administrator
- Connect to a Container Database using a Service Name
- Connect to a Pluggable Database
- Display the Current Container
- Switch between Containers
- Start Up and Shutdown a CDB
- Open and Close a PDB
- Alter a Pluggable Database
- Open and Close All PDBS
- Automatic Start Up of Pluggable Databases
- Preserve or Discard the PDB Open Mode after a CDB Restart
- Change the State of a PDB
- Configure Instance Parameters in a CDB and PDBs

Session C: DATA GUARD QUICK SETUP GUIDE

- Data Guard Physical Standby using the Data Guard Broker
- Primary Server Setup
- Configure Initialization Parameters
- Service Setup
- Standby Server Setup
- Enable the Broker
- Database Switchover
- Database Failover
- Configure the Original Primary as a Standby using Flashback Database
- Configure the Original Primary as a Standby without Flashback
- Read-Only Standby and Active Data Guard
- Snapshot Standby

- Parameter File Contents Written to the Log File
- The REMAP_DIRECTORY Parameter
- DATA_OPTIONS Parameter Changes
- Dynamic Data Pump Tracing
- Miscellaneous New Data Pump Features

Session 18: SQL*LOADER AND EXTERNAL TABLE ENHANCEMENTS

- SQL*Loader Enhancements
- The SDF_PREFIX Parameter
- The HADOOP_TRAILERS Parameter
- Hexadecimal and Multi-byte String Support for SQL*Loader Express
- External Table Enhancements
- InMemory External Tables
- The External MODIFY Clause
- Load XML Documents with the XML TAG Clause Oracle Database 12cR2,18c and 19c New Features for Administrators Training Course Course Contents - DAY 5

Further Information:

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

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www.globalknowledge.com/en-be/