Oracle12c – 18c Multitenant Architecture (3 Days)

Course Description

This course provides a comprehensive, hands-on introduction to by far the most significant new feature in Oracle history, multitenant architecture.

Target Audience

This course is appropriate for anyone needing to learn key new features of this revolutionary new architecture for Oracle12c. That would include end users, business analysts, application developers, database administrators and IT management.

Prerequisites

A thorough knowledge of Oracle11g database administration is required. Full familiarity with Oracle11g PL/SQL is highly desirable.

Course Content

CHAPTER 1 – INSTALLATION / UPGRADING
OVERVIEW OF DATABASE CREATION
THE ORACLE UNIVERSAL INSTALLER
PREREQUISE TASKS

- Memory Requirements
- Hardware Requirements
- Software Requirements
- Package Requirements
- What About Windows?

RUNNING THE INSTALLER
POST INSTALLATION
USING THE DATABASE CONFIGURATION ASSISTANT
USING THE DATABASE CONFIGURATION ASSISTANT – SHORT FORM
DATABASE TEMPLATES
UPGRADING THE DATABASE
REMOVING ORACLE SOFTWARE
LAB 1: INSTALLATION / UPGRADING
LAB 1 SOLUTIONS: INSTALLATION / UPGRADING

CHAPTER 2 – MULTITENANT DATABASES

THE IMPACT OF MULTITENANT ARCHITECTURE
MAJOR BENEFITS OF MULTITENANT ARCHITECTURE
THE BIRD'S EYE VIEW
WALKING THE DIRECTORIES OF A CONTAINER DATABASE
WHO? WHAT? WHEN? WHERE? HOW?
IMPACTS OF MULTITENANT ARCHITECTURE
TOOLS FOR USE WITH MULTITENANT ARCHITECTURE
- SQL*Plus
- DBCA
- Oracle Enterprise Manager Cloud Control
- SQL Developer
- Server Control (SRVCTL)

LAB 2: MULTITENANT DATABASES
LAB 2 SOLUTIONS: MULTITENANT DATABASES

CHAPTER 3 – MULTITENANT BASICS

CREATING CDBS
FEATURES UNSUPPORTED FOR MULTITENANT ARCHITECTURE
THE CREATE DATABASE COMMAND
Seed Data Files
CONFIGURING ENTERPRISE MANAGER DATABASE EXPRESS FOR CDBS
USING SQL DEVELOPER WITH CDBS AS A DBA
LAB 3: MULTITENANT BASICS
LAB 3 SOLUTIONS: MULTITENANT BASICS

CHAPTER 4 – INTERMEDIATE MULTITENANT

OPTIONS AVAILABLE
THE CREATE PLUGGABLE DATABASE STATEMENT
- The STORAGE Clause
- File Locations Clause
- Temp File Clause

PREPARING TO CREATE PDBS
CREATING PDBS USING THE CDB SEED
- Specifics Using SQL*Plus

CLONING AN EXISTING LOCAL PDB
- Specific Cloning Steps

CLONING AN EXISTING REMOTE PDB
- Specific Cloning Steps
- Effects Of Cloning A Remote PDB

UNPLUGGING A PDB
CREATING A PDB BY PLUGGING IN AN UNPLUGGED PDB
CREATING A PDB FROM A NON-CDB DATABASE
NEW TRIGGER TYPES FOR PDBS
LAB 4: INTERMEDIATE MULTITENANT
LAB 4 SOLUTIONS: INTERMEDIATE MULTITENANT

CHAPTER 5 – ADVANCED MULTITENANT
USING DATA PUMP EXPORT AND IMPORT
USING EXP AND IMP
DROPPING PDBS
USING CLOUD CONTROL TO CREATE AND DROP PDBS
ADMINISTRATION DETAILS
- Special Roles For CDBs
- Other Administrative Considerations For CDBs
- Manageability Considerations
- Objects In CDBs
- Services
- Sessions
- Common Listeners
- Connecting To PDBs In MOUNT Mode
- Login Triggers And The SET CONTAINER Clause
- Package States And Containers
- EXECUTE IMMEDIATE And SET CONTAINER

EXECUTING ACROSS ALL PLUGGABLE DATABASES USING DBMS_SQL
LOGGING ERRORS FOR MULTIPLE CONTAINERS
ALTER DATABASE IN A CDB
TABLESPACES IN CDBS
USING FORCE ON PDBS
CLOSE VS. CLOSE IMMEDIATE
SPECIFYING PDBS IN ALTER PLUGGABLE DATABASE
LAB 5: ADVANCED MULTITENANT
LAB 5 SOLUTIONS: ADVANCED MULTITENANT

CHAPTER 6 – ULTIMATE MULTITENANT
THE STARTUP COMMAND WITHIN PDBS
STARTUP PLUGGABLE DATABASE
SHUTDOWN WITHIN PDBS
ALTER SYSTEM SET STATEMENTS IN CDBS
THE CONTAINER CLAUSE IN DDL STATEMENTS
RUNNING SCRIPTS IN ALL CONTAINERS
AUTOMATING TNSNAMES.ORA MAINTENANCE
LAB 6: ULTIMATE MULTITENANT
LAB 6 SOLUTIONS: ULTIMATE MULTITENANT

CHAPTER 7 – MULTITENANT ROUNDUP
RENAMING A PLUGGABLE DATABASE
MOVING A PDB
BUILDING A UNIFIED PARAMETER QUERY
LAB 7: MULTITENANT ROUNDUP
LAB 7 SOLUTIONS: MULTITENANT ROUNDUP

CHAPTER 8 – STORAGE AND SECURITY

NEW SUPER USERS
ENHANCED SECURITY FOR CDBS
TEMPORARY TABLESPACE CONSIDERATIONS FOR CDBS
HARDENING A CDB
STORAGE CLAUSES RELEVANT TO PDBS
ALTER SYSTEM IN A PDB
SCOPE = SPFILE IN PDBs
SERVICES AND PDBs
VIEWS IN CDBs
CON_ID DETAILS
OTHER INTERESTING CDB VIEWS
CDB VIEW EXAMPLES
NEW FUNCTIONS FOR CONTAINERS
TRIGGERS IN A CDB
MOVING DATAFILES ONLINE
RAW PARTITIONS
DATABASE SMART FLASH CACHE SUPPORT
LAB 8: STORAGE AND SECURITY
LAB 8 SOLUTIONS: STORAGE AND SECURITY

CHAPTER 9 – BACKUP AND RECOVERY FOR CDBS

CONTAINER DATABASE CONSIDERATIONS
BACKUP SETUP
BACKING UP THE ENTIRE CDB
BACKING UP JUST THE ROOT CONTAINER
BACKING UP PDBS
BACKING UP TABLESPACES AND DATAFILES FROM WITHIN A PDB
EXECUTING RMAN ACROSS PDBS
REDO LOG, ARCHIVE LOG AND CONTROLFILE BACKUPS IN CDBS
COMPLETE RECOVERY OF A CDB
COMPLETE RECOVERY OF A PDB
COMPLETE RECOVERY OF THE ROOT CONTAINER
INCOMPLETE RECOVERY OF THE ENTIRE CDB
INCOMPLETE RECOVERY OF PDBS
LOSS OF SYSTEM TABLESPACE IN A PDB
RMAN RESTRICTIONS IN PDBS
PRIOR BACKUPS AND ARCHIVELOGS FOR CONVERTED NON-CDBS
FLASHBACK AND CDBS
DATA PUMP AND CDBS
LAB 9: BACKUP AND RECOVERY FOR CDBS
LAB 9 SOLUTIONS: BACKUP AND RECOVERY FOR CDBS

CHAPTER 10 – RESOURCE MANAGER FOR CDBS

RESOURCE MANAGER AND CDBS

- CDB Resource Plans
- The Initial Default Directive Attributes For PDBs
- PDB Resource Plans
- Background And Administrative Tasks
- Creating The Resource Plan For The CDB
- Updating The CDB Resource Plan
- Adding A New Plan Directive For A PDB
- Deleting A PDB's Plan Directive
- Enabling The CDB Resource Plan
- Disabling The CDB Resource Plan
- Deleting The Entire CDB Resource Plan
- Creating / Modifying PDB Resource Plans
- Enabling / Disabling PDB Resource Plans
- Resource Manager Views
- Enabling Resource Manager In PDBs
- Using Cloud Control With Resource Manager

RUNAWAY QUERY MANAGEMENT

DBMS_SCHEDULER WITH A CDB

LAB 10: RESOURCE MANAGER FOR CDBS

LAB 10 SOLUTIONS: RESOURCE MANAGER / PERFORMANCE