



ORACLE CORE DBA TRAINING

Week 1:

Session 1 - Architecture I:

Terminology, Oracle Instance, System Global Area, Mandate memory structures, Optional memory structures, Process, Background processes, foreground processes, daemons, Oracle Database, Control files, Redo log files, data files, Oracle Server. Minimum number of file requirements and corporate standards. One database vs. multiple databases. Physical database and logical database. Purpose of each Tablespace and contents, Application data, Meta data and base tables

Session 2 - Architecture II:

Quick overview on previous session. User process and server process, Relationship between Instance and database, data access path from client to server, Background process, role and responsibilities of each process. SQL queries processing methodology and architecture, role of optimizer, hard parsing and soft parsing.

Week 2:

Session 3: Installations of OS (OEL 5.4), ORACLE 11gR2:

Identifying certified operating system, Understanding My Oracle Support for certifications, CSI numbers, Understanding operating system installation procedures for oracle database, Configuring operating system (kernel parameters), creating users, creating groups, Installing OEL 5.4 and Oracle database Software 11gR2. Understanding init.ora (initialization files) files, important parameters in parameter file, purpose of Alert log files, location of Alert log files, Maintaining Alert log files, diagnostic destination location, trouble shooting techniques (handling ORA-), oracle related errors and Directory structure of Oracle home. Database startup and shutdown methods and stages involved. Database storage in terms of Tablespaces, Tablespace block sizes, default block size and non default block sizes. Understanding various types of views DBA_, ALL_ and USER_ including v\$ dynamic views.

Session 4 - Database, Tablespace Management:

Database Startup, shutdown procedures with internals, creating, adding, altering and dropping Tablespaces. Tablespace modes, status, logging, plugged in, contents, block size, online, offline, read only, read write, type etc. Database objects – Code objects, Data objects, Hybrid objects and its storage management. What is a segment, extent and data storage mechanism and maintaining the data growth? Data reorganization in Oracle database. Dictionary managed tablespaces, locally managed tablespaces (auto, uniform), Storage parameters and OMF.

Week 3:

Session 5 - User Management:

User management in corporate world, type of users, creating database users, Authentication methods (local authentication, OS authentication, network authentication). Managing privileges and different types of privileges such as object level privileges and system level privileges. Using Roles for privilege management, Identifying assigned privileges using views for a given user. Understanding profiles and implementing profiles.

Session 6 - UNDO Management:

Understanding UNDO tablespace features like read consistency, rollback operations, flashback options such as flashback query, flashback version query, flash back transaction query, flashback database, flashback data archive. Setting up FRA area and the purpose. Rollback segments, Pending offline status. Retention policy, Retention guarantee, sizing UNDO tablespaces, addressing ORA-01555 snapshot too old issues.

Week 4:

Session 7 - SPFILE, OMF Introduction to Oracle Networking:

Purpose of spfile and different between spfile and pfile, Creating spfile and profile from each other, default locations vs. non default locations. Changing parameters using spfile and pfile. Understanding Dynamic, Deferred and offline changes and procedures. Purpose of OMF and advantages and disadvantages of OMF. Created OMF databases and tablespaces. Understanding networking architecture. Configuring network setup between client and server (listeners and tnsnames). Verifying configuration. Establishing network connections to database. Configuration files location and setting TNS_ADMIN for non default locations. Using lsnrctl prompt and maintaining services like status, start, stop and reload etc.

Session 8 - Password file management, Database Links and Materialized view:

Purpose and concepts of password file, Setting up password file, verifying password file and purpose of password file in a network environment. Why Database Links are required, creating db links and configuring parameters and rules in implementing database links, corporate standards in maintaining database links. Use of Materialized views, refresh types such as (fast, force and complete) and implementation.

Week 5:

Session 9 - Multiplexing Of Redo, Control file and Archiving:

High availability, protecting Redo log files, Control files using multiplexing to protect from disk failures. Understanding the dynamics of configuring redo log file groups and size. Protecting the content of redo log files by enabling archive log mode, file format and location of archiving and maintenance activities with respect to archiving.

Session 10 - Backup and Database Patching procedures:

What to backup? Patching methodology, patch repository, patch top, applying cumulative patch (100+ patches). Backup procedures provided by Oracle, Logical backups and purpose, Physical backup's architecture, understanding complete recovery vs. incomplete recovery, online recovery vs. offline recovery. Purpose of cold backup. HOT backups architecture.

Week 6:

Session 11 - RMAN backup and restore, database cloning:

RMAN architecture and best practices in corporate world. Different types of recoveries such as complete recovery, incomplete recovery, online recovery and offline recovery. Dynamics of recoveries. Recovery Manager Backups (RMAN), RMAN setup and configuration, with catalog or out catalog. Corporate standards for RMAN backups. Catalog database, Target databases and Auxiliary databases. Performing backups and recoveries using all the methods (logical, physical and RMAN). RMAN Command reference such as list, report, delete etc. Database cloning using with RMAN database duplication as industry standard.

Session 12 - ASM:

Database storage concepts. ASM (Automated storage management) concepts. Different storage options for database files like file system files, RAW partitions, OMF and ASM. ASM architecture, background processes, creating disk groups, mounting disk groups. Using ASMCMD and asmca GUI tool to manage ASM instances. Grid Infrastructure software installation and configuring ASM for standalone database for its storage.

Week 7:

Session 13 - DATA GUARD Active DG:

Purpose of Data Guard, Architecture, Physical Standby database setup, Active data guard features. Various protection modes such as Max Performance, Max Availability and Max Protection.

Session 14 - Performance Tuning I:

Introduction to performance tuning with best possible approaches. Understanding troubleshooting vs. tuning. Best practices, requirements, different levels of performance tuning. Sharing real world personal experiences on tuning techniques. OS level base line statistics, database level maintenance methods with best practices, database level statistics, indexes, optimization methods, Row chaining and migration, DOP (parallelism), monitoring and configuring parallelism related parameters.

Week 8:

Session 15 - Performance Tuning II:

Role of DBA with respect to application tuning. Explain plans; enabling trace at session level understanding performance statistics during tracing. Understanding TKPROF output. Memory tuning, Automated shared memory management (SGA, SGA+PGA), different types of caches for performance improvement such as keep cache, recycle cache and result cache.

Session 16 - Database Upgrade:

Database upgrade from 10gR1 to 11gR2