DATABASES

1. ORACLE

a. Tablespace : oracle stores data logically in tablespace and physically in datafiles.

- System/SysauxTablespace (data dict)
- Online/Offline tablespace
- Read only
- Provide Quota to user

Types of Tablespace

- Permanent
- Temporary
- Undo

Data Dictionary Views

- Dba_tablespaces
- Dba_data_files
- Dba_temp_files

To see tablespaces

Select tablespace_name, cotents, from dba_tablespaces;

Create tablespace tbs03 datafile 'd:\dfiles\tbs0301.dbf' size 10m blocksize 8k;

Create user himanshu identified by himanshu default tablespace tbs03 quota 5m on tbs03;

Grant create session, create table to ellision;

Show users;

Desc dba_ts_quotas;

Select tablespace_name, user_name, maxbytes/1024/1024 as max_bytes/1024/1024 as used_data from dba_ts_quotas where username ='HIMANSHU';

Conn himanshu/himashu

Create table patients(pat_no int, pat_name varchar(10));

Insert into patients values (1,'arnav');

You have to connect sys user to check used data in tablespace

Select tablespace_name, user_name, maxbytes/1024/1024 as max_bytes/1024/1024 as used_data from dba_ts_quotas where username ='HIMANSHU';

To copy same rows in database

Insert into patients select * from patients;

Desc dba_data_files;

Select file_name, tablespace_name from dba_data_files where tablespace_name='TBS03';

Alter user ellision quota 20m on tbs03;

Con sys/sys as sysdba

Alter tablespace tbs03 add datafile 'd:\dfiles\tbs0302.dbf' size 50m;

Column file_name for 60;

Set linesize 120;

Alter tablespace tbs03 offline;

Alter tablespace tbs03 online;

Conn himanshu/himanshu

Select * from patients fetch 3 rows only;

Conn sys/sys as sysdba;

Alter tablespace tbs03 read only;

b. Extents : an extent is a specific number of contogious data blocks that is allocated for storing a specific type of information.

Extent Management

- Dictionary Managed
- Local Management(Default)

Strorage Parameters

- Initial
- Minextents
- Maxextents

Data Dictionary Views

- Dba_extents
- Dba_segments
- Dba_data_files
- Dba_tablespaces

To connect pluggable databases

Conn sys/sys as sysdba

Select name from v$pdbs;

Conn sys/sys@localhost:1521/pdbname as sysdba

Show con_name;

Show con_id;

Host cls ; -- to clear screen

Select tablespace_name from dba_tablespaces;

Create tablespace_name tbs04 datafile ‘d:\dfiles\pdb2_tbs0401.dbf’ size 5m;

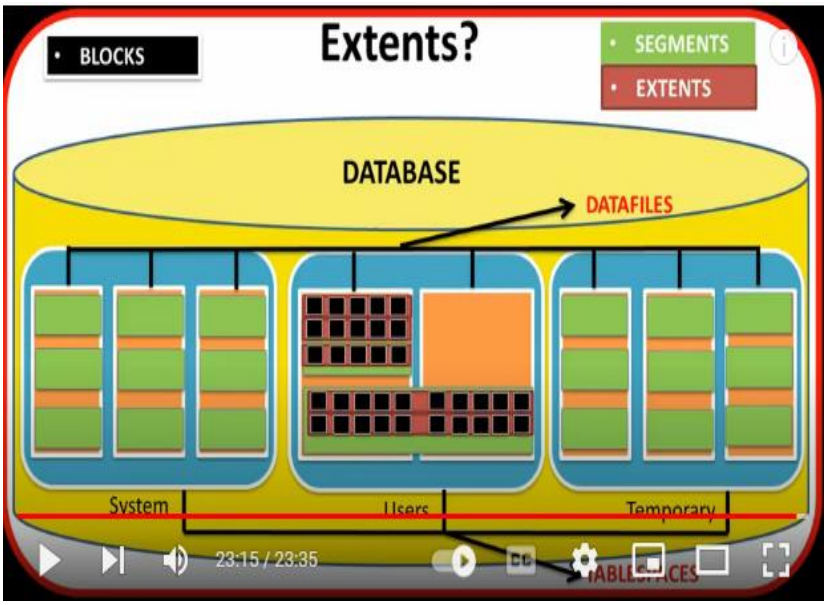
Select tablespace_name,extent_management from dba_tablespaces where tablespace_name =’tbs04’;

By default extent management is local only

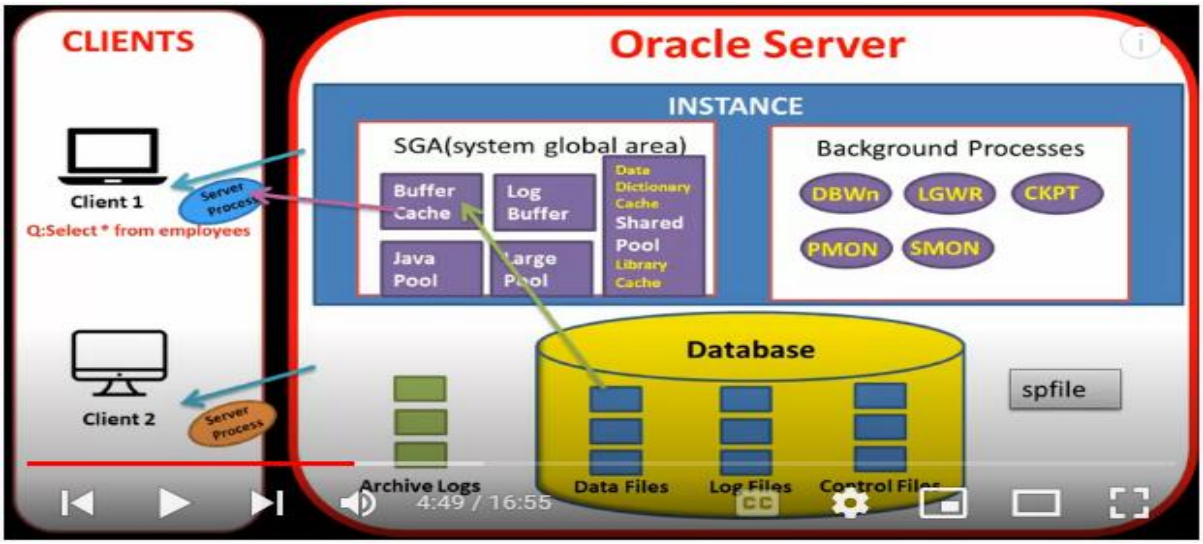
Insert into employees select * from employees; {to get insert same table into table}

Select file_id, file_name, tablespace_name from dba_data_Files;

Alter table employee allocate extent;



Multitenant Architecture



Configure SGA

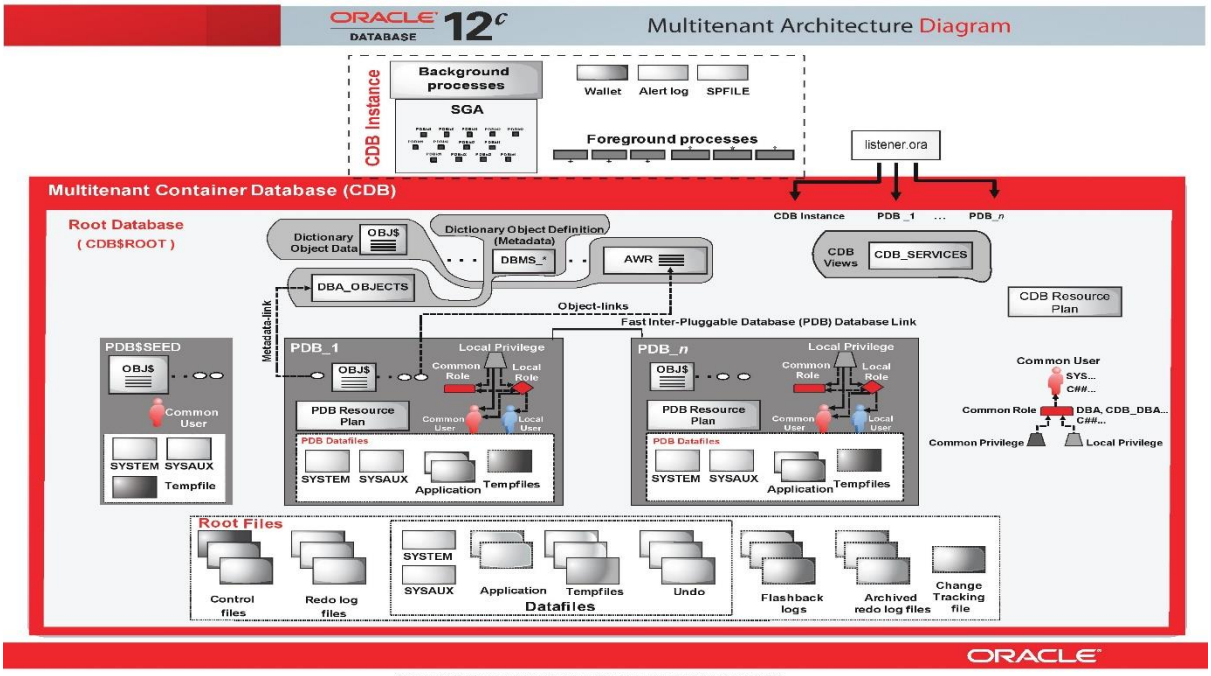
Manual

- SHARED_POOL_SIZE
- DB_CACHE_SIZE
- LOG_BUFFER
- LARGE_POOL_SIZE
- JAVA_POOL_SIZE

Auto

- SGA_TARGET

SYNTAX : Alter system set parameter_name=value;



Common Entites Between CDB and PDB

- Memory
- Background Process
- Log Files
- Oracle Metadata
- Undo Tablespace
- Temporary Tablespace
- Control Files

Common User and Local User

- Common User have acces to container and all pluggable databases. Prefix C##
- Local user have acces only to pluggable database, in which it has been created.

Conn sys/sys as sysdba

Show con_name

Select name from v$pdbs;

Show con_id

To connect pluggable database

Conn sys/sys@localhost:1521/pdb2 as sysdba

To check all pdbs

Conn sys/sys as sysdba

Select name from v$pdbs;

Create user c## ajmera identified by ajmera;

Select username,common from dba_users username='c##AJMERA';

Grant create session to c##ajmera container=all;

Conn c##ajmera/ajmera@localhost:1521/pdb2

Create user mark identified by mark;

Select username, common from dba_users where username='MARK';

Undo Tablespace

- Roll back transactions when a ROLLBACK statement is issued.
- Recover the database
- Provide read consisitency
- Analyze data as of an earlier point in time by using Oracle
- Flashback Query

Undo Management

- Manual (Rollback Segment)
- Auto (Type Undo Segment)
- Alter system set undo_management=manual/[auto] scope=spfile
- Alter system set undo_tablespace=tablespace_name

Data Dictionary Views

- Dba_tablespaces
- V$transaction
- V$rollname
- Dba_segments

Sys user

Select * from v$transaction;

Select xidusn from v$transaction; {to see undo segment}

Select * from v$rollname; {to see undo segment no.}

Select segment_name, tablespace_name from dba_segments where segment_name=.....;

Show parameter undo_tablespace;

Select tablespace_name, contents from dba_tablespaces;

Alter system set undo_tablespace=’undotbs’;

Show parameter undo_manage

Alter system set undo_management=manual scope=spfile;

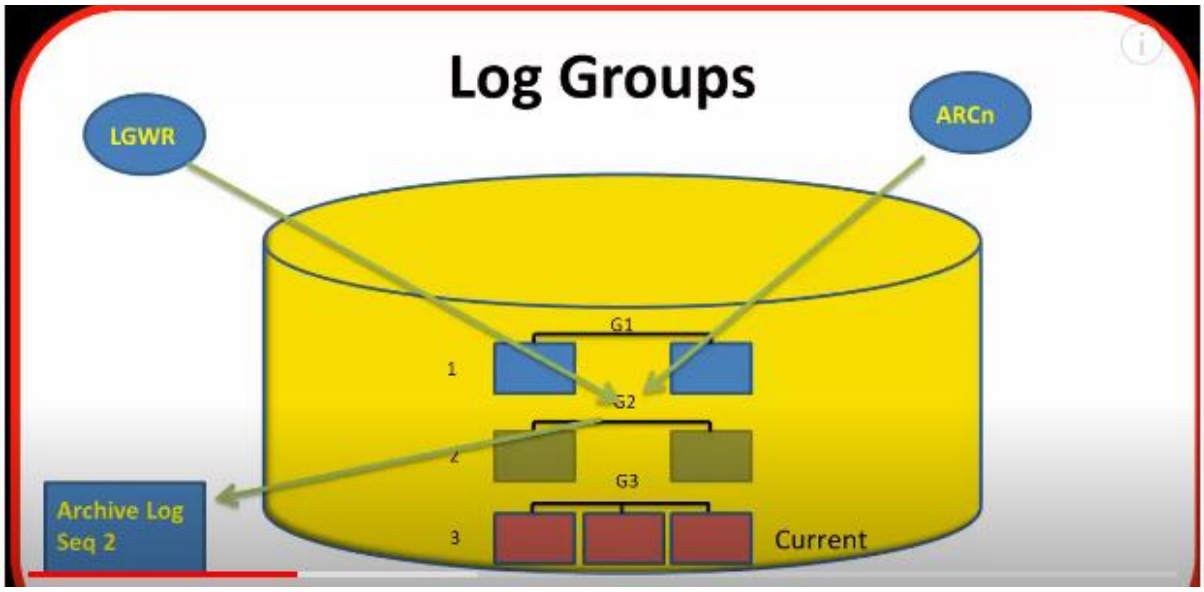
Startup force {to restart database}

Create rollback segment rbs01 tablespace system;

Alter rollback segment rbs01 online; {by default = offline}

Redo Log Files

- Are filled with **redo records**. A redo record, also a **redo entry**, is made up of a group of **change vectors**, each of which is description of a change made to a single block in the database.



Archive Log

- Archive log is backup of redo log file
- View archive log setting :- Archive Log List;
- Enable Archive Log Mode :- Alter Database Archivelog ;(in mount stage)

Data Dictionary Views

- V$log
- V$logfile
- V$archived_log

Select group#,sequence#, status form V$log;

Alter database add logfile group 7 (‘d:\dfiles\file00701.log’,’d:\dfiles\file00702.log’) size 100m;

Select group#,sequence#, status,members form V$log;

Alter database add logfile member ‘d:\dfiles\file00703.log’ to group 7;

Alter database drop logfile member ‘D:\FILES\FILES00703.LOG’;

Select group#,sequence#, status,members,archived form V$log;

Alter database archivelog {command fire only when database is in mount mode}

Shutdown immediate;

Startup mount;

Alter database archivelog;

Alter database open;

Archive log list; {archived log is enabled}

Select name from v$archived _log;

Alter system switch logfile;

Oracle Managed Files (OMF)

It simplifies the creation of databases as oracle does all OS operations and file naming. It has several advantages.

We didn't manually go to system and remove datafiles

Parameters

- Db_create_online_dest
- Db_create_online_log_dest_n
- Log_archive_dest_n

To set above parameter, so that oracle handle to create file name and log name.

Select tablespace_name from dba_tablespaces;

Create tablespace tbs02 datafile 'd:\dfiles\tbs00201.dbf' size 100m;

Drop tablespace tbs02;

Show parameter db_create

Alter system set db_create_file_dest='m:\data_files\';

Create tablespace tbs02;

By default size 100m

To create automatically datafile and delete also oracle handle it.

Alter database add logfile group 4;

Select group#, member from v$logfile where group#=4;

Alter system set db_create_online_log_dest_1='m:\log_files\';

Select name from v$archived_log;

Show parameter archive

Alter system set log_archive_dest_1='location=m:\archive_logs\';

Alter system switch logfile;

Select name from v$archive_log;

Startup/Shutdown Database

Shutdown

- Normal (Default)
  - No new connection
  - Wait for users to disconnect
  - No instance recovery required
- Immediate
  - When a power shutdown is going to occur soon
  - Irregular functionality
  - No waits for users to disconnect
  - No instance recovery required
- Transactional
  - No new connection
  - After all transaction have completed
- Abort
  - Power shutdown is going to occur in one minute
  - Experience problems when starting a database instance
  - Uncommited transactions are not rollback
  - Current client sql statement being processed by oracle database immediately.

Startup

- Startup NoMount
  - Open the instance but not database
  - This mode is use to create a new database or to manage control files.
- Startup Mount
  - Start the instance
  - Mount database but remain closed
  - Allow dba activities btu does’t allow general access.
- Startup open
  - Start the instance
  - Mount and open database for dba and general access
- Startup Force
  - Shuts it down with mode ABORT before restarting
- Startup Restrict
  - Restricted session privilege require to access database

SQL Querys

Select name from v$database;

Select instance_name from v$database;

Show con_name;

Select status from v$instance;

Shutdown;

Startup

Startup nomount; {use to instance up}

Select status, name from v$instance;

Select status, instance_name from v$instance;

Alter database mount;

Select status from v$database;

Select name,open_mode from v$database;

Alter database open;

Select status from v$instance;

Select name,open_mode from v$database;

Shutdown immediate; {use when power cut-off immediately}

Startup open read only; {crud operation is not used}

Conn sys/sys as sysdba {to shutdown the database}

Shutdown immediate;

Startup open restrict;

Grant restricted session to hr;

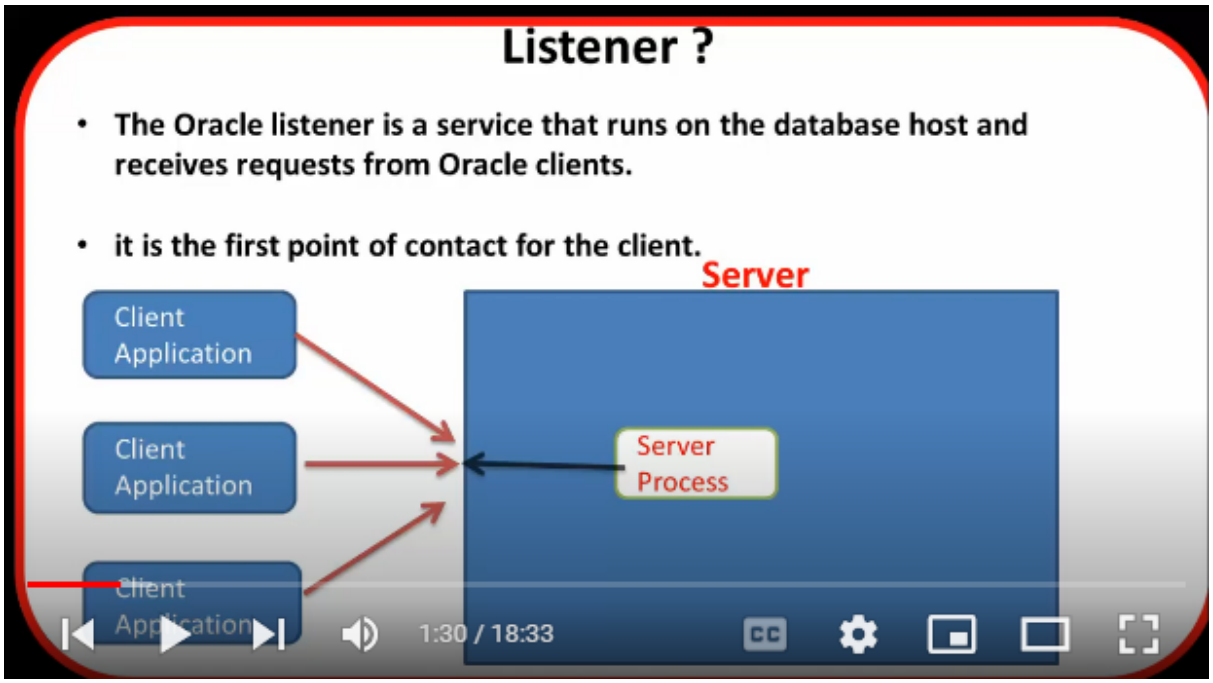
Conn hr/hr

To set oracle sid in windows : set oracle sid=sid_name

Shutdown transactional;

Startup force; {it will shutdown and startup}

Listner :



- We have more than one listner.
- A sid can register with more then one listner.
- ORACLE_HOME/network/admin/listner.ora
- Lsnrctl application can use to manage listners
  - Start/stop listner service
  - Check registered service with listner

Conn sys/computer as sysdba

Conn sys/computer@localhost/xe as sysdba

Use cmd

Lsnrctl > stop listener listner_name {if we stop particular listner error:- ORA-12541:TNS : no listner

Lsnrctl > status

Lsnrctl > start listner