OCP 052

: Oracle

/

redo
archivelog
logminer
undo
: checkpoint

Oracle

Oracle
Oracle
audit
SqlLoader
Oracle

Oracle

Oracle ASM

1 Oracle

ppt,Oracle

2 Oracle

1 oracle server database + instance

2 database data file control file redolog file

3 instance: an instance access a database

4 oracle memory: sga + pga

5 instance sga + backgroud process

6 sga sga instance sga sga session instance instance down sga

3 SGA

3.1 SGA 6 :

1 shared pool PPT-11-331

SQL PL/SQL
library cache , data dictionary cache result cache

shared pool

library cache sql plsql sql

data dictionary cache

server result cache: SQL PL/SQL

User Global Area (UGA)

2 database buffer cache

server process)

DBWR

Database Buffer Cache cache

Buffer pool=(default pool)+(nodefault pool)

default pool db_cache_size // SGA
LRU

nodefault pool:

db_nk_cache_size // 2k 4k 16k 32k
db_keep_cache_size //keep
db_recycle_cache_size // keep

```
SQL> alter table scott.emp1 storage(buffer_pool keep);

SQL> select segment_name,buffer_pool from dba_segments where segment_name='EMP1';

SEGMENT_NAME
BUFFER_
--------------------------------------------------------------------------------
- -------
EMP1
KEEP
```

2.2 default pool db_cache_size default block
default block 8k, db_cache_size db_8k_cache_size

db buffer db_nk_cache_size

09:50:46 SQL> alter system set db_16k_cache_size=8m; // db buffer 16k cache

09:50:49 SQL> create tablespace tbs_16k datafile '/u01/oradata/timran11g/tbs16k01.dbf' size 10m blocksize 16k;

09:51:29 SQL> select TABLESPACE NAME,block size from dba tablespaces;

```
TABLESPACE_NAME                BLOCK_SIZE
------------------------------ ----------
SYSTEM                               8192
UNDOTBS1                             8192
SYSAUX                               8192
TEMP                                 8192
USERS                                8192
EXAMPLE                              8192
TBS_16K                             16384
```

2.3 buffer cache

18:28:20 SQL>select (1-(sum(decode(name, 'physical reads',value,0))/(sum(decode(name, 'db block gets',value,0))+ sum(decode (name,'consistent gets',value,0))))) * 100 "Hit Ratio" from v$sysstat;

```
 Hit Ratio
----------
97.6811923
```

3 redo log buffer

redo entries (DML DDL ,

18:29:04 SQL> show parameter log_buffer

```
NAME                                 TYPE        VALUE
------------------------------------ ----------- ------------------------------
log_buffer                           integer     7057408
```

* :

SGA

18:30:24 SQL> alter system set log_buffer =1 scope=spfile; //

18:31:20 SQL> startup force
18:31:35 SQL> show parameter log_buffer;

```
NAME                                 TYPE        VALUE
------------------------------------ ----------- ------------------------------
log_buffer                           integer     2927616          //
```

4 large pool

shared pool

session memory RMAN

5 java pool(

java session JAVA

6) stream pool

stream process stream
stream

3.2 sga granules(oracle

SGA_MAX_SIZE	Granule Size
<=1 GB	4 MB
1GB -- 8GB	16 MB
8GB --16GB	32 MB
16GB--32GB	64 MB
32GB--64GB	128 MB
64GB--128GB	256 MB
>128GB	512 MB

20:12:30 SQL> select name ,bytes/1024/1024 "Size(M)" from v$sgainfo; //
oracle SGA

NAME	Size(M)
Fixed SGA Size	1.2401123
Redo Buffers	1.84765625
Buffer Cache Size	56
Shared Pool Size	152
Large Pool Size	4
Java Pool Size	12
Streams Pool Size	4
Shared IO Pool Size	0
Granule Size	4
Maximum SGA Size	403.089844
Startup overhead in Shared Pool	40
Free SGA Memory Available	172

4 Oracle :

process 1 user process 2 server process 3 background process

user process process 1 sql*plus, 2) 3
web OEM

sqlplus

* user process

windows sqlplus :

C:\Documents and Settings\timran>sqlplus sys/system@timran11g as sysdba

linux ps sqlplus :

```
[oracle@timran ~]$ ps -ef |grep sqlplus
oracle    2353  2325  0 17:02 pts/0    00:00:00 rlwrap sqlplus / as sysdba
oracle    2354  2353  0 17:03 pts/1    00:00:00 sqlplus  as sysdba
oracle    2603  2445  0 17:25 pts/2    00:00:00 grep sqlplus
```

server process user process Oracle server process

```
[oracle@timran ~]$ ps -ef |grep LOCAL
oracle    2399  2354  1 17:03 ?        00:00:04 oracletimran11g (DESCRIPTION=(LOCAL=YES)(ADDRESS=(PROTOCOL=beq)))
oracle    2503     1  0 17:05 ?        00:00:00 oracletimran11g (LOCAL=NO)
oracle    2512  2445  0 17:07 pts/2    00:00:00 grep LOCAL
[oracle@timran ~]$
```

// linux server process, (LOCAL=YES) (LOCAL=NO)

oracle V$process oracle

```
SQL> select pid,program,background from v$process;
```

background 1 background process server process

background process

smon

,Oracle

pmon

1 user process

2

3

dbwr:

1 buffer)

2 data buffer

dbwr

1 ckpt 2 3 db_buffer 4 3 5 read only/offline/backup

1) DBWR

2)commit dbwn

lgwr redo log buffer redo logfile dbwr

5 lgwr

1 commit, 2) 3 dbwr dbwn

4 3

ckpt dbwr

arcn

lgwr arcn

11g 053

MMON: Oracle (AWR)

MMNL MMON (ASH)

MMAN 10g 11g 11g Oracle SGA+PGA

CJQN: job

5 PGA

oracle hash SGA PGA

6 Oracle

6.1 (dedicated server process) (PPT-I-218)

user process server process

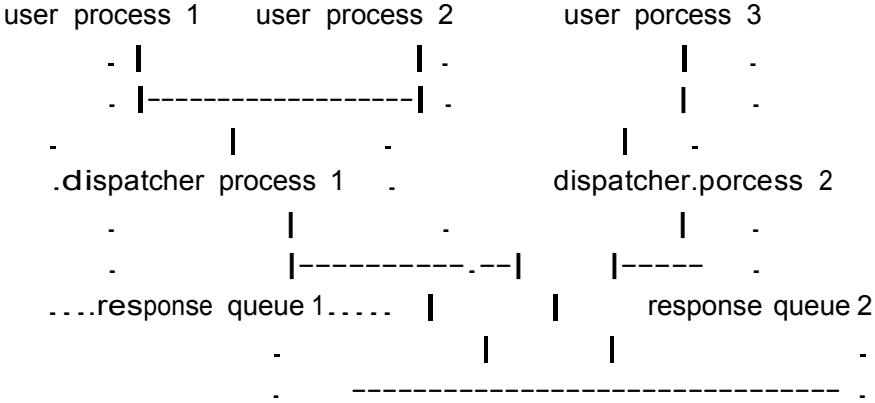
sql*plus oracle

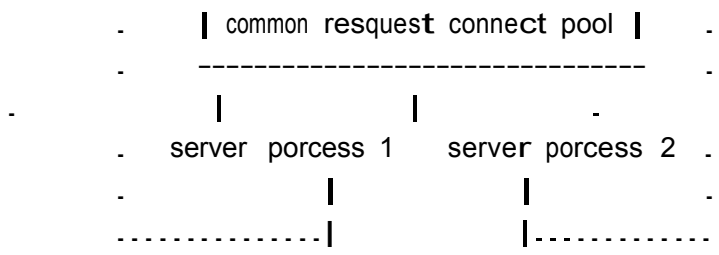
PGA Oracle

6.2 (shared server process) (PPT-I-219-222)

user process server process dispatcher) , connectionpooling ,

OCP11g :(Oracle





*

1 (dispatcher) (resquest queue)
(response queue)

2 SGA UGA PGA
PGA

6.3 database resident connection pooling DRCP

11g Apache
PHP

/

2.1

1 instance : database instance
init parameter files)

2 init parameter files $ORACLE_HOME/dbs

3 pfile parameter file

1 2 3 pfile
database server

init+SID.ora

4 spfile system parameter file)

1 2)Linux strings 3 database
server

: spfile+SID.ora

spfile instance
spfile
instance instance

spfile

alter system set = [scope=memory|spfile|both]

alter system reset [scope=memory|spfile|both] SID='*' //

scope=memory spfile
scope=spfile spfile
scope=both

scope

* spfile

v$parameter memory scope

```
10:38:35 SQL> desc v$parameter;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 NUM                                                NUMBER
 NAME                                               VARCHAR2(80)
 TYPE                                               NUMBER
 VALUE                                              VARCHAR2(512)
 DISPLAY_VALUE                                      VARCHAR2(512)
 ISDEFAULT                                          VARCHAR2(9)
 ISSES_MODIFIABLE                                   VARCHAR2(5)
 ISSYS_MODIFIABLE                                   VARCHAR2(9)
 ISINSTANCE_MODIFIABLE                              VARCHAR2(5)
 ISMODIFIED                                         VARCHAR2(10)
 ISADJUSTED                                         VARCHAR2(5)
 ISDEPRECATED                                       VARCHAR2(5)
 DESCRIPTION                                        VARCHAR2(255)
 UPDATE_COMMENT                                     VARCHAR2(255)
 HASH                                               NUMBER
```

ISSYS_MODIFIABLE alter system

10:38:35 SQL> select distinct issys_modifiable from v$parameter;

ISSYS_MODIFIABLE

IMMEDIATE // scope=memory
FALSE // scope=spfile, spfile
DEFERRED // session

ISSES_MODIFIABLE alter session session

10:38:35 SQL> select distinct isses_modifiable from v$parameter;

ISSES_MODIFIABLE

TRUE //
FALSE //

10:38:35 SQL> select ISSES_MODIFIABLE,ISSYS_MODIFIABLE from v$parameter where name='sql_trace';

ISSES ISSYS_MOD

TRUE IMMEDIATE

sql_trace session system both

5 startup $ORACLE_HOME/dvs spfile
spfile pfile

pfile spfile

SQL>create pfile from spfile
SQL>create spfile from pfile spfile spfile ORA-32002:
SPFILE

*

1 pfile , scope=spfile scope=memory pfile

pfile spfile 11g

SQL>create pfile from memory;
SQL>create spfile from memory;

spfile pfile pfile ,

10:38:35 SQL> startup pfile=$ORACLE_HOME/dbs/inittimran.ora

spfile pfile

10:38:35 SQL> show parameter spfile
NAME TYPE VALUE
------------------------------------ ----------- ------------------------------
spfile string /u01/app/oracle/product/10.2.0
/db_1/dbs/spfileprod.ora

// value spfile

v$spparameter spfile memory_target isspecified
TRUE spfile

10:42:35 SQL> select name,value,isspecified from v$spparameter where name like 'memory_target';

NAME VALUE
ISSPECIFIED
---------- ---------- ---------- ---------- ---------- ---------- ---------- ---------- ---------- ----------
---------- ----------
memory_target 423624704
TRUE

OEM

2.2

2.2.1

1 nomount init parameter

10:38:35 SQL> select status from v$instance;
started,mounted,open.)
STATUS

```
------------
STARTED
```

2 mount

```
20:32:53 SQL> select status from v$instance;
STATUS
------------
MOUNTED
```

3 open 1 datafile redo log group password file
2 controlfile datafile redo file

```
10:38:35 SQL> select file#,checkpoint_change# from v$datafile;      //

     FILE# CHECKPOINT_CHANGE#
---------- ------------------
         1             570836
         2             570836
         3             570836
         4             570836
         5             570836
         6             570836

6 rows selected.
```

```
10:38:35 SQL> select file#,checkpoint_change# from v$datafile_header;      //
datafile header

     FILE# CHECKPOINT_CHANGE#
---------- ------------------
         1             570836
         2             570836
         3             570836
         4             570836
         5             570836
         6             570836

6 rows selected.
```

open controlfile SCN datafile header SCN
media recover

```
10:38:35 SQL> select status from v$instance;
```

STATUS

OPEN

2.2.2

SQL> alter database open read only;
SQL> startup force
SQL> startup upgrade (sysdba)
SQL> startup restrict restrict session sys
SQL> alter system enable restricted session; (open)

2.2.3

shutdown normal

shutdown transaction
shutdown immediate
shutdown abort startup force
instance recovery

* shutdown abort database

2.3 ADR Automatic Diagnostic Repository) 11g

DUMP

11g DIAGNOSTIC_DEST BACKGROUND_DUMP_DEST
CORE_DUMP_DEST USER_DUMP_DEST

SQL> show parameter diag

NAME TYPE VALUE
------------------------------------ ----------- ------------------------------
diagnostic_dest string /u01

ADR ORACLE_BASE diagnostic_dest
oracle $ORALE_HOME/log

10:38:35 SQL> show parameter dump // Oracle11g
SQL> show parameter dump

```
NAME                                 TYPE        VALUE
------------------------------------ ----------- ------------------------------
background_core_dump                 string      partial
background_dump_dest                 string      /u01/diag/rdbms/timran11g/timr
                                                 an11g/trace
core_dump_dest                       string      /u01/diag/rdbms/timran11g/timr
                                                 an11g/cdump
max_dump_file_size                   string      unlimited
shadow_core_dump                     string      partial
user_dump_dest                       string      /u01/diag/rdbms/timran11g/timr
                                                 an11g/trace
```

oracle 11g xml V$DIAG_INFO Diag Alert Diag Trace

9i 11g bdump udump /u01/diag/rdbms/timran11g/timran11g/trace

Background Trace Files bg process) :SID_processname_PID.trc timran11g_m001_5616.trc
User Trace Files(server process) :SID_ora_PID.trc timran11g_ora_10744.trc

.trm trace map) trc

```
SQL> select * from v$diag_info;

   INST_ID NAME                                 VALUE
---------- ------------------------------------ ------------------------------
         1 Diag Enabled                         TRUE
         1 ADR Base                             /u01
         1 ADR Home                             /u01/diag/rdbms/timran11g/timran11g
         1 Diag Trace                           /u01/diag/rdbms/timran11g/timran11g/trace
         1 Diag Alert                           /u01/diag/rdbms/timran11g/timran11g/alert
         1 Diag Incident                        /u01/diag/rdbms/timran11g/timran11g/incident
```

1 Diag Cdump
/u01/diag/rdbms/timran11g/timran11g/cdump
1 Health Monitor
/u01/diag/rdbms/timran11g/timran11g/hm
1 Default Trace File
1 Active Problem Count 0
1 Active Incident Count 0

Diag Trace 10g

alter_SID.log
,
alter_SID.log

$cat dev/null > alter_timran11g.log //

$rm alter_timran11g.log //

lwgr

[oracle@timran trace]$ tail -f
/u01/diag/rdbms/timran11g/timran11g/trace/alert_timran11g.log
space available in the underlying filesystem or ASM diskgroup.
Tue Sep 04 09:12:19 2012
Completed: ALTER DATABASE OPEN
Tue Sep 04 09:16:41 2012
Starting background process CJQ0
Tue Sep 04 09:16:41 2012
CJQ0 started with pid=29, OS id=2483
Tue Sep 04 10:19:11 2012
drop tablespace tb1
Completed: drop tablespace tb1

ADR 053 11g
053

2.4

oracle

2.4.1 sys OS

1 OS Oracle DBA

sqlplua / as sysdba

2 sysdba

sqlplus sys/oracle@timran11g as sysdba

2.4.2

1 sysdba system scott, tim

oracle

2 TURE 11g

```
SQL> show parameter case

NAME                                 TYPE        VALUE
------------------------------------ ----------- ------------------------------
sec_case_sensitive_logon             boolean     TRUE
```

sysdba sys

$ORACLE_HOME/dbs/orapwSID sys

remote_login_passwordfile

remote_login_passwordfile

1) none sys
2 exclusive sys
3 share

```
[oracle@timran ~]$ cd /u01/oracle/dbs
[oracle@timran dbs]$ ll
    52
-rw-rw---- 1 oracle oinstall 1544 08-17 07:19 hc_timran11g.dat
-rw-r--r-- 1 oracle oinstall 12920 2001-05-03 initdw.ora
```

```
-rw-r--r-- 1 oracle oinstall 8385 1998-09-11 init.ora
-rw-r--r-- 1 oracle oinstall 1024 08-17 13:23 inittimran11g.ora
-rw-r----- 1 oracle oinstall   24 08-17 07:21 lkTIMRAN11
-rw-r----- 1 oracle oinstall   24 08-17 10:36 lkTIMRAN11G
-rw-r----- 1 oracle oinstall 1536 08-31 10:47 orapwtimran11g
-rw-r----- 1 oracle oinstall 3584 09-04 17:49 spfiletimran11g.ora
```

sys) ,orapwtimran11g sys

orapwd sys

linux

[oracle@timran dbs]$ rm orapwtimran11g // sys

[oracle@timran dbs]$orapwd file=orapwtimran11g password=oracle entries=5 force=y
//

file=orapw+sid

entries SYSDBA/SYSOPER

2.5 scott

scott

10:38:35 SQL> @$ORACLE_HOME/rdbms/admin/utlsampl.sql

scott

HR

3.1

1
2
3
4 mount
5 RMAN

database

19:02:27 SQL> show parameter control_file

```
NAME                                 TYPE        VALUE
------------------------------------ ----------- ------------------------------
control_file_record_keep_time        integer     7
control_files                                    string
/u01/oradata/timran11g/control01.
                                                 ctl,
/u01/oradata/timran11g/contr
                                                 ol02.ctl,
/u01/oradata/timran11g/
                                                 control03.ctl
19:02:42 SQL> select name from v$controlfile;

NAME
--------------------------------------------------------------------------------
------------------
/u01/oradata/timran11g/control01.ctl
/u01/oradata/timran11g/control02.ctl
/u01/oradata/timran11g/control03.ctl
```

3.2

1 control_files (shutdown cp spfile control_files Oracle

* 8 control files

```
19:10:25 SQL> alter system set
control_files='/u01/oradata/timran11g/control01.ctl','/u01/disk1/control02.ctl'
'/u01/disk1/control03.ctl' scope=spfile;

System altered.
```

2 control scn

```
-rw-r----- 1 oracle oinstall     7356416 07-16 20:00 control01.ctl
-rw-r----- 1 oracle oinstall     7356416 07-16 20:01 control02.ctl
-rw-r----- 1 oracle oinstall     7356416 07-16 20:01 control03.ctl
```

3 v$controlfile show parameter controlfile v$parameter

3.3

1 trace : mount open

19:59:24 SQL> alter database backup controlfile to trace; // trace udump trc

SQL>alter database backup controlfile to trace as '/u01/oradata/timran11g/con.trace'; //

2 binary

20:00:20 SQL> alter database backup controlfile to '/u01/oradata/timran11g/con.bak';

3.4

1

2 shutdown immediate

trace

nomount trace

15:37:16 SQL> startup force nomount
ORACLE instance started.

```
SQL>
CREATE CONTROLFILE REUSE DATABASE "TIMRAN11" NORESETLOGS ARCHIVELOG
    MAXLOGFILES 16
    MAXLOGMEMBERS 3
    MAXDATAFILES 100
    MAXINSTANCES 8
    MAXLOGHISTORY 292
LOGFILE
  GROUP 1 '/u01/oradata/timran11g/redo01.log' SIZE 50M,
  GROUP 2 '/u01/oradata/timran11g/redo02.log' SIZE 50M,
  GROUP 3 '/u01/oradata/timran11g/redo03.log' SIZE 50M
-- STANDBY LOGFILE
DATAFILE
  '/u01/oradata/timran11g/system01.dbf',
  '/u01/oradata/timran11g/sysaux01.dbf',
```

```
  '/u01/oradata/timran11g/user01.dbf',
  '/u01/oradata/timran11g/example01.dbf',
  '/u01/oradata/timran11g/test01.dbf',
  '/u01/oradata/timran11g/undotbs01.dbf'
CHARACTER SET ZHS16GBK
;
```

1 2

3

4

SCN

SCN

```
SQL> select file#,checkpoint_change# from v$datafile;        //

     FILE# CHECKPOINT_CHANGE#
---------- ------------------
         1            5629150
         2            5629150
         3            5629150
         4            5629150
         5            5629150
         6            5629150


SQL> select file#,checkpoint_change# from v$datafile_header;      //

     FILE# CHECKPOINT_CHANGE#
---------- ------------------
         1            5629150
         2            5629150
         3            5629150
         4            5629150
         5            5629150
         6            5629150


15:39:49 SQL> alter database open;
```

2 RMAN

redo

4.1 redo log recovery

4.2 redo log

1 DML DDL)

2) recover

3 redo file redo

4 (RAID10)

1

2

3 checkpoint redo log dirty block data buffer datafile

4.3 redo

1

2 alter system switch logfile

3 controlfile

4.4

```
15:49:43 SQL> select * from v$log;

    GROUP#         THREAD#     SEQUENCE#            BYTES        MEMBERS  ARC  STATUS
FIRST_CHANGE# FIRST_TIME
---------- ---------- ---------- ---------- ---------- --- ---------------- ----
--------- --------------
          1              1            143     52428800              1  YES  INACTIVE
2144594  17-7    -12
          2              1            144     52428800              1  NO   CURRENT
2145200  17-7    -12
          3              1            142     52428800              1  YES  INACTIVE
2113981  17-7    -12

15:50:31 SQL> col member for a50;
15:50:47 SQL> select group#, member from v$logfile;

    GROUP# MEMBER
---------- --------------------------------------------------
          1 /u01/oradata/timran11g/redo01.log
```

3 /u01/oradata/timran11g/redo03.log
2 /u01/oradata/timran11g/redo02.log

group4,

15:53:53 SQL> alter database add logfile '/u01/oradata/timran11g/redo04.log' size 50m;

15:53:56 SQL> select group#, member from v$logfile order by group#;

```
    GROUP# MEMBER
---------- ------------------------------------------------
         1 /u01/oradata/timran11g/redo01.log
         2 /u01/oradata/timran11g/redo02.log
         3 /u01/oradata/timran11g/redo03.log
         4 /u01/oradata/timran11g/redo04.log
```

15:55:27 SQL> select * from v$log;

```
    GROUP#         THREAD#     SEQUENCE#            BYTES         MEMBERS  ARC  STATUS
FIRST_CHANGE# FIRST_TIME
---------- ---------- ---------- ---------- ---------- --- ---------------- ----
--------- --------------
         1              1            143     52428800              1  YES  INACTIVE
2144594  17-7     -12
         2              1            144     52428800              1  NO   CURRENT
2145200  17-7     -12
         3              1            142     52428800              1  YES  INACTIVE
2113981  17-7     -12
         4              1              0     52428800              1  YES  UNUSED
0
```

4.5

member 4
/u01/disk2/timran/ [oracle@timran timran]$
mkdir -p /u01/disk2/timran [oracle@timran timran]$

16:00:39 SQL> alter database add logfile member
'/u01/disk2/timran/redo01b.log' to group 1,
'/u01/disk2/timran/redo02b.log' to group 2,

'/u01/disk2/timran/redo03b.log' to group 3,
'/u01/disk2/timran/redo04b.log' to group 4;

SQL> select group#,member,status from v$logfile;

```
    GROUP# MEMBER
STATUS
---------- --------------------------------------------------------------------
---------- -------
         3 /u01/oradata/timran11g/redo03.log
         2 /u01/oradata/timran11g/redo02.log
         1 /u01/oradata/timran11g/redo01.log
         4 /u01/oradata/timran11g/redo04.log
         1                                   /u01/disk2/timran/redo01b.log
INVALID
         2                                   /u01/disk2/timran/redo02b.log
INVALID
         3                                   /u01/disk2/timran/redo03b.log
INVALID
         4                                   /u01/disk2/timran/redo04b.log
INVALID
```

16:01:54 SQL> select * from v$log; // MEMBERS 2

```
    GROUP#  THREAD#  SEQUENCE#    BYTES  MEMBERS ARC STATUS
FIRST_CHANGE# FIRST_TIME
---------- ---------- ---------- ---------- ---------- --- ---------------- ----
--------- -------------
         1          1        143   52428800          2 YES INACTIVE
2144594 17-7  -12
         2          1        144   52428800          2 NO  CURRENT
2145200 17-7  -12
         3          1        142   52428800          2 YES INACTIVE
2113981 17-7  -12
         4          1          0   52428800          2 YES UNUSED
0
```

16:03:06 SQL> alter system switch logfile; // invalid // member

4.6

16:03:13 SQL> select * from v$log;

```
    GROUP#         THREAD#     SEQUENCE#            BYTES         MEMBERS  ARC  STATUS
FIRST_CHANGE# FIRST_TIME
---------- ---------- ---------- ---------- ---------- --- ---------------- ----
--------- -------------
         1              1            143     52428800              2 YES  INACTIVE
2144594 17-7    -12
         2              1            144     52428800              2 YES  ACTIVE
2145200 17-7    -12
         3              1            142     52428800              2 YES  INACTIVE
2113981 17-7    -12
         4              1            145     52428800              2 NO   CURRENT
2146613 17-7    -12
```

v$log

status

unused:

inactive: data buffer data file

active: data buffer data file

current: data buffer data file

thread lgwr thread# 1

sequence

FIRST_CHANGE# scn

scn

4.7 (PPT-11-146-148)

1 inactive

SQL> select * from v$log;

```
    GROUP#         THREAD#     SEQUENCE#            BYTES         MEMBERS ARCHIVED  STATUS
FIRST_CHANGE# FIRST_TIME
---------- ---------- ---------- ---------- ---------- -------- ----------------
------------- -----------
         1              1             59     52428800              2 NO           CURRENT
```

```
7108854  2013-3-25  1
         2              1              56     52428800              2  YES         INACTIVE
7087087  2013-3-25  1
         3              1              58     52428800              2  YES         INACTIVE
7108852  2013-3-25  1
         4              1              57     52428800              2  YES         INACTIVE
7108300  2013-3-25  1
```

4 INACTIVE

```
[oracle@timran  timran]$ rm /u01/oradata/timran11g/redo04.log
[oracle@timran  timran]$ rm /u01/disk2/timran/redo04b.log
```

SQL> alter database clear logfile group 4; // : os group4

2 active

3 ACTIVE

```
[oracle@timran  timran]$ rm /u01/oradata/timran11g/redo03.log
[oracle@timran  timran]$ rm /u01/disk2/timran/redo03b.log
```

```
SQL> alter database clear logfile group 3;
alter database clear logfile group 3
*
   1            :
ORA-01624:       3                timran11g (       1)
ORA-00312:           3       1: '/u01/oradata/timran11g/redo03.log'
ORA-00312:           3       1: '/u01/disk2/timran/redo03b.log'
```

```
SQL> alter system checkpoint;
```

```
SQL> alter database clear logfile group 3;
```

3 current

1 ACTIVE

```
[oracle@timran  timran]$ rm /u01/oradata/timran11g/redo01.log
[oracle@timran  timran]$ rm /u01/disk2/timran/redo01b.log
[oracle@timran  timran]$
```

01:10:11 SQL> alter system switch logfile;

current group1

PPT-II-147

1

db buffer dirty buffer

SQL> alter system checkpoint;

SQL> alter database

clear unarchived logfile group n;

sequence

2

SQL> recover database until cancel;
SQL> alter database open resetlogs;

3 resetlogs :

pfile _allow_resetlogs_corruption=TRUE

_allow_resetlogs_corruption SCN
SYSTEM SCN
ora-600

[oracle@work dbs]$ vi inittest11g.ora

_allow_resetlogs_corruption=TRUE
*.audit_file_dest='/u01/admin/timran11g/adump'
*.audit_trail='db'
*.compatible='11.1.0.0.0'
...

// pfile instance mount alter database open resetlogs

//

4.8

OEM member group4
/u01/disk2

archivelog

5.1

1 OLTP
(
2 arcn
3 OLAP/DSS

5.2

02:34:50 SQL>archive log list;
Database log mode Archive Mode
Automatic archival Enabled
Archive destination /u01/disk1/timran/
Oldest online log sequence 1
Next log sequence to archive 2
Current log sequence 2

5.3

02:35:50 SQL> shutdown immediate // shutdown immediate
Database closed.
Database dismounted.
ORACLE instance shut down.

02:36:40 SQL> startup mount // mount

02:37:50 SQL>alter database noarchivelog;

Database altered.

02:37:55 SQL> archive log list;
Database log mode No Archive Mode
Automatic archival Disabled
Archive destination /u01/disk1/timran/
Oldest online log sequence 1
Current log sequence 2

02:38:15 SQL> alter database archivelog; // No Archive Mode

02:38:30 SQL> alter database open;

5.4

log_archive_dest_n log_archive_dest,
log_archive_dest db_recover_file_dest
db_recover_file_des flash_recover_area

RMAN

02:39:20 SQL> show parameter archive

```
NAME                                 TYPE        VALUE
------------------------------------ ----------- ------------------------------
-------
archive_lag_target                   integer     0
log_archive_config                   string
log_archive_dest                     string
log_archive_dest_1                   string      location=/u01/disk1/timran/
mandatory
log_archive_dest_10                  string
log_archive_dest_2                   string
log_archive_dest_3
...
log_archive_duplex_dest              string
log_archive_format                   string      arch_%t_%r_%s.log
...
```

SQL> show parameter db_recovery

```
NAME                                 TYPE        VALUE
------------------------------------ ----------- ------------------------------
db_recovery_file_dest                string      /u01/flash_recovery_area
db_recovery_file_dest_size           big integer 2G
SQL>
```

log_archive_dest_n
log_archive_format

log_archive_dest_n n:1-10 10
10 log_archive_dest_1

SQL> alter system set log_archive_dest_1='location=/u01/disk1/timran';

// location

SQL> alter system set log_archive_dest_2='service=standby';

// test service ,

SQL> alter system set log_archive_dest_1='location=/u01/disk1/timran mandatory';
//mandatory
(location)
(mandatory) ( )
// optional,

log_archive_format ,

%t thread#
%s sequence
%r resetlog

SQL> alter system set log_archive_format ='arch_%t_%r_%s.log' scope=spfile;

log_archive_dest
log_archive_duplex_dest
location

log_archive_dest_n log_archive_dest log_archive_dest
log_archive_dest_n

5.5 liunx

[oracle@timran timran]$ ps -ef |grep ora_arc
oracle 1215 2435 0 13:26 pts/2 00:00:00 grep ora_arc
oracle 31796 1 0 13:00 ? 00:00:00 ora_arc0_timran11g

oracle 31798 1 0 13:00 ? 00:00:00 ora_arc1_timran11g

ARCn arc0 arc1 30
log_archive_max_processes

5.6
1
2
3

02:44:00 SQL> alter system switch logfile; //

02:46:30 SQL> alter system archive log current; // ,
Archive mode

02:48:08 SQL> select name from v$archived_log;

NAME

/u01/disk1/timran/arch_1_782662700_141.log
/u01/disk1/timran/arch_1_782662700_142.log
/u01/disk1/timran/arch_1_782662700_143.log
/u01/disk1/timran/arch_1_782662700_144.log
/u01/disk1/timran/arch_1_782662700_145.log
/u01/disk1/timran/arch_1_788918717_1.log
/u01/disk1/timran/arch_1_788918717_2.log
/u01/disk1/timran/arch_1_788918717_3.log
05:47:10 SQL>

log miner

6.1 log miner

Redo log log miner
SCN

6.2 DML DDL

6.2.1 DML

1 database

SQL>ALTER DATABASE ADD SUPPLEMENTAL LOG DATA

// PL/SQL DML DML
OEM DML

2
SQL>execute dbms_logmnr.add_logfile(logfilename=>'
',options=>dbms_logmnr.new); //

SQL>execute dbms_logmnr.add_logfile(logfilename=>'
',options=>dbms_logmnr.addfile); //

3 logmnr SQL>execute
dbms_logmnr.start_logmnr(options=>dbms_logmnr.dict_from_online_catalog);

4 .

SQL>select username,scn,timestamp,sql_redo from v$logmnr_contents where seg_name=' ';

5
SQL>execute dbms_logmnr.end_logmnr;

sys:
11:33:20 SQL> ALTER DATABASE ADD SUPPLEMENTAL LOG DATA;

scott:
09:44:08 SQL> create table a (id int);
09:44:20 SQL> insert into a values(1);
09:44:29 SQL> update a set id=5;
09:44:45 SQL> commit;
09:44:47 SQL> delete a;
09:44:51 SQL> commit;
Commit complete.

sys:

11:32:12 SQL> select * from v$log;

GROUP# THREAD# SEQUENCE# BYTES MEMBERS ARCHIVED STATUS
FIRST_CHANGE# FIRST_TIME

```
---------- ---------- ---------- ---------- ---------- -------- ---------------
------------ -----------
         1          1         26     52428800          2 NO       CURRENT
2257870 2012-7-23 9
         2          1         25     52428800          2 YES      INACTIVE
2257866 2012-7-23 9
         3          1         23     52428800          2 YES      INACTIVE
2257862 2012-7-23 9
         4          1         24     52428800          2 YES      INACTIVE
2257864 2012-7-23 9
```

// a DML current sequence# 26
archive

```
11:32:18 SQL> alter system switch logfile;

11:33:00 SQL> /

11:33:02 SQL> /

11:33:02 SQL> /

11:33:09 SQL> select name from v$archived_log;

/u01/disk1/timran/arch_1_789252862_21.log
/u01/disk1/timran/arch_1_789252862_22.log
/u01/disk1/timran/arch_1_789252862_23.log
/u01/disk1/timran/arch_1_789252862_24.log
/u01/disk1/timran/arch_1_789252862_25.log
/u01/disk1/timran/arch_1_789252862_26.log
/u01/disk1/timran/arch_1_789252862_27.log
/u01/disk1/timran/arch_1_789252862_28.log
/u01/disk1/timran/arch_1_789252862_29.log

62 rows selected
```

// sequence#26
/u01/disk1/timran/arch_1_789252862_26.log

```
11:33:48 SQL> execute
dbms_logmnr.add_logfile(logfilename=>'/u01/disk1/timran/arch_1_789252862_26.log'
,options=>dbms_logmnr.new);

11:34:13 SQL> execute
```

dbms_logmnr.start_logmnr(options=>dbms_logmnr.dict_from_online_catalog);

11:34:49 SQL>select scn,to_char(timestamp,'yyyy-mm-dd hh24:mi:ss') timestamp,sql_redo from v$logmnr_contents where seg_name='A';

```
       SCN TIMESTAMP           SQL_REDO
---------- ------------------- --------------------------------------------------
--------------------------------
   2258232 2012-07-23 09:43:16 drop table a purge;
   2258334 2012-07-23 09:44:20 create table a (id int);
   2258341 2012-07-23 09:44:28 insert into "SCOTT"."A"("ID") values ('1');
   2258349 2012-07-23 09:44:46 update "SCOTT"."A" set "ID" = '5' where "ID" = '1'
and ROWID = 'AAANBAAAEAAAAGEA
   2258353 2012-07-23 09:44:52 delete from "SCOTT"."A" where "ID" = '5' and ROWID
= 'AAANBAAAEAAAAGEAAA';
```

6.2.2 DDL log miner

1 logmnr

logmnr dict.ora

$ mkdir /home/oracle/logmnr

SQL> alter system set utl_file_dir='/home/oracle/logmnr' scope=spfile;

2 dict.ora

SQL> execute dbms_logmnr_d.build('dict.ora','/home/oracle/logmnr',dbms_logmnr_d.store_in_flat_file);

3

SQL> execute dbms_logmnr.add_logfile(logfilename=>' ',options=>dbms_logmnr.new);
SQL> execute dbms_logmnr.add_logfile(logfilename=>' ',options=>dbms_logmnr.addfile);

4

SQL> execute dbms_logmnr.start_logmnr(dictfilename=>'/home/oracle/logmnr/dict.ora',options=>dbms_logmnr.ddl_dict_tracking);

5

SQL> select username,scn,to_char(timestamp,'yyyy-mm-dd hh24:mi:ss'),sql_redo from

v$logmnr_contents WHERE USERNAME ='SCOTT' and lower(sql_redo) like '%table%';

6

SQL> execute dbms_logmnr.end_logmnr;

053

oracle11g OEM log miner oracle transaction

OEM-->Availability-->Manage-->View and Manage Transctions

undo(PPT-1-299-309)

7.1 undo

undo tablespace datafiles

1 rollback

2 DML undo

3 instance recover(undo -------->rollback)

4 flashback query flashback table

7.2 undo

1 manaual roll segment

2 auto undo tablespace init parameter undo_management = auto)

7.3 undo

1 undo active

2 active undo tablespace offline drop

01:08:31 SQL> select tablespace_name,status,contents from dba_tablespaces;

TABLESPACE_NAME	STATUS	CONTENTS
SYSTEM	ONLINE	PERMANENT
UNDOTBS1	ONLINE	UNDO
SYSAUX	ONLINE	PERMANENT

```
TEMP                           ONLINE    TEMPORARY
USERS                          ONLINE    PERMANENT
EXAMPLE                        ONLINE    PERMANENT
TEST                           ONLINE    PERMANENT
```

09:47:08 SQL> create undo tablespace undotbs2 datafile '/u01/oradata/timran11g/undotbs02.dbf' size 100m autoextend on;
09:47:55 SQL> select tablespace_name,status,contents from dba_tablespaces;

SQL> select tablespace_name,status ,contents from dba_tablespaces;

```
TABLESPACE_NAME                STATUS    CONTENTS
------------------------------ --------- ---------
SYSTEM                          ONLINE    PERMANENT
SYSAUX                          ONLINE    PERMANENT
UNDOTBS1                       ONLINE    UNDO
TEMP                           ONLINE    TEMPORARY
USERS                          ONLINE    PERMANENT
UNDOTBS2                       ONLINE    UNDO
EXAMPLE                        ONLINE    PERMANENT
TEST                           ONLINE    PERMANENT
```

7.4 undo tablespace

09:48:00 SQL> show parameter undo

```
NAME                                 TYPE        VALUE
------------------------------------ ----------- ------------------------------
undo_management                      string      AUTO
undo_retention                       integer     900
undo_tablespace                      string      UNDOTBS1
```

00:20:50
SQL> select * from v$rollname;

```
       USN NAME
---------- ------------------------------
         0 SYSTEM
         1 _SYSSMU1_1363316212$
         2 _SYSSMU2_1363316212$
         3 _SYSSMU3_1363316212$
         4 _SYSSMU4_1363316212$
         5 _SYSSMU5_1363316212$
         6 _SYSSMU6_1363316212$
         7 _SYSSMU7_1363316212$
```

```
         8 _SYSSMU8_1363316212$
         9 _SYSSMU9_1363316212$
        10 _SYSSMU10_1363316212$
```

7.5 undo

```
09:50:10 SQL> alter system set undo_tablespace=undotbs2;       //memory
09:50:28 SQL> show parameter undo

NAME                                 TYPE        VALUE
------------------------------------ ----------- ------------------------------
undo_management                      string      AUTO
undo_retention                       integer     900
undo_tablespace                      string      UNDOTBS2

SQL> select * from v$rollname;

       USN NAME
---------- ------------------------------
         0 SYSTEM
        11 _SYSSMU11_1357956213$
        12 _SYSSMU12_1357956213$
        13 _SYSSMU13_1357956213$
        14 _SYSSMU14_1357956213$
        15 _SYSSMU15_1357956213$
        16 _SYSSMU16_1357956213$
        17 _SYSSMU17_1357956213$
        18 _SYSSMU18_1357956213$
        19 _SYSSMU19_1357956213$
        20 _SYSSMU20_1357956213$
```

7.6 undo tablespace

```
SQL> drop tablespace undotbs1 including contents and datafiles;
SQL> select * from v$tablespace;

       TS# NAME                           INC BIG FLA ENC
---------- ------------------------------ --- --- --- ---
         0 SYSTEM                         YES NO  YES
         1 SYSAUX                         YES NO  YES
         4 USERS                          YES NO  YES
         6 EXAMPLE                        YES NO  YES
         8 TEST                           YES NO  YES
         3 TEMP                           NO  NO  YES
```

5 UNDOTBS2 YES NO YES

7.7 undo 4

1 active transaction commit
2 unexpired: commit, undo_retention GUARANTEE undo_retention
3 expired: commit undo_retention
4 free:

undo retention undo autoextend on

undo retention unexpired commit

undo autoextend on, DBCA ,
undo , unexpired commit

ORA_01555 snapshot too old), undo retention undo autoextend on

7.8 undo_retention // commit undo

01:10:46 SQL> select tablespace_name,status,contents,retention from dba_tablespaces;

```
TABLESPACE_NAME                STATUS    CONTENTS  RETENTION
------------------------------ --------- --------- -----------
SYSTEM                         ONLINE    PERMANENT NOT APPLY
SYSAUX                         ONLINE    PERMANENT NOT APPLY
TEMP                           ONLINE    TEMPORARY NOT APPLY
USERS                          ONLINE    PERMANENT NOT APPLY
EXAMPLE                        ONLINE    PERMANENT NOT APPLY
TEST                           ONLINE    PERMANENT NOT APPLY
UNDOTBS2                       ONLINE    UNDO      NOGUARANTEE
```

guarantee undo ,

09:52:22 SQL> alter tablespace undotbs2 retention guarantee; // retention

01:11:16 SQL> select tablespace_name,status ,contents,retention from dba_tablespaces;

```
TABLESPACE_NAME                STATUS    CONTENTS  RETENTION
```

```
------------------------------ --------- --------- -----------
SYSTEM                         ONLINE    PERMANENT NOT APPLY
SYSAUX                         ONLINE    PERMANENT NOT APPLY
TEMP                           ONLINE    TEMPORARY NOT APPLY
USERS                          ONLINE    PERMANENT NOT APPLY
EXAMPLE                        ONLINE    PERMANENT NOT APPLY
TEST                           ONLINE    PERMANENT NOT APPLY
UNDOTBS2                       ONLINE    UNDO      GUARANTEE
```

undo retention noguarantee

```
SQL> alter tablespace undotbs2 retention noguarantee;
```

7.9 undo

1 v$session session
2 v$transaction
3 v$rollname undo
4 v$rollstat undo
5) dba_rollback_segs undo

session session
v$transaction v$transaction
session

```
cmd  scott
```

10:03:28 SQL> select username,sid,serial# from v$session where username is not null; // session

```
USERNAME                         SID    SERIAL#
------------------------------ ---------- ----------
SCOTT                             131         18
SYS                               170          5
```

```
cmd  update emp1 set sal=1000 where empno=7788;      //
```

```
SQL> select a.sid,a.serial#,a.username,b.xidusn,xidslot,b.ubablk,b.status from v$session a,v$transaction b where a.saddr=b.ses_addr;
```

10:08:29 SQL> col name for a10

```
      SID    SERIAL# USERNAME                    XIDUSN    XIDSLOT    UBABLK
STATUS
---------- ---------- -------------------- ---------- ---------- ---------- ----
```

---

131 18 SCOTT 18 5 305
ACTIVE

// sid serial# v$session v$transaction XIDUSN undo segment
id XIDSLOT id,UBABLK undo

_SYSSMU18 , XIDUSN=8
buffer .

SQL> select a.usn,b.name,a.xacts from v$rollstat a, v$rollname b where a.usn=b.usn;

USN	NAME	XACTS
0	SYSTEM	0
11	_SYSSMU11_1357956213$	0
12	_SYSSMU12_1357956213$	0
13	_SYSSMU13_1357956213$	0
14	_SYSSMU14_1357956213$	0
15	_SYSSMU15_1357956213$	0
16	_SYSSMU16_1357956213$	0
17	_SYSSMU17_1357956213$	0
18	_SYSSMU18_1357956213$	1
19	_SYSSMU19_1357956213$	0
20	_SYSSMU20_1357956213$	0

7.10 system undo

system undo segment(usn 0)
undo tablespace 10 undo segment
Oracle UNDO
10 Oracle

undo offline,
undo DML

7.11 open undo

undo UNDOTBS2
DML UNDOTBS2 active

Oracle NEEDS RECOVERY UNDOTBS2
UNDO UNDO UNDO
Oracle NEEDS RECOVERY
UNDO

[oracle@timran timran]$ mv undotbs02.dbf undotbs02.bak

00:29:28 SQL>alter system checkpoint;

cmd update

SQL> update emp1 set sal=1000 where empno=7902;
ORA-01116: 3
ORA-01110: 3: '/u01/oradata/timran11g/undotbs02.dbf'
ORA-27041:

00:29:28 SQL> startup force mount

SQL> select file#,checkpoint_change# from v$datafile;

FILE#	CHECKPOINT_CHANGE#
1	6708724
2	6708724
3	6708724
4	6708724
5	6708724
6	6708724

SQL> select file#,checkpoint_change# from v$datafile_header;

FILE#	CHECKPOINT_CHANGE#
1	6708724
2	6708724
3	0
4	6708724
5	6708724
6	6708724

SQL> alter database datafile 3 offline;
SQL> alter database open;
SQL> select * from v$rollname;

```
       USN NAME
---------- ------------------------------
         0 SYSTEM
```

SQL> select segment_name,status from dba_rollback_segs; //
online offline UNDO

```
SEGMENT_NAME                   STATUS
------------------------------ ---------------
SYSTEM                         ONLINE
_SYSSMU20_1357956213$          NEEDS RECOVERY
_SYSSMU19_1357956213$          NEEDS RECOVERY
_SYSSMU18_1357956213$          NEEDS RECOVERY
_SYSSMU17_1357956213$          NEEDS RECOVERY
_SYSSMU16_1357956213$          NEEDS RECOVERY
_SYSSMU15_1357956213$          NEEDS RECOVERY
_SYSSMU14_1357956213$          NEEDS RECOVERY
_SYSSMU13_1357956213$          NEEDS RECOVERY
_SYSSMU12_1357956213$          NEEDS RECOVERY
_SYSSMU11_1357956213$          NEEDS RECOVERY
```

SQL>create undo tablespace undotbs1 datafile '/u01/oradata/timran11g/undotbs01.dbf' size 100m autoextend on;

SQL>select * from v$tablespace;

```
       TS# NAME                           INC BIG FLA ENC
---------- ------------------------------ --- --- --- ---
         0 SYSTEM                         YES NO  YES
         1 SYSAUX                         YES NO  YES
         2 UNDOTBS1                       YES NO  YES
         4 USERS                          YES NO  YES
         3 TEMP                           NO  NO  YES
         6 EXAMPLE                        YES NO  YES
         8 TEST                           YES NO  YES
         5 UNDOTBS2                       YES NO  YES
```

SQL> alter system set undo_tablespace=UNDOTBS1;

) UNDOTBS2,

SQL> drop tablespace undotbs2 including contents and datafiles;
drop tablespace undotbs2 including contents and datafiles
*
1 :
ORA-01548: "SYSSMU11_1357956213$',

// UNDOTBS2 Oracle NEEDS RECOVERY

SQL> select segment_name,status from dba_rollback_segs;

1 2 oracle
_CORRUPTED_ROLLBACK_SEGMENTS
2

SQL>create pfile from spfile; //
SQL>shutdown abort

#vi /u01/oracle/dbs/inittimran11g.ora //
_CORRUPTED_ROLLBACK_SEGMENTS=(_SYSSMU11_1357956213$,_SYSSMU12_1357956213$,_SYSSMU13_1357956213$,_SYSSMU14_1357956213$,_SYSSMU15_1357956213$,_SYSSMU16_1357956213$,_SYSSMU17_1357956213$,_SYSSMU18_1357956213$,_SYSSMU19_1357956213$,_SYSSMU20_1357956213$)

,

SQL> startup pfile='/u01/oracle/dbs/inittimran11g.ora'

SQL> drop rollback segment "_SYSSMU11_1357956213$";

SQL> drop rollback segment "_SYSSMU20_1357956213$";

SQL> select segment_name,status from dba_rollback_segs;

SEGMENT_NAME	STATUS
SYSTEM	ONLINE
_SYSSMU10_1384520126$	ONLINE
_SYSSMU9_1384520126$	ONLINE
_SYSSMU8_1384520126$	ONLINE
_SYSSMU7_1384520126$	ONLINE
_SYSSMU6_1384520126$	ONLINE

```
_SYSSMU5_1384520126$            ONLINE
_SYSSMU4_1384520126$            ONLINE
_SYSSMU3_1384520126$            ONLINE
_SYSSMU2_1384520126$            ONLINE
_SYSSMU1_1384520125$            ONLINE
```

11

SQL> drop tablespace undotbs2 including contents and datafiles;

select * from v$tablespace; undo ts# =2

update seg$ set type# = 3 where ts#=2;

checkpoint)

8.1 checkpoint

checkpoint (DBWR)

8.2 checkpoint 2

1

2

8.3 checkpoint

full checkpoint

incremental checkpoint

partial checkpoint

8.3.1 scn, scn

scn

a) :shutdown immediate b)
:alter system checkpoint; c)
alter system switch logfile; d)
alter database begin backup;

alter system checkpoint v$datafile
v$datafile_header scn
:alter system switch logfile;

FAST_START_MTTR_TARGET<>0 v$log active inactive
SCN

8.3.2

8.3.2.1

1 oracle .
,

2 DBWR ,
,
RBA

3
IO

4 SCN

8.3.2.2

1 FAST_START_MTTR_TARGET

0 0-3600 Oracle
dirty buffer
0 ORACLE DBWN

log_checkpoint_interval

redo block
block os block oracle block

log_checkpoint_timeout

FAST_START_MTTR_TARGET

*

fast_start_mttr_target 0 1 2
log_checkpoint_interval

2 90% OF SMALLEST REDO LOG(Oarcle) 10%

3 3s checkpoint 3s
controlfile

8.3.3 MTTR Advisory

1 STATISTICS_LEVEL --> typical) all
2 FAST_START_MTTR_TARGET -->

8.3.4 MTTR

v$instance_recovery

SQL>select
recovery_estimated_ios,actual_redo_blks,target_redo_blks,target_mttr,estimated_mttr from v$instance_recovery;

RECOVERY_ESTIMATED_IOS ACTUAL_REDO_BLKS TARGET_REDO_BLKS TARGET_MTTR ESTIMATED_MTTR
---------- ---------- ---------- ---------- ----------
72 333 3700 33 12

// target_mttr 33 , 12

8.5

offline, offline, extent, truncate,begin backup(
Oracle

redo,undo ckpt (PPT-I 404-408

db buffer datafile

commit
uncommit

oracle

smon

1 roll forward redo commit uncommit
(datafile)
2 open
3 roll back undo datafile) uncommit

Oracle

Oracle
oracle
sys

10.1

10.1.1 Data dictionary)

1) central of database
2 read_only table and views
3 owner sys
4 oracle server ddl
5 select

6

7 system tablespace

dict

```
SQL> select * from dict where table_name='DBA_OBJECTS';

TABLE_NAME                     COMMENTS
------------------------------------------  ------------------------------
--------------------------
DBA_OBJECTS                    All objects in the database

SQL> select count(*) from dict;

  COUNT(*)
----------
      2323
```

10.1.2

create database /u01/oracle/rdbms/admin/sql.bsd
/u01/oracle/rdbms/admin/catalog.sql

10.1.3 static

static open database (
database object

dba_ : sys/system
all_ :

user_

O7_DICTIONARY_ACCESSIBILITY FALSE select any
table DBA sys DBA dba_

10.2 V$

X$ oracle X$

x$)---------- v_$)---------- v$-------User access

v$fixed_table
Oracle8 GV$ Global V$,GV$ OPS
V$ GV$

```
SQL> select count(*) from v$fixed_table;

  COUNT(*)
----------
      1741
```

* DBA_ ALL_ USER_

Oracle

DATABASE-->TABLESPACES-->SEGMENTS-->EXENTS-->BLOCKS (DBA-I-PPT36-

11.1 TABLESPACE(

PERMANENT
UNDO
TEMPORARY

11.1.1

AUTO MANUAL

03:32:36 SQL> select tablespace_name,contents ,extent_management,segment_space_management from dba_tablespaces;

```
TABLESPACE_NAME                CONTENTS  EXTENT_MAN SEGMEN
------------------------------ --------- ---------- ------
SYSTEM                         PERMANENT DICTIONARY MANUAL
SYSAUX                         PERMANENT LOCAL      AUTO
TEMP                           TEMPORARY LOCAL      MANUAL
USERS                          PERMANENT LOCAL      AUTO
EXAMPLE                        PERMANENT LOCAL      AUTO
```

```
UNDO_TBS01                     UNDO        LOCAL       MANUAL
TMP01                          TEMPORARY   LOCAL       MANUAL
TBS_16K                        PERMANENT   LOCAL       AUTO
BIG_TBS                        PERMANENT   LOCAL       AUTO
TEST                           PERMANENT   DICTIONARY  MANUAL
```

1 system local

2

```
execute dbms_space_admin.tablespace_migragte_to_local('tablespacename');
```

11.1.2

```
SQL> create tablespace a datafile '/u01/oradata/timran11g/a01.dbf' size 10m;
```

oracle dbms_metadata.get_ddl

```
SQL> set serverout on;
SQL>
declare
aa varchar2(2000);
begin
select dbms_metadata.get_ddl('TABLESPACE','B') into aa FROM dual;
dbms_output.put_line(aa);
end;
/
```

```
  CREATE TABLESPACE "A" DATAFILE
  '/u01/oradata/timran11g/a01.dbf' SIZE 10485760
  LOGGING ONLINE PERMANENT BLOCKSIZE
8192
  EXTENT MANAGEMENT LOCAL AUTOALLOCATE SEGMENT SPACE MANAGEMENT AUTO
PL/SQL
```

:(1) (2)

```
SQL>
create tablespace b datafile '/u01/oradata/timran11g/b01.dbf' size 10m
extent management local uniform size 128k
```

segment space management manual

dbms_metadata.get_ddl oracle ddl

```
CREATE TABLESPACE "B" DATAFILE
'/u01/oradata/timran11g/a01.dbf' SIZE 10485760
LOGGING ONLINE PERMANENT BLOCKSIZE
8192
EXTENT MANAGEMENT LOCAL UNIFORM SIZE 131072 SEGMENT SPACE MANAGEMENT MANUAL
```

128K,

11.1.3

OPEN

1 system 2 active undo tablespace 3 default temporary tablespace 4 default tablespace

OPEN offine

1 system 2 active undo tablespace 3 default temporary tablespace

09:47:04 SQL> select TABLESPACE_NAME,sum(bytes)/1024/1024 from dba_free_space group by tablespace_name;

TABLESPACE_NAME	SUM(BYTES)/1024/1024
UNDOTBS1	98.4375
SYSAUX	14.625
USERS	48.1875
SYSTEM	1.875
EXAMPLE	31.25

11.1.4 bigfile small file

1 small file

2 bigfile 8k block datafile maxsize 32T

09:54:49 SQL> create bigfile tablespace big_tbs datafile

'/u01/oradata/timran11g/bigtbs01.dbf' size 100m;

09:55:01 SQL> alter tablespace big_tbs add datafile '/u01/oradata/timran11g/bigtbs02.dbf' size 100m;
alter tablespace big_tbs add datafile '/u01/oradata/timran11g/bigtbs02.dbf' size 100m
*
ERROR at line 1:
ORA-32771: cannot add file to bigfile tablespace

09:55:46 SQL> select name,bigfile from v$tablespace;

NAME	BIG
SYSTEM	NO
UNDOTBS1	NO
SYSAUX	NO
USERS	NO
TEMP	NO
EXAMPLE	NO
TBS_16K	NO
BIG_TBS	YES

11.2 SEGMENT(

11.2.1 SEGMENT

1

2 ORACLE (

3 extent

1 (ASSM(Auto Segment Space Management)) --

100% 75% 50% 25% 0% 8k 3k
oracle 50%

ASSM EXTENT MANAGEMENT LOCAL ORACLE9I
ASSM pctused

2 (MSSM(Manual Segment Space Management)) -- FREELIST(

pctfree pctused
block

11.2.2 segment)

oracle
, blob,clob,

```
SQL> conn / as sysdba
SQL> create user tim identified by tim;
SQL> grant connect,resource to tim;

SQL> conn tim/tim
SQL> select * from user_segments;



SQL> create table t1 (id int);

SQL> select segment_name from user_segments;

SEGMENT_NAME
--------------------------------------------------------------------------------
-
T1

SQL> create table t2 (id int constraint pk_t2 primary key, b blob, c clob);

SQL> select segment_name from user_segments;

SEGMENT_NAME
SEGMENT_TYPE
--------------------------------------------------------------------------------
- ------------------
```

PK_T2
INDEX
SYS_IL0000071160C00003$$
LOBINDEX
SYS_LOB0000071160C00003$$
LOBSEGMENT
SYS_IL0000071160C00002$$
LOBINDEX
SYS_LOB0000071160C00002$$
LOBSEGMENT
T2
TABLE
T1
TABLE

Oracle11gR2 DEFERRED_SEGMENT_CREATE(heap table , TRUE create table segment, insert segment (PPT-II-476-478)

(DEFERRED_SEGMENT_CREATE) create table SEGMENT CREATION

create table scott.t1(id int,name char(10) SEGMENT CREATION IMMEDIATE TABLESPACE TB1

create table scott.t1(id int,name char(10) SEGMENT CREATION DEFERRED; // 11gR2

11.3 EXTENT

11.3.1 EXTENT

ORACLE Oracle

ORACLE

11.3.2

1 Oracle 8i uet$ fet$

2 extent)

DBA

11.3.3 extent

extent 1

extent

11.3.4

sys:

```
SQL> create tablespace test datafile '/u01/oradata/timran11g/test01.dbf' size 10m;
SQL> create table scott.t1 tablespace test as select * from scott.dept;
SQL> col segment_name for a20;
SQL> select segment_name,file_id,extent_id,bytes from dba_extents where segment_name='T1';

SEGMENT_NAME         FILE_ID  EXTENT_ID      BYTES
-------------------- ---------- ---------- ----------
T1                         6          0      65536
```

T1 ID 0 65536 bytes;

Oracle

```
SQL> insert into scott.t1 select * from scott.t1;
```

2048

```
SQL> select segment_name,file_id,extent_id,bytes from dba_extents where segment_name='T1';

SEGMENT_NAME         FILE_ID  EXTENT_ID      BYTES
-------------------- ---------- ---------- ----------
T1                         6          0      65536
T1                         6          1      65536
T1                         6          2      65536
```

T1

```
SQL> delete scott.t1;
```

4096

SQL> select segment_name,file_id,extent_id,bytes from dba_extents where segment_name='T1';

extent T1 ,

size

alter table scott.t1 allocate extent (datafile '/u01/oradata/timran11g/test01.dbf' size 5m);

SQL> select segment_name,extent_id,file_id,bytes from dba_extents where segment_name='T1';

SEGMENT_NAME	EXTENT_ID	FILE_ID	BYTES
T1	0	6	65536
T1	1	6	65536
T1	2	6	65536
T1	3	6	1048576
T1	4	6	1048576
T1	5	6	1048576
T1	6	6	1048576
T1	7	6	1048576

free extent, deallocate, extent

SQL> alter table scott.t1 deallocate unused;

SQL> select segment_name,extent_id,file_id,bytes from dba_extents where segment_name='T1';

SEGMENT_NAME	EXTENT_ID	FILE_ID	BYTES
T1	0	6	65536
T1	1	6	65536
T1	2	6	65536

dba_extents file_id user_extents ,

SQL> select file_id,file_name,tablespace_name from dba_data_files;

11.4 BLOCK(

11.4.1 BLOCK(

BLOCK Oracle IO BLOCK

1 AUTO
ASSM

2 (MSSM) FREELIST PCTFREE PCTUSED

data block oracle 11g 8k 2-32k block header free space data

ITL ITL
ITL ID undo SCN
ITL
initrans 1, index 2
maxtrans 255

ROW DIR: ,

row entries ITL

freelist

pctfree
freelist

pctused

freelist

ASSM

update

(PPT –II–470)

ROWID update pctfree

insert delete

dba_tables AVG_ROW_LEN CHAIN_CNT CHAIN_CNT AVG_ROW_LEN

byte AVG_ROW_LEN< >

```
SQL> create table t1 (c1 varchar2(20));

SQL>
begin
for i in 1..1000 loop
insert into t1 values(null);
end loop;
end;
/
```

t1

```
SQL> analyze table t1 compute statistics;
SQL> select pct_free,pct_used,avg_row_len,chain_cnt from user_tables where
table_name='T1';

  PCT_FREE    PCT_USED AVG_ROW_LEN  CHAIN_CNT
---------- ---------- ----------- ----------
        10                      3          0
```

t1,

```
SQL> update t1 set c1='timran is my name';
SQL> analyze table t1 compute statistics;
SQL> select pct_free,pct_used,avg_row_len,chain_cnt from user_tables where
table_name='T1';
```

```
  PCT_FREE    PCT_USED AVG_ROW_LEN  CHAIN_CNT
---------- ---------- ----------- ----------
        10                     26        865
```

move t1,

```
SQL> alter table t1 move;
SQL> analyze table t1 compute statistics;
SQL> select pct_free,pct_used,avg_row_len,chain_cnt from user_tables where table_name='T1';

  PCT_FREE    PCT_USED AVG_ROW_LEN  CHAIN_CNT
---------- ---------- ----------- ----------
        10                     21          0
```

DBMS_STATS

ANALYZE

11.4.2 block

1 high-water mark HWM

HWM , HWM

HWM HWM

IO

2 HWM

2.1 move , move)

alter table t1 move [tablespace users];

,

move

move DML DDL

move

2.2 shrink INSERT DELETE

DDL (PPT-II-491) alter table t2 shrink space [cascade][compact]; 1 ASSM ,

(2 row movement

alter table t2 shrink space compact;

alter table t2 shrink space;

DML

create tablespace timran datafile '/u01/oradata/timran11g/timran01.dbf' size 100m;
create table scott.t2 tablespace timran as select * from dba_objects;

scott

select max(rownum) from t2;
select table_name, blocks, empty_blocks, num_rows from user_tables where table_name='T2';
analyze table t2 compute statistics;
delete t2 where rownum<=40000;
commit;

analyze table t2 compute statistics for table;
select table_name, blocks, num_rows from user_tables where table_name='T2';

num_rows 40000 blocks HWM

shrink

alter table t2 enable row movement; //

----

alter table t2 shrink space compact;
analyze table t2 compute statistics for table;
select table_name, blocks, num_rows from user_tables where table_name='T2';
//HWM

----DDL

alter table t2 shrink space;
analyze table t2 compute statistics for table;
select table_name, blocks, num_rows from user_tables where table_name='T2';
//HWM

1 undo redo
2 HWM SHRINK
3 SHRINK SPACE COMPACT HWM DML
4 SHRINK SPACE CASCADE
5 ASSM MOVE
6 MSSM LONG refresh_on_commit

11.5

11.5.1 temporary tablespace :

default temporary tablespace offline drop ,oracle system (temp nologing

09:00:53 SQL> alter tablespace temp add tempfile '/u01/oradata/timran11g/temp01.dbf' size 100m reuse;

dba_temp_files ;

09:01:14 SQL> select file_id,file_name,tablespace_name from dba_temp_files;

FILE_ID FILE_NAME TABLESPACE_NAME
---------- ---------- ----------
1 /u01/oradata/timran11g/temp01.dbf TEMP

09:01:17 SQL> col name for a60;
09:01:19 SQL> select file#,name ,bytes/1024/1024 from v$tempfile;

FILE# NAME BYTES/1024/1024
---------- ---------- ----------
1 /u01/oradata/timran11g/temp01.dbf 100

11.5.2 temp2 tempfile

09:04:18 SQL> create temporary tablespace temp2 tempfile '/u01/oradata/timran11g/temp02.dbf' size 10m;

09:05:00 SQL> alter tablespace temp2 add tempfile '/u01/oradata/timran11g/temp03.dbf' size 5m;

SQL> select file_id,file_name,tablespace_name from dba_temp_files;

```
   FILE_ID                                                                  FILE_NAME
TABLESPACE_NAME
---------- ------------------------------------------------------------------------
---------- ------------------------------
         1                                      /u01/oradata/timran11g/temp01.dbf
TEMP
         2                                      /u01/oradata/timran11g/temp02.dbf
TEMP2
         3                                      /u01/oradata/timran11g/temp03.dbf
TEMP2
```

temp2 tempfile

SQL> alter tablespace temp2 drop tempfile '/u01/oradata/timran11g/temp03.dbf';

SQL> select file_id,file_name,tablespace_name from dba_temp_files;

```
   FILE_ID                                                                  FILE_NAME
TABLESPACE_NAME
---------- ------------------------------------------------------------------------
---------- ------------------------------
         1                                      /u01/oradata/timran11g/temp01.dbf
TEMP
         2                                      /u01/oradata/timran11g/temp02.dbf
TEMP2
```

11.5.3

```
09:06:52 SQL> col PROPERTY_VALUE for a30
09:06:59 SQL> col description for a40
09:07:04 SQL> select * from database_properties;

PROPERTY_NAME                  PROPERTY_VALUE                 DESCRIPTION
------------------------------ ------------------------------ ------------------
--------------------
```

```
DICT.BASE                      2                              dictionary base
tables version #
DEFAULT_TEMP_TABLESPACE        TEMP                           Name of default
temporary tablespace
DEFAULT_PERMANENT_TABLESPACE   USERS                          Name of default
permanent tablespace
DEFAULT_TBS_TYPE               SMALLFILE                      Default tablespace
type
NLS_LANGUAGE                   AMERICAN                       Language
NLS_TERRITORY                  AMERICA                        Territory
-----

27 rows selected.
```

11.5.4

20:55:00 SQL> alter user scott temporary tablespace temp2;

// default profile temp2 scott temporary temp

11.5.5

```
09:07:05 SQL> alter database default temporary tablespace temp2;
09:07:34 SQL> select * from database_properties;

PROPERTY_NAME                  PROPERTY_VALUE                 DESCRIPTION
------------------------------ ------------------------------ ------------------
----------------------
DICT.BASE                      2                              dictionary base
tables version #
DEFAULT_TEMP_TABLESPACE        TEMP2                          Name of default
temporary tablespace
DEFAULT_PERMANENT_TABLESPACE   USERS                          Name of default
permanent tablespace
DEFAULT_TBS_TYPE               SMALLFILE                      Default tablespace
type
NLS_LANGUAGE                   AMERICAN                       Language
---

09:07:41 SQL>
```

11.5.6 (10g

session Oracle

1)

09:07:41 SQL> alter tablespace temp tablespace group tmpgrp;

09:09:33 SQL> alter tablespace temp2 tablespace group tmpgrp;

09:09:38 SQL> select * from dba_tablespace_groups;

GROUP_NAME	TABLESPACE_NAME
TMPGRP	TEMP
TMPGRP	TEMP2

2)

09:09:52 SQL> alter database default temporary tablespace tmpgrp;

Database altered.

09:10:10 SQL> select * from database_properties;

PROPERTY_NAME	PROPERTY_VALUE	DESCRIPTION
DICT.BASE	2	dictionary base tables version #
DEFAULT_TEMP_TABLESPACE	TMPGRP	Name of default temporary tablespace
DEFAULT_PERMANENT_TABLESPACE	USERS	Name of default permanent tablespace
DEFAULT_TBS_TYPE	SMALLFILE	Default tablespace type
NLS_LANGUAGE	AMERICAN	Language
NLS_TERRITORY	AMERICA	Territory

3)

SQL>alter database default temporary tablespace temp;

05:38:11 SQL> alter tablespace temp tablespace group '';
05:38:16 SQL> alter tablespace temp2 tablespace group '';

4)

05:38:23 SQL> select * from dba_tablespace_groups;
no rows selected

SQL> drop tablespace temp2 including contents and datafiles;

tempfile default temporary tablespace
crash, add tempfile drop tempfile. default
temporary tablespace offline temporary file offline

11.6

3

1 resize

alter database datafile '/u01/oradata/timran11g/timran01.dbf' resize 10m;

2 add datafile

alter tablespace timran add datafile '/u01/oradata/timran11g/timran02.dbf' size 20m;

3 autoextend)

alter database datafile '/u01/oradata/timran11g/timran01.dbf' autoextend on next 10m maxsize 500m;

:
SQL> create tablespace timran datafile '/u01/oradata/timran11g/timran01.dbf' size 5m;
05:46:08 SQL> create table scott.test1 (id int) tablespace timran;
05:47:12 SQL> insert into scott.test1 values(1);
05:47:15 SQL> insert into scott.test1 select * from scott.test1;
05:47:23 SQL> /
05:47:23 SQL> /
32768 rows created.
05:47:23 SQL> /
insert into scott.test1 select * from scott.test1
*
ERROR at line 1:

```
ORA-01653: unable to extend table SCOTT.TEST1 by 8 in tablespace TIMRAN

//
05:47:23 SQL> alter database datafile '/u01/oradata/timran11g/timran01.dbf'
resize 10m;

05:48:18 SQL> insert into scott.test1 select * from scott.test1;

05:48:25 SQL> /

131072 rows created.

05:48:26 SQL> /
insert into scott.test1 select * from scott.test1
*
ERROR at line 1:
ORA-01653: unable to extend table SCOTT.TEST1 by 128 in tablespace TIMRAN

//

05:48:57 SQL> alter tablespace timran add datafile
'/u01/oradata/timran11g/timran02.dbf' size 20m;

05:49:04 SQL> insert into scott.test1 select * from scott.test1;

05:49:13 SQL> /

524288 rows created.

05:49:14 SQL> /
insert into scott.test1 select * from scott.test1
*
ERROR at line 1:
ORA-01653: unable to extend table SCOTT.TEST1 by 128 in tablespace TIMRAN

//

05:49:15 SQL> alter database datafile '/u01/oradata/timran11g/timran01.dbf'
autoextend on next 10m maxsize 500m;

05:49:33 SQL> insert into scott.test1 select * from scott.test1;

05:49:37 SQL> drop tablespace timran including contents and datafiles;
```

11.7 Oracle Resumable (PPT-II-502)

insert

ORA-01653: SQL

Oracle resumable resumable

Oracle SQL undob

temporary suspended) Oracle

insert

resumable

system RESUMABLE_TIMEOUT 0 session

session alter session enable|disable resumable [TIMEOUT]; session

resumable , session resumable

TIMEOUT , RESUMABLE_TIMEOUT

RESUMABLE_TIMEOUT=0, enable session TIMEOUT 7200

RESUMABLE_TIMEOUT<>0 enable session TIMEOUT TIMEOUT

RESUMABLE_TIMEOUT

session 1:

1 2m

```
SQL> create tablespace small datafile '/u01/oradata/timran11g/small01.dbf' size
2m;
SQL> create table scott.test(n1 char(1000)) tablespace small;
```

2 for 2000

```
SQL>
begin
for i in 1..2000 loop
insert into scott.test values('this is test');
end loop;
commit;
end;
/
```

```
begin
*
   1            :
ORA-01653:     SCOTT.TEST            128 (          SMALL    )
ORA-06512:     line 3

SQL> select count(*) from scott.test;

  COUNT(*)
----------
         0
```

3 resumable

```
SQL> alter session enable resumable;
```

4 2

session 2:

5

```
SQL> select session_id,sql_text,error_number from dba_resumable;

SESSION_ID  SQL_TEXT                                                  ERROR_NUMBER
---------- ------------------------------------------------- ------------
       136 INSERT INTO SCOTT.TEST VALUES('this is test')                1653

SQL> select sid,event,seconds_in_wait from v$session_wait where sid=136;

       SID                                                                EVENT
SECONDS_IN_WAIT
---------- ---------------------------------------------------------------- ----
----------
       136     statement     suspended,     wait     error     to     be     cleared
1


6                    session1


SQL> alter tablespace small add datafile "/u01/oradata/timran11g/small02.dbf"
size 4m;

SQL> select count(*) from scott.test;
```

```
  COUNT(*)
----------
      2000
```

7 EM disable resumable, small

session 1:

```
SQL> alter session disable resumable;
SQL> drop tablespace small including contents and datafiles;
```

1. resumable a) b)extents c)quota

2.enable resumable session , disable resumable
3.DBMS_RESUMABLE.SET_SESSION_TIMEOUT session TIMEOUT

Oracle

1

2

1 heap table
2 >2G
3 IOT
4
5
6
7

3

11g 1 create 2 insert into select * from ; 3)rename ; 4)
11g

12.1 10g)

1 Range Partitioning (

scott:

```
SQL>create table sale(
product_id  varchar2(5), sales_count number(10,2)
)
partition by range(sales_count)
(
  partition p1 values less than(1000),
  partition p2 values less than(2000),
  partition p3 values less than(3000)
);


select * from user_tab_partitions where table_name='SALE';

insert into sale values('1',600);
insert into sale values('2',1000);
insert into sale values('3',2300);
insert into sale values('4',6000);
commit;

select * from sale partition(p1);
select * from sale partition(p2);


alter table sale add partition p4 values less than(maxvalue);

                    6000
select * from user_tab_partitions where table_name='SALE';
insert into sale values('4',6000);


SQL> select segment_name,segment_type,partition_name from user_segments;

12.1.1                                                  update          ——
ORA-14402:                                  row movement

SQL> select rowid,t1.* from sale partition(p1) t1;

ROWID                 PRODU SALES_COUNT
------------------ ----- -----------
AAASvUAAEAAAAGVAAA 1               600

SQL> update sale set sales_count=1200 where sales_count=600;
update sale set sales_count=1200 where sales_count=600
       *
```

1 :
ORA-14402:

```
SQL> alter table sale enable row movement;
SQL> update sale set sales_count=1200 where sales_count=600;
```

1

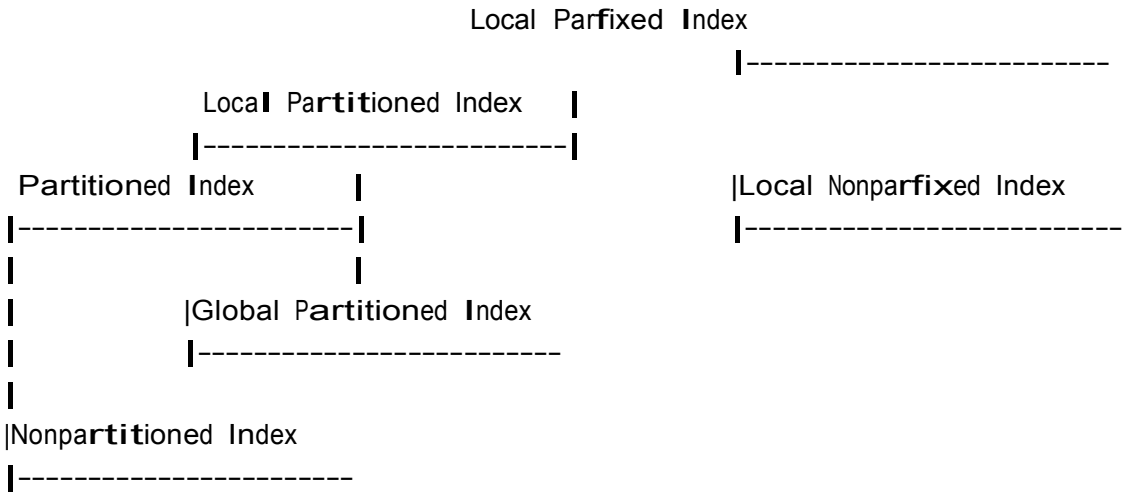
```
SQL> select rowid,t1.* from sale partition(p2) t1;

ROWID                 PRODU SALES_COUNT
------------------ ----- -----------
AAASvVAAEAAAAGdAAA 2             1000
AAASvVAAEAAAAGdAAB 1             1200
```

values less than

12.1.2

local global



1 local key key

```
SQL>create index sale_idx on sale(sales_count) local;
SQL>select * from user_ind_partitions;
```

Local Parfixed Index first column key

global

2 key key maxvalue
OLTP

```
create index sale_global_idx on sale(sales_count) global
partition by range (sales_count)
(
partition p1 values less than(1500),
partition p2 values less than(maxvalue)
);
```

```
SQL>select * from user_indexes;
```

12.1.2 Hash Partitioning (, hash)

HASH

```
create table my_emp(
  empno number, ename varchar2(10)
)
partition by hash(empno)
(
  partition p1, partition p2
);
```

```
select * from user_tab_partitions where table_name='MY_EMP';
```

```
insert into my_emp values(1,'A');
insert into my_emp values(2,'B');
insert into my_emp values(3,'C');
```

```
select * from my_emp partition(P1);
select * from my_emp partition(P2);
```

12.1.3 (list)

```
create table personcity(
  id number, name varchar2(10), city varchar2(10)
)
partition by list(city)
(
  partition east values('tianjin','dalian'),
  partition west values('xian'),
```

```
  partition south values ('shanghai'),
  partition north values ('herbin'),
  partition other values (default)
);

insert into personcity values(1,'sohu','tianjin');
insert into personcity values(2,'sina','herbin');
insert into personcity values(3,'yahoo','dalian');
insert into personcity values(4,'360','zhengzhou');
insert into personcity values(5,'baidu','xian');



select * from personcity partition(east);
```

12.1.4 Composite Partitioning

create table

```
student(
   sno number, sname varchar2(10)
)
partition by range(sno)
subpartition by hash(sname)
subpartitions 4
(
  partition p1 values less than(1000),
  partition p2 values less than(2000),
  partition p3 values less than(maxvalue)
);
```

range 4 hash 12

```
SQL> select * from user_tab_partitions where table_name='STUDENT';

SQL> select * from user_tab_subpartitions where table_name='STUDENT';
```

OEM scott student table oracle

12.2 Oracle11g

Partition Oracle Oracle

Oracle11g 10g

12.2.1 Interval Partitioning

range range

scott:

```
SQL>
create table interval_sales (s_id int,d_1 date)
partition by range(d_1)
interval (numtoyminterval(1,'MONTH'))
(
   partition p1 values less than ( to_date('2010-02-01','yyyy-mm-dd') )
);

SQL> insert into interval_sales values(1, to_date('2010-01-21','yyyy-mm-dd') );
SQL> insert into interval_sales values(1, to_date('2010-02-01','yyyy-mm-dd') );
    --      p1
SQL> select partition_name from user_tab_partitions;

PARTITION_NAME
------------------------------
P1
SYS_P61
```

interval (numtoyminterval(1,'MONTH'))

12.2.2 System Partitioning (

System Partitioning

Insert

tbs1,tbs2,tbs3 system

```
create table test (c1 int,c2 int)
partition by system
(
  partition p1 tablespace tbs1,
  partition p2 tablespace tbs2,
  partition p3 tablespace tbs3
);
```

SQL

```
SQL> INSERT INTO test PARTITION (p1) VALUES (1,3);
SQL> INSERT INTO test PARTITION (p3) VALUES (4,5);

SQL> select * from test;

        C1         C2
---------- ----------
         1          3
         4          5
```

ORA-14404:

12.2.3 Reference Partitioning ( )

11g

```
SQL>
CREATE TABLE purchase_orders
  (po_id NUMBER(4),
   po_date TIMESTAMP,
   supplier_id NUMBER(6),
   po_total NUMBER(8,2),
   CONSTRAINT order_pk PRIMARY KEY(po_id))
PARTITION BY RANGE(po_date)
  (PARTITION Q1 VALUES LESS THAN (TO_DATE('2007-04-01','yyyy-mm-dd')),
   PARTITION Q2 VALUES LESS THAN (TO_DATE('2007-06-01','yyyy-mm-dd')),
   PARTITION Q3 VALUES LESS THAN (TO_DATE('2007-10-01','yyyy-mm-dd')),
   PARTITION Q4 VALUES LESS THAN (TO_DATE('2008-01-01','yyyy-mm-dd')));

//              Range

SQL>
CREATE TABLE purchase_order_items
  (po_id NUMBER(4) NOT NULL,
  product_id NUMBER(6) NOT NULL,
  unit_price NUMBER(8,2),
```

```
    quantity NUMBER(8),
    CONSTRAINT po_items_fk FOREIGN KEY (po_id) REFERENCES purchase_orders(po_id))
    PARTITION BY REFERENCE(po_items_fk);
```

// po_date po_date

// PARTITION BY REFERENCE()
// po_id NOT NULL NULL

```
SQL> select TABLE_NAME,PARTITION_NAME,HIGH_VALUE from user_tab_partitions;

TABLE_NAME                     PARTITION_NAME                 HIGH_VALUE
------------------------------ ------------------------------ ------------------
------------------------------------------------------------
PURCHASE_ORDERS                Q1                             TIMESTAMP' 2007-
04-01 00:00:00'
PURCHASE_ORDERS                Q2                             TIMESTAMP' 2007-
06-01 00:00:00'
PURCHASE_ORDERS                Q3                             TIMESTAMP' 2007-
10-01 00:00:00'
PURCHASE_ORDERS                Q4                             TIMESTAMP' 2008-
01-01 00:00:00'
PURCHASE_ORDER_ITEMS           Q1
PURCHASE_ORDER_ITEMS           Q2
PURCHASE_ORDER_ITEMS           Q3
PURCHASE_ORDER_ITEMS           Q4

8 rows selected
```

// purchase_order_items Q1,Q2,Q3,Q4.

```
SQL> select TABLE_NAME,PARTITIONING_TYPE,REF_PTN_CONSTRAINT_NAME from
user_part_tables;

TABLE_NAME                     PARTITIONING_TYPE REF_PTN_CONSTRAINT_NAME
------------------------------ ----------------- ------------------------------
PURCHASE_ORDERS                RANGE
PURCHASE_ORDER_ITEMS           REFERENCE         PO_ITEMS_FK
```

// PO_ITEMS_FK

12.2.4 Virtual Column-Based Partitioning

11g

1>

2>

3>

4> ORACLE
generated always as

5> ORACLE UPDATE INSERT
DELETE

6>

7>

8>

```
create table emp1
  (empno number(4) primary key,
   ename char(10) not null,
   salary number(5) not null,
   bonus number(5) not null,
   total_sal AS (salary+bonus))
partition by range (total_sal)
  (partition p1 values less than (5000),
   partition p2 values less than (maxvalue))
   enable row movement;

insert into emp1(empno,ename,salary,bonus) values(7788,'SCOTT',3000,1000);
insert into emp1(empno,ename,salary,bonus) values(7902,'FORD',4000,1500);
insert into emp1(empno,ename,salary,bonus) values(7839,'KING',5000,3500);
commit;

SQL> select * from user_tab_partitions;
SQL> select * from user_part_key_columns;

SQL> select * from emp1 partition (p1);

     EMPNO ENAME      SALARY     BONUS  TOTAL_SAL
---------- ---------- ---------- ---------- ----------
      7788 SCOTT            3000       1000       4000

SQL> select * from emp1 partition (p2);
```

```
     EMPNO ENAME           SALARY       BONUS   TOTAL_SAL
---------- ---------- ---------- ---------- ----------
      7902 FORD             4000       1500        5500
      7839 KING             5000       3500        8500
```

SQL> update emp1 set bonus=500 where empno=7902;

enable row movement ORA-14402:

12.2.5 More Composite Partitioning

10g Range-List Range-Hash 11g

Range List Interval Top level Second level

Range List Hash 11g 3*3=9

12.3 Oracle11g

emp1 sal

2500 comm emp1_temp

sys

```
create table scott.emp1 as select * from scott.emp;

alter table scott.emp1 add constraint pk_emp1 primary key(empno);
```

1)

```
SQL>
BEGIN
  DBMS_REDEFINITION.CAN_REDEF_TABLE('scott','emp1');
END;
/
```

2) :emp1_temp, 7 comm range sal=2500

```
SQL>
CREATE TABLE scott.emp1_temp
```

```
  (empno          number(4) not null,
   ename          varchar2(10),
   job            varchar2(9),
   mgr            number(4),
   hiredate       date,
   sal            number(7,2),
   deptno         number(2))
PARTITION BY RANGE(sal)
   (PARTITION sal_low VALUES LESS THAN(2500),
   PARTITION sal_high VALUES LESS THAN (maxvalue));
```

```
3
SQL>
BEGIN
  dbms_redefinition.start_redef_table('scott','emp1','emp1_temp',
   'empno empno,
   ename ename,
   job job,
   mgr mgr,
   hiredate hiredate,
   sal sal,
   deptno deptno');
END;
/
```

```
SQL> select count(*) from scott.emp1_temp;

  COUNT(*)
----------
        14

SQL> select * from scott.emp1_temp partition(sal_low);

     EMPNO ENAME      JOB              MGR HIREDATE                 SAL
DEPTNO
---------- ---------- --------- ---------- ------------------- ---------- ------
----
      7369 SMITH      CLERK            7902 1980-12-17 00:00:00        800
20
      7499 ALLEN      SALESMAN         7698 1981-02-20 00:00:00       1600
30
```

```
      7521 WARD       SALESMAN        7698 1981-02-22 00:00:00       1250
30
      7654 MARTIN     SALESMAN        7698 1981-09-28 00:00:00       1250
30
      7782 CLARK      MANAGER         7839 1981-06-09 00:00:00       2450
10
      7844 TURNER     SALESMAN        7698 1981-09-08 00:00:00       1500
30
      7876 ADAMS      CLERK           7788 1987-05-23 00:00:00       1100
20
      7900 JAMES      CLERK           7698 1981-12-03 00:00:00        950
30
      7934 MILLER     CLERK           7782 1982-01-23 00:00:00       1300
10

       9

SQL> select * from scott.emp1_temp partition(sal_high);

     EMPNO ENAME      JOB              MGR HIREDATE                 SAL
DEPTNO
---------- ---------- --------- ---------- ------------------- ---------- ------
----
      7566 JONES      MANAGER         7839 1981-04-02 00:00:00       2975
20
      7698 BLAKE      MANAGER         7839 1981-05-01 00:00:00       2850
30
      7788 SCOTT      ANALYST         7566 1987-04-19 00:00:00       3000
20
      7839 KING       PRESIDENT            1981-11-17 00:00:00       5000
10
      7902 FORD       ANALYST         7566 1981-12-03 00:00:00       3000
20

       5

          emp1_temp

SQL> select constraint_name,constraint_type,table_name from user_constraints
where table_name like 'EMP1%';

CONSTRAINT_NAME                CONSTRAINT_TYPE  TABLE_NAME
------------------------------ --------------- ------------------------------
PK_EMP1                        P                EMP1
```

```
SYS_C009652                    C                EMP1_TEMP
```

4)

```
SQL>
DECLARE
  num_errors PLS_INTEGER;
BEGIN
  DBMS_REDEFINITION.COPY_TABLE_DEPENDENTS('scott','emp1','emp1_temp',
  DBMS_REDEFINITION.CONS_ORIG_PARAMS,TRUE,TRUE,TRUE,TRUE,num_errors);
END;
/
```

SQL> select constraint_name,constraint_type,table_name from user_constraints where table_name like 'EMP1%';

```
CONSTRAINT_NAME                CONSTRAINT_TYPE  TABLE_NAME
------------------------------ --------------- ------------------------------
PK_EMP1                        P                EMP1
SYS_C009652                    C                EMP1_TEMP
TMP$$_PK_EMP10                 P                EMP1_TEMP
```

emp1

SQL> select table_name,partition_name,high_value from user_tab_partitions;

```
TABLE_NAME                     PARTITION_NAME                 HIGH_VALUE
------------------------------ ------------------------------ ------------------
----------------------------------------
EMP1_TEMP                      SAL_HIGH                       MAXVALUE
EMP1_TEMP                      SAL_LOW                        2500
```

5)

SQL> EXECUTE dbms_redefinition.finish_redef_table('scott','emp1','emp1_temp');

SQL> select table_name,partition_name,high_value from user_tab_partitions;

```
TABLE_NAME                     PARTITION_NAME                 HIGH_VALUE
------------------------------ ------------------------------ ------------------
----------------------------------------
EMP1                           SAL_HIGH                       MAXVALUE
EMP1                           SAL_LOW                        2500
```

1.Oracle ,

2. emp1 emp1_temp

3.

12.4 (IOT

heap table

IOT B_tree

,

IOT , blocks

IOT rowid

,Oracle IOT

pctthreshold including

pctthreshold

entry

overflow

including

```
create table iot_timran(id int, name char(50), sal int,
constraint pk_timran primary key (id))
organization index pctthreshold 30 overflow tablespace users;
```

select * from user_indexes

```
SQL> select index_name,index_type,table_name from user_indexes;

INDEX_NAME                     INDEX_TYPE                  TABLE_NAME
------------------------------ --------------------------- --------------------
---------
PK_TIMRAN                      IOT - TOP                   IOT_TIMRAN
PK_EMP                         NORMAL                      EMP
PK_DEPT                        NORMAL                      DEPT
```

user_segments

```
SQL> select segment_name,segment_type,partition_name from user_segments;
```

12.5 (cluster table)

IO

1 cluster segment

2 cluster segment

3

```
create cluster cluster1(code_key number);
create table student(sno1 number, sname varchar2(10)) cluster cluster1(sno1);
create table address(sno2 number,zz varchar2(10)) cluster cluster1(sno2);
create index index1 on cluster cluster1;
```

cluster1 index1

```
select * from user_clusters;
select * from user_clu_columns;
```

```
drop table student;
drop table address;
drop cluster cluster1;
```

12.6

session session

session rollback

DML

UNDO redo,

1 on commit delete rows

2 session , on commit preserve rows

scott

create global temporary table tmp_student(sno int,sname varchar2(10), sage int) on commit preserve rows;

Scott session

session

session

drop table tmp_table

12.7 (11g

11g ----

```
SQL> alter table t read only;
SQL> update t set id=2;
update t set id=2
       *
   1 :
ORA-12081: "SCOTT"."T"

SQL> alter table t read write;
```

drop DML truncate

12.8 11g

OLAP

1)Basic table compression direct path loads(
create table as select...

Basic CREATE TABLE ... COMPRESS BASIC;

2)Advanced row compression OLTP SQL

Advanced 11gR2

CREATE TABLE ... COMPRESS FOR OLTP...

CREATE TABLE ... COMPRESS FOR ALL OPERATIONS

(PPT-II-481-482) insert pctfree= basic pctfree=0, Advanced pctfree=10) compress insert, pctfree compress.... compress block pctfree

block db buffer 7 columns 5 rows column

2190,13770,25-NOV-00,S,9999,23,161
2225,15720,28-NOV-00,S,9999,25,1450
34005,120760,29-NOV-00,P,9999,44,2376
9425,4750,29-NOV-00,I,9999,11,979
1675,46750,29-NOV-00,S,9999,19,1121

2190,13770,25-NOV-00,S,%,23,161
2225,15720,28-NOV-00,S,%,25,1450
34005,120760,*,P,%,44,2376
9425,4750,*,I,%,11,979
1675,46750,*,S,%,19,1121

Symbol	Value	Column	Rows
*	29-NOV-00	3	958-960
%	9999	5	956-960

audit(PPT-I-320-334)

13.1 database action

13.2

1
2 Value-Based,
3 FGA)

13.3

09:55:23 SQL> show parameter audit

NAME	TYPE	VALUE
audit_file_dest	string	/u01/admin/timran11g/adump
audit_sys_operations	boolean	FALSE
audit_syslog_level	string	
audit_trail	string	DB

SQL>

audit_trail

1 none audit
2 db sys.aud$ (sys system DB
3 os audit_file_dest , sys

sys
1)Oracle sys audit_file_dest .aud
2) audit_sys_operations = true audit_trail = os

13.4

dba_audit_taile, aud$

13.4.1

audit table create table, drop table, truncate table

SQL> audit table;

13.4.2

grant select any table to a;

a b select * from b.t; select any table

SQL> audit select any table;

13.4.3

on aduit alter,delete,drop,insert on cmy.t by scott; cmy t by scott

SQL> audit update on scott.emp;

13.5

insert,update delete

scott

linux sys:

SQL> truncate table aud$; SQL> audit session by scott; SQL> select count(*) from aud$;

```
  COUNT(*)
----------
         0
```

cmd scott

C:\Documents and Settings\timran>sqlplus scott/scott@timran11g

linux sys:

SQL> select count(*) from aud$;

```
  COUNT(*)
----------
         1
```

```
col username for a10;
col userhost for a30;
SQL> select username,userhost,timestamp,action_name from dba_audit_trail;

USERNAME   USERHOST                       TIMESTAMP            ACTION_NAME
---------- ------------------------------ -------------------- ----------------
----------
SCOTT      WORKGROUP\TIMRAN-222C75E5      2014-01-09 13:35:53  LOGON

SQL> noaudit session by scott;
```

13.6 Fine Grained Auditing (FGA) SQL

OEM

13.6.1 Fine Grained Auditing (FGA)
dbms_fga

sys:

```
SQL> create table scott.emp1 as select * from scott.emp;
SQL> grant all on scott.emp1 to tim;
```

1

```
begin
dbms_fga.add_policy( object_schema=
>'scott', object_name=>'emp1',
policy_name=>'chk_emp1',
audit_condition =>'deptno=20',
audit_column =>'sal',
statement_types =>'update,select');
end;
/
```

2

scott:

```
SQL> select * from emp1 where deptno=20;
```

tim:

```
SQL>update scott.emp1 set sal=8000 where empno=7902;
SQL>select empno,ename from scott.emp1 where deptno=20;      //      sal
```

sys:
SQL> select empno,ename,sal from scott.emp1 where deptno=20; //
sys

3

11:32:24 SQL> conn /as sysdba
SQL> select db_user,to_char(timestamp,'yyyy-mm-dd hh24:mi:ss') "time" ,sql_text from dba_fga_audit_trail;

DB_USER time SQL_TEXT
---------- ---------- ----------
SCOTT 2013-08-17 16:57:36 select * from emp1 where deptno=20
TIM 2013-08-17 16:57:52 update scott.emp1 set sal=8000 where empno=7902

SYS.

SQL> delete from fga_log$; //
SQL> commit;
SQL> select db_user,to_char(timestamp,'yyyy-mm-dd hh24:mi:ss') "time" ,sql_text from dba_fga_audit_trail;

no rows selected

4 FGA PL/SQL API

exec dbms_fga.drop_policy(object_schema=>'scott',object_name=>'emp1',policy_name=>'chk_emp1');

: DBA_AUDIT_TRIAL DBA_FGA_AUDIT_TRIAL FGA DBA_COMMON_AUDIT_TRIAL .

sql loader(PPT-1-490-498)

14.1 sql*loader oracle database

14.2 sql*loader segment insert

1 conventional segment HWM(
bitmap block free space
2 direct path segment HWM(
db_buffer, redo,

```
SQL> create table emp1 as select * from emp where 1=2;

SQL> insert into emp1 select * from emp;                    //conventional

SQL> insert /*+ APPEND */ into emp1 select * from emp;      //direct path
        ,      commit
```

14.3 sql*loader

```
SQLLDR keyword=value [,keyword=value,...]
```

$/u01/oracle/bin/sqlldr(direct path
direct=TRUE

* sql*loader data dump data dump
sql*loader

14.4

1

11:02:13 SQL> select
empno|',',||ename|',',||job||',',|mgr||',',||hiredate||',',||sal||',',||comm||',',||
deptno from scott.emp;

```
EMPNO|',',||ENAME|',',||JOB||',',|MGR||',',||HIREDATE||',',||SAL||',',||COMM||',',||
DEPTNO
--------------------------------------------------------------------------------
--------------------------------------
7369,SMITH,CLERK,7902,1980-12-17 00:00:00,800,,20
7499,ALLEN,SALESMAN,7698,1981-02-20 00:00:00,1600,300,30
7521,WARD,SALESMAN,7698,1981-02-22 00:00:00,1250,500,30
7566,JONES,MANAGER,7839,1981-04-02 00:00:00,2975,,20
```

7654,MARTIN,SALESMAN,7698,1981-09-28 00:00:00,1250,1400,30
7698,BLAKE,MANAGER,7839,1981-05-01 00:00:00,2850,,30
7782,CLARK,MANAGER,7839,1981-06-09 00:00:00,2450,,10
7788,SCOTT,ANALYST,7566,1987-04-19 00:00:00,3000,,20
7839,KING,PRESIDENT,,1981-11-17 00:00:00,5000,,10
7844,TURNER,SALESMAN,7698,1981-09-08 00:00:00,1500,0,30
7876,ADAMS,CLERK,7788,1987-05-23 00:00:00,1100,,20
7900,JAMES,CLERK,7698,1981-12-03 00:00:00,950,,30
7902,FORD,ANALYST,7566,1981-12-03 00:00:00,3000,,20
7934,MILLER,CLERK,7782,1982-01-23 00:00:00,1300,,10

14 rows selected.

2)

[oracle@timran]$mkdir -p /home/oracle/sqlload
[oracle@timran]$cd /home/oracle/sqlload
[oracle@timran sqlload]$vi emp.dat --

[oracle@timran sqlload]$ more emp.dat
7369,SMITH,CLERK,7902,1980-12-17 00:00:00,800,,20
7499,ALLEN,SALESMAN,7698,1981-02-20 00:00:00,1600,300,30
7521,WARD,SALESMAN,7698,1981-02-22 00:00:00,1250,500,30
7566,JONES,MANAGER,7839,1981-04-02 00:00:00,2975,,20
7654,MARTIN,SALESMAN,7698,1981-09-28 00:00:00,1250,1400,30
7698,BLAKE,MANAGER,7839,1981-05-01 00:00:00,2850,,30
7782,CLARK,MANAGER,7839,1981-06-09 00:00:00,2450,,10
7788,SCOTT,ANALYST,7566,1987-04-19 00:00:00,3000,,20
7839,KING,PRESIDENT,,1981-11-17 00:00:00,5000,,10
7844,TURNER,SALESMAN,7698,1981-09-08 00:00:00,1500,0,30
7876,ADAMS,CLERK,7788,1987-05-23 00:00:00,1100,,20
7900,JAMES,CLERK,7698,1981-12-03 00:00:00,950,,30
7902,FORD,ANALYST,7566,1981-12-03 00:00:00,3000,,20
7934,MILLER,CLERK,7782,1982-01-23 00:00:00,1300,,10

3 conventional

[oracle@work sqlldr]$ vi emp.ctl

load data

```
infile '/home/oracle/sqlload/emp.dat'
insert                --insert                append
into table emp1
fields terminated by ","
optionally enclosed by '"'
(
empno,
ename,
job,
mgr,
hiredate,
comm,
sal,
deptno)
```

4) scott emp1

```
11:10:13 SQL> create table emp1 as select * from emp where 1=2;
```

5) normal

```
[oracle@timran timran]$ sqlldr scott/scott control=emp.ctl log=emp.log

SQL*Loader: Release 10.2.0.1.0 - Production on Thu Aug 11 12:18:36 2011
Copyright (c) 1982, 2005, Oracle.  All rights reserved.
Commit point reached - logical record count 14
```

5)

```
11:07:12 SQL>
11:07:12 SQL> select * from emp1;
```

.ctl

```
[oracle@work sqlldr]$ vi emp.ctl
load data
infile *
append
into table emp1
fields terminated by ","
optionally enclosed by '"'
( empn
o,
ename,
job,
```

```
mgr,
hiredate,
comm,
sal,
deptno)
begindata
7369,SMITH,CLERK,7902,1980-12-17 00:00:00,800,,20
7499,ALLEN,SALESMAN,7698,1981-02-20 00:00:00,1600,300,30
7521,WARD,SALESMAN,7698,1981-02-22 00:00:00,1250,500,30
7566,JONES,MANAGER,7839,1981-04-02 00:00:00,2975,,20
7654,MARTIN,SALESMAN,7698,1981-09-28 00:00:00,1250,1400,30
7698,BLAKE,MANAGER,7839,1981-05-01 00:00:00,2850,,30
7782,CLARK,MANAGER,7839,1981-06-09 00:00:00,2450,,10
7788,SCOTT,ANALYST,7566,1987-04-19 00:00:00,3000,,20
7839,KING,PRESIDENT,,1981-11-17 00:00:00,5000,,10
7844,TURNER,SALESMAN,7698,1981-09-08 00:00:00,1500,0,30
7876,ADAMS,CLERK,7788,1987-05-23 00:00:00,1100,,20
7900,JAMES,CLERK,7698,1981-12-03 00:00:00,950,,30
7902,FORD,ANALYST,7566,1981-12-03 00:00:00,3000,,20
7934,MILLER,CLERK,7782,1982-01-23 00:00:00,1300,,10

[oracle@timran sqlload]$ sqlldr scott/scott control=emp.ctl log=emp.log

Commit point reached - logical record count 15
[oracle@timran sqlload]$
[oracle@timran
sqlload]$ [oracle@timran
sqlload]$ [oracle@timran
sqlload]$ ll
      12
-rw-r--r-- 1 oracle oinstall    1 07-17 11:09 emp.bad
-rw-r--r-- 1 oracle oinstall  782 07-17 11:09 emp.ctl
-rw-r--r-- 1 oracle oinstall 2055 07-17 11:09 emp.log
[oracle@timran sqlload]$ more emp.bad

11:09:34 SQL>SQL> select count(*) from emp1;

  COUNT(*)
----------
        28
```

Oracle

15.1 Oracle Net

15.1.1 listener ( )

1 listener oracle server user process server process user process session

2 listener netca netmgr

3 listener oracle server

4 listener / / lsnrctl start|stop|status

5 $ORACLE_HOME/network/admin/listener.ora

15.2

1 $ORACLE_HOME/network/admin/tnsnames.ora

```
myoracle =
  (DESCRIPTION =
    (ADDRESS_LIST =
      (ADDRESS = (PROTOCOL = TCP)(HOST = 192.168.0.88)(PORT = 1521))
    )
    (CONNECT_DATA =
      (SERVICE_NAME = timran11g)
    )
  )
```

2)

2.1 HOST= IP, windows PORT=1521

2.2 SERVICE_NAME db_name.db_domain instance

2.3 myoracle ip server_name SERVICE_NAME

C:\Documents and Settings\timran>sqlplus sys/oracle@myoracle as sysdba

tnsnames.ora

C:\Documents and Settings\timran>sqlplus scott/scott@192.168.0.88:1521/timran11g

15.3 lisenter

1 listener 1521 pmon service name 1521 listener

2 listener 1522 listener.ora

GLOBAL_DBNAME instance name

15.3.1

1 listener.ora
open, sqlplu sys
/
2 1521
3

1 sysdba
TELNET root oracle
sysdba
2 1521
3 listener.ora PMON PMON 60
listener

listener.ora

1521

```
LISTENER =
  (DESCRIPTION_LIST =
    (DESCRIPTION =
      (ADDRESS = (PROTOCOL = TCP)(HOST = 192.168.0.88)(PORT = 1521))
      (ADDRESS = (PROTOCOL = IPC)(KEY = EXTPROC1521))
    )
  )

SID_LIST_LISTENER =
    (SID_LIST =
    (SID_DESC =
        (GLOBAL_DBNAME= timran11g)
        (ORACLE_HOME = /u01/oracle)
        (SID_NAME = timran11g)
      )
)
```

| | ---

[oracle@timran admin]$ lsnrctl start|stop|status

1522

```
LSN2 =
  (DESCRIPTION_LIST =
    (DESCRIPTION =
      (ADDRESS = (PROTOCOL = TCP)(HOST = 192.168.0.88)(PORT = 1522))
    )
  )

SID_LIST_LSN2  =
    (SID_LIST =
    (SID_DESC =
        (GLOBAL_DBNAME= timran11g)
        (ORACLE_HOME = /u01/oracle)
        (SID_NAME = timran11g)
      )
)
```

| | --- lsn2

```
[oracle@timran admin]$ lsnrctl start|stop|status lsn2

...
  (DESCRIPTION=(ADDRESS=(PROTOCOL=tcp)(HOST=192.168.0.66)(PORT=1522)))
Services Summary...
Service "prod" has 1 instance(s).
  Instance "prod", status UNKNOWN, has 1 handler(s) for this service...
The command completed successfully
```

1522 status UNKNOWN

tnsnames.ora

```
lsn2 =
  (DESCRIPTION =
    (ADDRESS_LIST =
      (ADDRESS = (PROTOCOL = TCP)(HOST = 192.168.8.88)(PORT = 1522))
    )
    (CONNECT_DATA =
      (SERVICE_NAME =timran11g)
    )
```

)

*

1 RAC RAC

2

15.4 sharded server mode

dispatchers dispatcher process
despatcher process 256 user process

max_dispatchers dispatcher process
dispatchers<=max_dispatchers

shared_servers dispatcher process
shared_server_sessions
shared_server_sessions session

```
SQL> alter system set dispatchers='(protocol=tcp)(dispatchers=4)';
SQL> alter system set shared_servers=3;
SQL> show parameter dispatcher

NAME                                 TYPE        VALUE
------------------------------------ ----------- ------------------------------
dispatchers                          string      (protocol=tcp)(dispatchers=4)
max_dispatchers                      integer

SQL> show parameter shared_server

NAME                                 TYPE        VALUE
------------------------------------ ----------- ------------------------------
max_shared_servers                   integer
shared_server_sessions               integer
shared_servers                       integer     3
```

```
[oracle@timran ~]$ ps -ef |grep ora_d0
oracle    4647     1  0 12:05 ?        00:00:00 ora_d000_timran11g
oracle    4803     1  0 12:15 ?        00:00:00 ora_d001_timran11g
```

```
oracle    4807     1  0 12:15 ?        00:00:00 ora_d002_timran11g
oracle    4811     1  0 12:15 ?        00:00:00 ora_d003_timran11g
oracle    4815  3303  0 12:15 pts/2    00:00:00 grep ora_d0

[oracle@timran ~]$ ps -ef |grep ora_s0
oracle    4743     1  0 12:08 ?        00:00:00 ora_s000_timran11g
oracle    4747     1  0 12:08 ?        00:00:00 ora_s001_timran11g
oracle    4751     1  0 12:08 ?        00:00:00 ora_s002_timran11g
oracle    4827  3303  0 12:15 pts/2    00:00:00 grep ora_s0

C:\Documents and Settings\timran>sqlplus sys/system@timran11g as sysdba

SQL> select circuit,dispatcher,status from v$circuit;

CIRCUIT  DISPATCH STATUS
-------- -------- ----------------
36F80678 3925F5AC NORMAL

[root@timran ~]# netstat -anp |grep lsn

      :tnsnames.ore
1(SERVER = DEDICATED):                DEDICATED SERVER MODE
2(SERVER = SHARED):                   SHARED SERVER MODE,
dispatchers,
3                                     dispatchers SHARED SERVER MODE

timran11g =
  (DESCRIPTION =
    (ADDRESS = (PROTOCOL = TCP)(HOST = 192.168.0.88)(PORT = 1521))
    (CONNECT_DATA =
      (SERVER = SHARED)
      (SERVICE_NAME = timran11g)
    )
  )
```

: ORACLE

Oracle ASM (PPT-II:602-636)

16.1 ASM

ASM Automatic Storage Management) Oracle

Oracle

ASM

16.2

RAID

LVM Logical Volume Manager), LVM

RAID 4 RAID0
RAID1 RAID5 RAID0+1

16.3 ASM LVM

1) ASM Oracle ASM ASM ( )

2 ASM / ASM
3 ASM Oracle

16.4 ASM

16.4.1 ASM

1 ASM ASM RDBMS ASM ASM
ASM ASM ASM IO RDBMS

2 ASM ASM_DISKTRING ASM_DISKGROUP RDBMS

16.4.2 ASM

ASM spfile,
RMAN ASM Oracle

16.4.3 ASM

1 ASM disk LVM
ASM disk
2 ASM diskgroup ASM disk ASM disk
3 ASM diskgroup ASM disk AU AU 1M
2,4,8,16,32 64M
4 ASM file ASM extent ASM extent (
ASM AU , ASM file ASM diskgroup ASM disk
5 RMAN ASM file ASM file
6 ALTER DISKGROUP MOUNT ASM disk ASM_DISKGROUP

7 ASM diskgroup ASM disk ASM diskgroup
IO ASM diskgroup ASM disk

16.4.4

1 ASM striping ( )

IO ASM striping AU

2 ASM striping coarse)
(fine) =AU 1M AU 1M,
128K, Oracle

ASM

Oracle

CONTROLFILE
DATAFILE
ONLINELOG
ARCHIVELOG
TEMPFILE
RMAN BACKUPSET
PARAMETERFILE

16.4.5 ASM (file) ASM extent ASM unit ASM mirror ASM
stripe :

ASM file ----->spread across all of the disks in a disk group
/|\
ASM extent(3 ----->mirror 3
/|\
ASM au 7 ----->stripe 2

16.5 ASM

16.5.1 ASMextent

ASM file (0--19999) extents extent=AU
ASM file (20000--39999) extents extent=8AU
ASM file (40000+) extents extent=64AU

16.5.2 ASM

1 ASM

NORMAL REDUNDANCY(

HIGH REDUNDANCY(

EXTERNAL REDUNDANCY(, RAID

2 ASM

ASM ASM extent ASM extent ,
extent

3 extent ASM
extent extent extent

4 failgroup ASM

DG1,
controller1,controller2, 2 ASM ,
,

controller1 --> asmdiskA , asmdiskB
controller2 --> asmdiskC , asmdiskD

asmdiskA extent asmdiskC asmdiskD
conntroller1

16.5.3

ASM

ASM au,
ASM disk

ASM_POWER_LIMIT 1-11 11gR2 1-1024

power 1-11

SQL> ALTER DISKGROUP dgroup1 REBALANCE POWER 5;

16.5.4 (PPT-11-635)

extent

extent

ASM Oracle ASM

1 offline drop

2 offline (

3 online ASM

disk_repair_time

alter diskgroup dg1 set attribute 'disk_repair_time'=4h;

alter diskgroup dg1 offline disks in failuregroup controller1 drop after 2h;

disk_repair_time 2

alter diskgroup dg1 ONLINE;

drop

REBALANCE

FORCE

alter diskgroup dg1 drop disks in failuregroup controller1 FORCE;

16.5.5 ASM

ASM extent

ASM extent

ASM_PREFERRED_READ_FAILURE_GROUPS

V$ASM_DISK

ASM_PREFERRED_READ_FAILURE_GROUPS= = diskgroup_name.failure_group_name diskgroup_name1.failure_group_name1...

SQL> alter system set

asm_prefeeed_read_failure_groups=diskgroup_name.failure_group_name,diskgroup_name1.failure_group_name1...;
SQL> select preferred_read from v$asm_disk;

16.5.6 ASM (PPT-II-631)

ASM

COMPATIBLE.RDBMS mount diskgroup RDBMS
COMPATIBLE.ASM dsikgroup ASM metadata
COMPATIBLE.ADVM diskgroup ASM volume

RDBMS ASM
COMPATIBLE.RDBMS<=COMPATIBLE.ASM

16.5.7 ASM
CSS claster RAC ASM CSS
ASM , RBAL, ARBn

ASM

RBAL:
ARBn: AU

RDBMS ASM

RBAL: ASM ASM ASMB:
RDBMS ASM RDBMS foreground process

RBAL ASM RDBMS ASM
ASM

[oracle@timran timran11g]$ ps -ef |grep rbal
oracle 4790 1 0 14:10 ? 00:00:00 asm_rbal_+ASM
oracle 5021 1 0 14:13 ? 00:00:00 ora_rbal_timran11g
oracle 5133 4112 0 14:22 pts/2 00:00:00 grep rbal

16.5.8 ASM RDBMS

1 nomount ASM mount datafile
2 ASM RDBMS RDBMS shutdwon immediate ASM .
3 ASM shutdown immediate RDBMS ASM shutdown

4 RDBMS shutdown abort,ASM

16.5.9 ASMCMD

$asmcmd

ASMCMD>help

ASM 11g ASMCMD ASM
md_backup md_resotre

md_backup

ASMCMD> md_backup -b /tmp/asmbkp1 -g g1
-g -b asmbkp1

ASMCMD> md_recover -b /tmp/asmbkp1 -t full -g g1

md_recover ASM
md_recover ASM RMAN

16.6 Linux ASM

1) linux

ASMDISK1, /dev/sdb 4G, 4 1000M sdb1,sdb2,sdb3,sdb4
ASMDISK2, /dev/sdc, 2G 1 sdc1

[root@timran dev]# fdisk -l

Disk /dev/sda: 21.4 GB, 21474836480 bytes
255 heads, 63 sectors/track, 2610 cylinders
Units = cylinders of 16065 * 512 = 8225280 bytes

Device	Boot	Start	End	Blocks	Id	System
/dev/sda1	*	1	2349	18868311	83	Linux
/dev/sda2		2350	2610	2096482+	82	Linux swap / Solaris

Disk /dev/sdb: 4294 MB, 4294967296 bytes
255 heads, 63 sectors/track, 522 cylinders
Units = cylinders of 16065 * 512 = 8225280 bytes

```
   Device Boot      Start         End      Blocks   Id  System
/dev/sdb1               1         123      987966   83  Linux
/dev/sdb2             124         246      987997+  83  Linux
/dev/sdb3             247         369      987997+  83  Linux
/dev/sdb4             370         492      987997+  83  Linux

Disk /dev/sdc: 2147 MB, 2147483648 bytes
255 heads, 63 sectors/track, 261 cylinders
Units = cylinders of 16065 * 512 = 8225280 bytes

   Device Boot      Start         End      Blocks   Id  System
/dev/sdc1               1         261     2096451   83  Linux
[root@timran dev]#
```

2) Oracle ASMlib

ASMlib Oracle linux ASM ASMlib
linux rawdevices

linux ASMlib
http://www.oracle.com/technetwork/server-storage/linux/asmlib/index-101839.html

linux

```
[root@timran ~]# uname -a
Linux timran.localdomain 2.6.18-348.el5 #1 SMP Wed Nov 28 21:25:39 EST 2012 i686 athlon i386 GNU/Linux
```

kernel ASMlib :

```
[root@timran timran11g]# ll -al *.rpm
-rw-rw-r-- 1 oracle oracle 22751 07-01 13:12 oracleasm-2.6.18-348.el5-2.0.5-1.el5.i686.rpm
-rw-rw-r-- 1 oracle oracle 13929 07-01 13:12 oracleasmlib-2.0.4-1.el5.i386.rpm
-rw-rw-r-- 1 oracle oracle 85303 07-01 13:12 oracleasm-support-2.1.8-1.el5.i386.rpm

[root@timran timran11g]# rpm -qa |grep asm
[root@timran timran11g]#
```

linux kernel

```
[root@timran timran11g]# rpm -ivh *.rpm
warning: oracleasm-2.6.18-348.el5-2.0.5-1.el5.i686.rpm: Header V3 DSA signature:
```

```
NOKEY, key ID 1e5e0159
Preparing...                ########################################### [100%]
   1:oracleasm-support      ########################################### [ 33%]
   2:oracleasm-2.6.18-348.el########################################### [ 67%]
   3:oracleasmlib           ########################################### [100%]



[root@timran timran11g]# rpm -qa |grep asm
oracleasmlib-2.0.4-1.el5
oracleasm-support-2.1.8-1.el5
oracleasm-2.6.18-348.el5-2.0.5-1.el5
[root@timran timran11g]#

[root@timran oracle]# reboot          //                    ASM
  -

ASMlib          /etc/init.d/      oracleasm      service              linux
    ASM


3       ASMlib

[root@timran init.d]# /etc/init.d/oracleasm configure
Configuring the Oracle ASM library driver.
This will configure the on-boot properties of the Oracle ASM library
driver.  The following questions will determine whether the driver is
loaded on boot and what permissions it will have.  The current values
will be shown in brackets ('[]').  Hitting <ENTER> without typing an
answer will keep that current value.  Ctrl-C will abort.

Default user to own the driver interface []: oracle
Default group to own the driver interface []: dba
Start Oracle ASM library driver on boot (y/n) [n]: y
Scan for Oracle ASM disks on boot (y/n) [y]:
Writing Oracle ASM library driver configuration: done
Initializing the Oracle ASMLib driver: [  OK  ]
Scanning the system for Oracle ASMLib disks: [OK    ]
[root@timran ~]#

4       ASM

[root@timran init.d]# /etc/init.d/oracleasm createdisk VOL1 /dev/sdb1
Marking disk "VOL1" as an ASM disk: [  OK  ]
```

```
[root@timran init.d]# /etc/init.d/oracleasm createdisk VOL2 /dev/sdb2
Marking disk "VOL2" as an ASM disk: [  OK  ]
[root@timran init.d]# /etc/init.d/oracleasm createdisk VOL3 /dev/sdb3
Marking disk "VOL3" as an ASM disk: [  OK  ]
[root@timran init.d]# /etc/init.d/oracleasm createdisk VOL4 /dev/sdb4
Marking disk "VOL4" as an ASM disk: [  OK  ]
[root@timran init.d]# /etc/init.d/oracleasm createdisk VOL5 /dev/sdc1
Marking disk "VOL5" as an ASM disk: [  OK  ]
[root@timran init.d]#

[root@timran init.d]# ls /dev/oracleasm/disks
VOL1  VOL2  VOL3  VOL4  VOL5                //                5  ASM

#/etc/init.d/oracleasm querydisk -d VOL1      //            ASM

Disk "VOL1" is a valid ASM disk on device /dev/sdb1[8,17]

5       ASM

5.1       css     (Cluster Synchronization Services )

          ASM          RAC                                                                    ASM
       RDBMS

     root              ,              $ORACLE_HOME/bin

[root@timran ~]# /u01/oracle/bin/localconfig add

Successfully accumulated necessary OCR keys.
Creating OCR keys for user 'root', privgrp 'root'..
Operation successful.
Configuration for local CSS has been initialized

Cleaning up Network socket directories
Setting up Network socket directories
Adding to inittab
Startup will be queued to init within 30 seconds.
Checking the status of new Oracle init process...
Expecting the CRS daemons to be up within 600 seconds.
Cluster Synchronization Services is active on these nodes.
        timran
Cluster Synchronization Services is active on all the nodes.
Oracle CSS service is installed and running under init(1M)
[root@timran ~]#
```

```
[root@timran ~]# ps -ef |grep css
oracle    3316     1  1 12:01 ?        00:00:00 /u01/oracle/bin/ocssd.bin
root      3594  2537  0 12:01 pts/0    00:00:00 grep css
```

5.2 ASM (VI VIM)

```
[root@timran dbs]# vi /u01/oracle/dbs/init+ASM.ora
#*.asm_diskgroups='DG1'
*.asm_diskstring=''
*.diagnostic_dest='/u01'
*.instance_type='ASM'
*.instance_name='+ASM'
*.large_pool_size=12M
*.remote_login_passwordfile='SHARED'
*.asm_power_limit=1
```

```
asm_diskgroups='DG1'                                    #
asm_diskstring=''                                         ASM
instance_type='ASM'                  ASM
```

```
[root@timran dbs]# chown oracle:oinstall /u01/oracle/dbs/init+ASM.ora
```

5.3) ASM

```
[oracle@timran ~]$orapwd file=$ORACLE_HOME/dbs/orapw+ASM password=system
entries=5
```

5.3) ASM

```
[oracle@timran ~]$export ORACLE_SID=+ASM
[oracle@timran ~]$sqlplus / as sysdba
Connected to an idle instance.

SQL> startup
ASM instance started

Total System Global Area  284565504 bytes
Fixed Size                  1299428 bytes
Variable Size             258100252 bytes
ASM Cache                  25165824 bytes
ORA-15110: no diskgroups mounted          //      ASM
```

linux +ASM

```
[root@timran dbs]# ps -ef |grep +ASM
oracle    3993     1  0 14:31 ?        00:00:00 asm_pmon_+ASM
oracle    3995     1  0 14:31 ?        00:00:00 asm_vktm_+ASM
oracle    3999     1  0 14:31 ?        00:00:00 asm_diag_+ASM
oracle    4001     1  0 14:31 ?        00:00:00 asm_psp0_+ASM
oracle    4005     1  0 14:31 ?        00:00:00 asm_dia0_+ASM
oracle    4007     1  0 14:31 ?        00:00:00 asm_mman_+ASM
oracle    4009     1  0 14:31 ?        00:00:00 asm_dbw0_+ASM
oracle    4011     1  0 14:31 ?        00:00:00 asm_lgwr_+ASM
oracle    4013     1  0 14:31 ?        00:00:00 asm_ckpt_+ASM
oracle    4015     1  0 14:31 ?        00:00:00 asm_smon_+ASM
oracle    4017     1  0 14:31 ?        00:00:00 asm_rbal_+ASM
oracle    4019     1  0 14:31 ?        00:00:00 asm_gmon_+ASM
oracle    4021  3988  0 14:31 ?        00:00:00 oracle+ASM
(DESCRIPTION=(LOCAL=YES)(ADDRESS=(PROTOCOL=beq)))
root      4032  3235  0 14:37 pts/2    00:00:00 grep +ASM
```

6 ASM

DBCA sqlplus EM

sqlplus

ASM RDBMS

```
SQL> alter system set asm_diskstring='/dev/oracleasm/disks/VOL*';

SQL>
create diskgroup DG1 normal redundancy
failgroup controller1 disk
'/dev/oracleasm/disks/VOL1','/dev/oracleasm/disks/VOL2'
failgroup controller2 disk
'/dev/oracleasm/disks/VOL3','/dev/oracleasm/disks/VOL4';

col name for a15;
col failgroup for a20;

SQL> select NAME,STATE,FREE_MB,REQUIRED_MIRROR_FREE_MB,USABLE_FILE_MB from
v$asm_diskgroup;
```

```
NAME         STATE           FREE_MB  REQUIRED_MIRROR_FREE_MB  USABLE_FILE_MB
---------- ----------- ---------- ----------------------- --------------
DG1          MOUNTED            3750                       964            1393
```

SQL> select GROUP_NUMBER,DISK_NUMBER,NAME,FAILGROUP,STATE,TOTAL_MB from v$asm_disk;

```
GROUP_NUMBER  DISK_NUMBER   NAME                                                FAILGROUP
STATE        TOTAL_MB
------------ ----------- ------------------------------ -------------------- ---
----- ----------
             0                                                                        5
NORMAL               0
             1                3 DG1_0003                                        CONTROLLER2
NORMAL             964
             1                2 DG1_0002                                        CONTROLLER2
NORMAL             964
             1                1 DG1_0001                                        CONTROLLER1
NORMAL             964
             1                0 DG1_0000                                        CONTROLLER1
NORMAL             964
```

ASM

SQL> col path for a40;
SQL> select path,os_mb from v$asm_disk order by path;

```
PATH                                       OS_MB
---------------------------------------- ----------
/dev/oracleasm/disks/VOL1                     964
/dev/oracleasm/disks/VOL2                     964
/dev/oracleasm/disks/VOL3                     964
/dev/oracleasm/disks/VOL4                     964
/dev/oracleasm/disks/VOL5                    2047
```

#

[root@timran dbs]#vi /u01/oracle/dbs/init+ASM.ora
*.asm_diskgroups='DG1'

ASM (reboot)

mounted

ASM

+ASM RDBMS +ASM testasm

```
SQL> exit
[oracle@timran ~]$ export ORACLE_SID=timran11g
[oracle@timran ~]$ sqlplus / as sysdba
Connected to an idle instance.

SQL> startup

SQL> create tablespace testasm datafile '+DG1' size 200m;

Tablespace created.
```

// ps -ef ASM RDBMS RABL

```
SQL> select * from v$tablespace;

       TS# NAME                           INC BIG FLA ENC
---------- ------------------------------ --- --- --- ---
         0 SYSTEM                         YES NO  YES
         1 SYSAUX                         YES NO  YES
         2 UNDOTBS1                       YES NO  YES
         4 USERS                          YES NO  YES
         3 TEMP                           NO  NO  YES
         6 EXAMPLE                        YES NO  YES
         7 TESTASM                        YES NO  YES

SQL>select file#,name from v$datafile;

     FILE# NAME
---------- -------------------------------------------------
         1 /u01/oradata/timran11g/system01.dbf
         2 /u01/oradata/timran11g/sysaux01.dbf
         3 /u01/oradata/timran11g/undotbs01.dbf
         4 /u01/oradata/timran11g/users01.dbf
         5 /u01/oradata/timran11g/example01.dbf
         6 +DG1/timran11g/datafile/testasm.256.803235039

create table scott.test(id int) tablespace testasm;
```

insert into scott.test values(1);
commit;

select * from scott.test;

```
        ID
----------
         1
```

OK! OEM ASM ASM RDBMS
OEM ASM

OEM-->Server-->Storage-->Disk Group

ASM Disk Group testasm -->datafile-
->DG1 EM ASM
EM

[oracle@timran ~]$ emca -config dbcontrol db

a shutdown OEM OEM

b SID timran11g
1521
ASM
system

c “ Enterprise Manager ” ok

e) EM Disk Group

[oracle@timran ~]$

8 / ASM , ASM
failgroup “ ” ASM

8-1 VOL5 dg1

SQL> alter diskgroup dg1 ADD FAILGROUP CONTROLLER1 DISK 'ORCL:VOL5';

SQL> select GROUP_NUMBER,DISK_NUMBER,NAME,FAILGROUP,STATE,TOTAL_MB from

v$asm_disk;

GROUP_NUMBER	DISK_NUMBER	NAME	FAILGROUP	STATE	TOTAL_MB
1	0	DG1_0000	CONTROLLER1	NORMAL	964
1	1	DG1_0001	CONTROLLER1	NORMAL	964
1	2	DG1_0002	CONTROLLER2	NORMAL	964
1	3	DG1_0003	CONTROLLER2	NORMAL	964
1	4	VOL5	CONTROLLER1	NORMAL	2047

8-2

SQL> alter tablespace testasm add datafile '+DG1' size 5m;

1 ASM IO

2 ASM ASM

9 ASMlib

9.1)

SQL> drop tablespace testasm including contents and datafiles;

9.2) ASM

[root@timran ~]# su - oracle
[oracle@timran ~]$ export ORACLE_SID=+ASM
[oracle@timran ~]$ sqlplus / as sysdb

SQL> drop diskgroup dg1 including contents; // ASM

SQL> drop diskgroup dg1 force including contents; //

9.3 ASM

SQL>shutdown abort // ASM
#/etc/init.d/oracleasm listdisks
VOL1
VOL2
VOL3
VOL4

VOL5

#/etc/init.d/oracleasm deletedisk vol1
#/etc/init.d/oracleasm deletedisk vol2
#/etc/init.d/oracleasm deletedisk vol3
#/etc/init.d/oracleasm deletedisk vol4

#/etc/init.d/oracleasm deletedisk vol5

9.4 CSS

#/u01/oracle/bin/localconfig delete // css

9.5 ASM

#rm /u01/oracle/dbs/*ASM*

9.6) ASMlib RPM

[root@timran init.d]# rpm -qa |grep asm // asm rpm
oracleasm-2.6.18-53.el5-2.0.4-1.el5
oracleasm-support-2.1.7-1.el5
oracleasmlib-2.0.4-1.el5

[root@timran init.d]# rpm -e oracleasmlib-2.0.4-1.el5 // rpm

[root@timran init.d]# rpm -e oracleasm-2.6.18-53.el5-2.0.4-1.el5
[root@timran init.d]# rpm -e oracleasm-support-2.1.8-1.el5
[root@timran init.d]#

[root@timran init.d]# ll /etc/init.d/oracleasm // oracleasm

9.7 Vbox ASM
vbox-> ->controller stat->vdi //vobx ASMDISK1 ASMDISK2

linux sdb sbc RDBMS

[root@timran dev]# ll /dev/sd*
brw-r----- 1 root disk 8, 0 Dec 28 17:35 sda
brw-r----- 1 root disk 8, 1 Dec 28 17:35 sda1
brw-r----- 1 root disk 8, 2 Dec 28 17:35 sda2
[root@timran dev]#

9.8 ASM RDBMS

ORA-00845: MEMORY_TARGET not supported on this system

SGA /dev/shm

/etc/fstab

```
[root@timran ~]# df -h /dev/shm
Filesystem            Size  Used Avail Use% Mounted on
tmpfs                 506M  158M  348M  32% /dev/shm

[root@timran ~]#
[root@timran ~]# vi /etc/fstab

LABEL=/                 /                       ext3    defaults        1 1
tmpfs                   /dev/shm                tmpfs   defaults,size=800m      0 0
devpts                  /dev/pts                devpts  gid=5,mode=620  0 0
sysfs                   /sys                    sysfs   defaults        0 0
proc                    /proc                   proc    defaults        0 0
LABEL=SWAP-sda2         swap                    swap    defaults        0 0
```

17.1 exp/imp

exp/imp,

exp

imp

$ORACLE_HOME/bin

1)
2)
3)
4) Oracle
5)
6)

1
2
3

1
2
3
4

17.1.1

1 scott (cmd)

```
create table emp1 as select * from emp;
create table dept1 as select * from dept;
```

C:\Documents and Settings\timran>exp scott/scott@timran11g file=d:empdept1.dmp tables=(emp1,dept1)

server

```
SQL> drop table emp1 purge;
SQL> drop table dept1 purge;
```

C:\Documents and Settings\timran>imp scott/scott@timran11g file=d:empdept1.dmp

sys scott

SYS exp/imp object, SYS EXP_FULL_DATABASE IMP_FULL_DATABASE

C:\Documents and Settings\timran>exp 'sys/system@timran11g as sysdba' file=d:sysscott.dmp tables=(scott.emp1,scott.dept1)

scott

C:\Documents and Settings\timran>imp scott/scott@timran11g file=d:sysscott.dmp

: Oracle Database 10g Enterprise Edition Release 11.1.0.6.0 - Production With the Partitioning, OLAP and Data Mining options

EXPORT:V10.02.01

IMP-00013: DBA DBA
IMP-00000:

C:\>imp 'sys/system@timran11g as sysdba' file=d:sysscott.dmp fromuser=scott

17.1.2

scott , schema object

C:\Documents and Settings\timran>exp scott/scott@timran11g file=d:scott.dmp owner=scott

SQL> drop user scott cascade;
SQL> grant connect,resource to scott identified by scott;

C:\Documents and Settings\timran>imp scott/scott@timran11g file=d:scott.dmp

// sys

C:\Documents and Settings\timran>imp 'sys/system@timran11g as sysdba' file=d:scott.dmp fromuser=scott touser=scott

//sys scott

C:\Documents and Settings\timran>imp 'sys/system@timran11g as sysdba' file=d:scott.dmp fromuser=scott touser=tim

17.1.3

Oracle10g

xp/orcl linux/timran11g(

1) xp/orcl

sys
create tablespace tb1 datafile 'd:/mytb1.dbf' size 5m;

scott:
create table (char(10), int) tablespace tb1;
insert into values(' ',20);
insert into values(' ',18);
commit;

2) tb1 ,
sys:
alter tablespace tb1 read only;

xp:cmd
exp '/ as sysdba' tablespaces=tb1 transport_tablespace=y file=d:\exp_tb1.dmp

3) xmanager exp_tb1.dmp MYTB1.DBF linux/timran
/u01/oradata/timran11g

4) linux $

[oracle@timran ~]$ imp userid=\'/ as sysdba\' tablespaces=tb1 file=/u01/oradata/timran11g/exp_tb1.dmp transport_tablespace=y datafiles=/u01/oradata/timran11g/MYTB1.DBF

5) linux/timran
sys:
select tablespace_name,status from dba_tablespaces;

6)
alter tablespace tb1 read write;

7
scott:
select * from tab;
select * from ;
select table_name,tablespace_name from user_tables;

1 NLS_LANG

2 big endian) little endian)
SQL> select * from v$transportable_platform; rman

3 compatible 10.0.0.

4 self contained

TEST , T1 T1 T1_idx,
USERS T1_idx T1

TEST T1_idx USERS

SQL> execute dbms_tts.transport_set_check(' ');

SQL> select * from transport_set_violations;

SQL> execute dbms_tts.transport_set_check('USERS');
SQL> select * from TRANSPORT_SET_VIOLATIONS;

VIOLATIONS

ORA-39907: SCOTT.ID_IDX (USERS) SCOTT.T1 (TEST)

4

17.1.4

C:\Documents and Settings\timran>exp 'sys/system@timran11g as sysdba' file=d:full.dmp full=y

17.2 (PPT-I-470-472)

17.2.1

1 exp/imp 1-2
2
3
4
5
6

17.2.2

DBMS_DATAPUMP
DBMS_MATADATA
EXPDP,IMPDP

17.2.3

SQL DDL SQLFILE

17.2.4

sys system DATA_PUMP_DIR

SQL> select * from dba_directories;

ORACLE_BASE,
$ORACLE_BASE/admin/database_name/dpdump

$ORACLE_HOME/admin/database_name/dpdump

17.3

17.3.1 expdp impdp

1)server MT
[oracle@timran ~]$mkdir -p /u01/oradata/timran11g/dir1

2)server SYS :

SQL> create directory MY_DIR as '/u01/oradata/timran11g/dir1';

3) scott

SQL> grant read,write on directory MY_DIR to scott;

4) scott emp dept , server MT SYS_EXPORT_TABLE_01
MT

C:\Documents and Settings\timran>expdp scott/scott@timran11g directory=MY_DIR dumpfile=expdp_scott1.dmp tables=(emp,dept)

[oracle@timran dir1]$ ll /

132
-rw-r----- 1 oracle oinstall 126976 07-30 09:51 expdp_scott1.dmp
-rw-r--r-- 1 oracle oinstall 1387 07-30 09:51 export.log

5) expdp_scott1.dmp emp,dept

SQL> conn scott/scott
SQL> drop table emp purge;
SQL> drop table dept purge;

C:\Documents and Settings\timran>impdp scott/scott@timran11g directory=MY_DIR dumpfile=expdp_scott1.dmp

6) scott emp detp

expdp scott/scott@timran11g directory=MY_DIR dumpfile=expdp_scott1.dmp tables=(emp,dept) content=data_only reuse_dumpfiles=y
impdp scott/scott@timran11g directory=MY_DIR dumpfile=expdp_scott1.dmp

7) scott

expdp scott/scott@timran11g directory=MY_DIR dumpfile=expdp1.dmp schemas=scott
// exp schemas owner
impdp scott/scott@timran11g directory=MY_DIR dumpfile=expdp1.dmp

17.3.2 OEM

OEM job

Export to Export Files
Import from Export Files
Import from Database
Monitor Exoirt and Import Jobs

OEM / scott emp1 ,
expdp

1 system OEM-->Data Movement-->Move Row Data-->Export to Export Files

2 Table oracle)
Continue

3 Export:Table Add, schema scott,table emp1 go

4) Export:Options Optional File Directory Object
DATA_PUMP_DIR

5 Export:File DATA_PUMP_DIR DMP

6 Export:Schedule job oracle Next
job

7 Review Submit job

8) /u01/admin/timran11g/dpdump ,

```
[oracle@timran dpdump]$ ll
-rw-rw---- 1 oracle oracle 94208 06-26 13:33 EXPDAT01.DMP
-rw-rw-r-- 1 oracle oracle   772 06-26 13:33 EXPDAT.LOG
```

SQL> drop table emp1 purge; scott emp1

impdp

9 system OEM-->Data Movement-->Move Row Data-->Import From Export Files

10 Import:Files DATA_PUMP_DIR), Table
emp1(

11) Import Read Succeeded impdp .DMP

12 Import:Tables Add scott.emp1 Continue Next

13 Import:Re-Mapping-->Schedule-->Review Next
Submit

scott emp1

18.1

1)

2)

18.2

create MATERIALIZED
VIEW
rowid create MATERIALIZED VIEW

18.3

create materialized view [view_name]
refresh [fast|complete|force]
[
on [commit|demand] |
start with (start_time) next (next_time)
]
as
{ }

18.4

1) Query Rewrite Oracle
DISABLE QUERY REWRITE

2)

3) Refresh DML
ON DEMAND ON COMMIT ON DEMAND
FAST COMPLETE FORCE NEVER FAST
COMPLETE
FORCE Oracle FAST
COMPLETE NEVER FORCE ON DEMAND

18.5 linux)+

xp)

1) link , database link oracle

C:\Documents and Settings\timran>sqlplus sys/system@orcl as sysdba

sys:

SQL> create public database link my_link connect to scott identified by scott using 'timran11g';

// SQL> drop public database link my_link;

SQL>

SQL>select owner,object_name from dba_objects where object_type='DATABASE LINK';

OWNER	OBJECT_NAME
PUBLIC	MY_LINK.REGRESS.RDBMS.DEV.US.ORACLE.COM

2

scott

SQL> select * from tab; //

TNAME	TABTYPE	CLUSTERID
BONUS	TABLE	
DEPT	TABLE	
EMP	TABLE	
SALGRADE	TABLE	
	TABLE	

SQL> select * from tab@my_link; //

TNAME	TABTYPE	CLUSTERID
BONUS	TABLE	
DEPT	TABLE	
EMP	TABLE	
SALGRADE	TABLE	

(linux)

scott:
SQL>create table test(id int primary key,name char(10));
SQL>create materialized view log on test;

SQL> select * from tab;

```
TNAME                          TABTYPE  CLUSTERID
------------------------------ ------- ----------
BONUS                          TABLE
DEPT                            TABLE
EMP                             TABLE
MLOG$_TEST              TABLE RUPD$_TEST
TABLE                          SALGRADE
TABLE                           TEST
TABLE
```

xp)
sys:
SQL>grant create materialized view to scott;

scott:
SQL>create materialized view test_view refresh
fast
start with sysdate
next sysdate+1/2880
with primary key
as select * from scott.test@my_link;

//1440 24 1/1440 1 1/2880 30

SQL> select * from tab;

```
TNAME                          TABTYPE  CLUSTERID
------------------------------ ------- ----------
BONUS                          TABLE
DEPT                            TABLE
EMP                             TABLE
SALGRADE                        TABLE
TEST_VIEW                      TABLE
                               TABLE
```

scott:

```
SQL>insert into test values(1,'sina');
SQL>commit;
```

scott:

```
SQL> select * from test_view;
```

---30 ...

```
SQL> select * from test_view;

        ID NAME
---------- ----------
         1 sina
```

scott:

```
SQL> insert into test values(2,'sohu');
SQL> commit;
```

scott:

```
SQL> select * from test_view;

        ID NAME
---------- ----------
         1 sina
         2 sohu
```

2 rowid

scott:

```
SQL>drop table test purge;

SQL>create table emp1 as select * from emp;
```

scott:

```
SQL>drop materialized view test_view;

SQL>create materialized view emp1_view refresh with rowid
start with sysdate
next sysdate+1/2880
as select empno,ename,sal,deptno from scott.emp1@my_link where deptno=10;
```

scott:

```
SQL> select * from emp1_view;

     EMPNO ENAME                SAL       DEPTNO
---------- ---------- ---------- ----------
      7782 CLARK                2450         10
      7839 KING                 5000         10
      7934 MILLER               1300         10
```

scott:

```
SQL> update emp1 set sal=1000 where empno=7839;
SQL> commit;
```

scott:

```
SQL> select * from emp1_view;

     EMPNO ENAME                SAL       DEPTNO
---------- ---------- ---------- ----------
      7782 CLARK                2450         10
      7839 KING                 1000         10
      7934 MILLER               1300         10
```

-- --