

UNDO SEGMENTS and SORT SEGMENTS

(Cap. 10)

1) Crearea unui tablespace de undo

```
SQL> create undo tablespace BD_UNDO datafile 'e:\student\undo_db01.dbf' size 2M;
```

2) Crearea unui segment de undo in tablespace-ul de undo

```
SQL> create rollback segment UBD_UNDO tablespace BD_UNDO
      storage (initial 100k next 100k optimal 4M minextents 20 maxextents 100);
```

Rollback segment created.

3) Informatii din dictionar privind segmentele de undo

```
SQL> desc dba_rollback_segs
```

Name	Null?	Type
-----	-----	----
SEGMENT_NAME	NOT NULL	VARCHAR2(30)
OWNER		VARCHAR2(6)
TABLESPACE_NAME	NOT NULL	VARCHAR2(30)
SEGMENT_ID	NOT NULL	NUMBER
FILE_ID	NOT NULL	NUMBER
BLOCK_ID	NOT NULL	NUMBER
INITIAL_EXTENT	NUMBER	
NEXT_EXTENT	NUMBER	
MIN_EXTENTS	NOT NULL	NUMBER
MAX_EXTENTS	NOT NULL	NUMBER
PCT_INCREASE		NUMBER
STATUS		VARCHAR2(16)
INSTANCE_NUM		VARCHAR2(40)
RELATIVE_FNO	NOT NULL	NUMBER

```
SQL> select segment_name,tablespace_name,owner,status from dba_rollback_segs;
```

SEGMENT_NAME	TABLESPACE_NAME	OWNER	STATUS
-----	-----	-----	-----
SYSTEM	SYSTEM	SYS	ONLINE
_SYSSMU1\$	UNDOTBS1	PUBLIC	ONLINE
_SYSSMU2\$	UNDOTBS1	PUBLIC	ONLINE
_SYSSMU3\$	UNDOTBS1	PUBLIC	ONLINE
_SYSSMU4\$	UNDOTBS1	PUBLIC	ONLINE
_SYSSMU5\$	UNDOTBS1	PUBLIC	ONLINE
_SYSSMU6\$	UNDOTBS1	PUBLIC	ONLINE
_SYSSMU7\$	UNDOTBS1	PUBLIC	ONLINE
_SYSSMU8\$	UNDOTBS1	PUBLIC	ONLINE
_SYSSMU9\$	UNDOTBS1	PUBLIC	ONLINE
UBD_UNDO	BD_UNDO	SCOTT	OFFLINE

4) Segmentele de undo folosite de instanta curenta

SQL> desc v\$rollname

Name	Null?	Type
USN		NUMBER
NAME	NOT NULL	VARCHAR2(30)

SQL> select * from v\$rollname;

USN	NAME
0	SYSTEM
1	_SYSSMU1\$
2	_SYSSMU2\$
3	_SYSSMU3\$
4	_SYSSMU4\$
5	_SYSSMU5\$
6	_SYSSMU6\$
7	_SYSSMU7\$
8	_SYSSMU8\$
9	_SYSSMU9\$
10	_SYSSMU10\$

5) Statistici despre segmentele de undo

SQL> desc v\$rollstat

Name	Null?	Type
USN		NUMBER
LATCH		NUMBER
EXTENTS		NUMBER
RSSIZE		NUMBER
WRITES		NUMBER
XACTS		NUMBER
GETS		NUMBER
WAITS		NUMBER
OPTSIZE		NUMBER
HWMSIZE		NUMBER
SHRINKS		NUMBER
WRAPS		NUMBER
EXTENDS		NUMBER
AVESHRINK		NUMBER
AVEACTIVE		NUMBER
STATUS		VARCHAR2(15)
CUREXT		NUMBER
CURBLK		NUMBER

SQL> select usn, rssize, extents, status from v\$rollstat;

USN	RSSIZE	EXTENTS	STATUS
0	385024	6	ONLINE
1	1171456	3	ONLINE
2	1171456	3	ONLINE

3	1171456	3	ONLINE
4	1171456	3	ONLINE
5	1171456	3	ONLINE
6	1171456	3	ONLINE
7	1171456	3	ONLINE
8	385024	6	ONLINE
9	1171456	3	ONLINE
10	1171456	3	ONLINE

6) Informatii despre useri si sesiuni

SQL> desc v\$session

Name	Null?	Type
SADDR		RAW(4)
SID		NUMBER
SERIAL#		NUMBER
AUDSID		NUMBER
PADDR		RAW(4)
USER#		NUMBER
USERNAME		VARCHAR2(30)
COMMAND		NUMBER
OWNERID		NUMBER
TADDR		VARCHAR2(8)
LOCKWAIT		VARCHAR2(8)
STATUS		VARCHAR2(8)
SERVER		VARCHAR2(9)
SCHEMA#		NUMBER
SCHEMANAME		VARCHAR2(30)
OSUSER		VARCHAR2(30)
PROCESS		VARCHAR2(12)
MACHINE		VARCHAR2(64)
TERMINAL		VARCHAR2(16)
PROGRAM		VARCHAR2(64)
TYPE		VARCHAR2(10)
SQL_ADDRESS		RAW(4)
SQL_HASH_VALUE		NUMBER
PREV_SQL_ADDR		RAW(4)
PREV_HASH_VALUE		NUMBER
MODULE		VARCHAR2(48)
MODULE_HASH		NUMBER
ACTION		VARCHAR2(32)
ACTION_HASH		NUMBER
CLIENT_INFO		VARCHAR2(64)
FIXED_TABLE_SEQUENCE		NUMBER
ROW_WAIT_OBJ#		NUMBER
ROW_WAIT_FILE#		NUMBER
ROW_WAIT_BLOCK#		NUMBER
ROW_WAIT_ROW#		NUMBER
LOGON_TIME		DATE
LAST_CALL_ET		NUMBER
PDML_ENABLED		VARCHAR2(3)
FAILOVER_TYPE		VARCHAR2(13)
FAILOVER_METHOD		VARCHAR2(10)

FAILED_OVER	VARCHAR2(3)
RESOURCE_CONSUMER_GROUP	VARCHAR2(32)
PDML_STATUS	VARCHAR2(8)
PDDL_STATUS	VARCHAR2(8)
PQ_STATUS	VARCHAR2(8)
CURRENT_QUEUE_DURATION	NUMBER
CLIENT_IDENTIFIER	VARCHAR2(64)

SQL> select username, sid, saddr from v\$session;

USERNAME	SID	SADDR
	1	14A34758
	2	14A350C8
	3	14A35A38
	4	14A363A8
	5	14A36D18
	6	14A37688
	8	14A38968
SYS	9	14A392D8
SCOTT	10	14A39C48

7) Informatii despre tranzactii(adresele tranzactiilor pot fi join-ate cu sesiunile prin ses_addr).

SQL> desc v\$transaction

Name	Null?	Type
ADDR		RAW(4)
XIDUSN		NUMBER
XIDSLOT		NUMBER
XIDSQN		NUMBER
UBAFIL		NUMBER
UBABLK		NUMBER
UBASQN		NUMBER
UBAREC		NUMBER
STATUS		VARCHAR2(16)
START_TIME		VARCHAR2(20)
START_SCNB		NUMBER
START_SCNW		NUMBER
START_UEXT		NUMBER
START_UBAFIL		NUMBER
START_UBABLK		NUMBER
START_UBASQN		NUMBER
START_UBAREC		NUMBER
SES_ADDR		RAW(4)
FLAG		NUMBER
SPACE		VARCHAR2(3)
RECURSIVE		VARCHAR2(3)
NOUNDO		VARCHAR2(3)
PTX		VARCHAR2(3)
NAME		VARCHAR2(256)
PRV_XIDUSN		NUMBER
PRV_XIDSLT		NUMBER
PRV_XIDSQN		NUMBER
PTX_XIDUSN		NUMBER

PTX_XIDSLT	NUMBER
PTX_XIDSQN	NUMBER
DSCN-B	NUMBER
DSCN-W	NUMBER
USED_UBLK	NUMBER
USED_UREC	NUMBER
LOG_IO	NUMBER
PHY_IO	NUMBER
CR_GET	NUMBER
CR_CHANGE	NUMBER

SQL> insert into emp values (999, 'TEST','TRANZACT',1111,sysdate, 100,0,10)
1 row created.

SQL> select addr, xidusn, used_ublk,start_uext, start_ubafil from v\$transaction

ADDR	XIDUSN	USED_UBLK	START_UEXT	START_UBAFIL
-----	-----	-----	-----	-----
143ACE8C	4	1	2	2

ADDR – adresa sesiunii

XIDUSN – nr. segmentului de undo

USED_UBLK – nr. de blocuri de undo generate de tranzactie

START_UEXT- extensia segmentului de undo pentru care tranzactia a inceput scrierea

START_UBAFIL – fisierul de undo in care tranzactia curenta a inceput scrierea

8) Informatii despre blocurile de undo folosite de tranzactia curenta

SQL> SELECT s.username, t.xidusn, t.ubafil, t.ubablk, t.used_ublk FROM v\$session s,
v\$transaction t WHERE s.saddr = t.ses_addr;

USERNAME	XIDUSN	UBAFIL	UBABLK	USED_UBLK
-----	-----	-----	-----	-----
SCOTT	7	2	4196	1

9) Statistici despre dimensiunea spatiului de undo

SQL> desc v\$undostat

Name	Null?	Type
-----	-----	-----
BEGIN_TIME		DATE
END_TIME		DATE
UNDOTSN		NUMBER
UNDOBLKS		NUMBER
TXNCOUNT		NUMBER
MAXQUERYLEN		NUMBER
MAXQUERYID		VARCHAR2(13)
MAXCONCURRENCY		NUMBER
UNXPSTEALCNT		NUMBER
UNXPBLKRELCNT		NUMBER
UNXPBLKREUCNT		NUMBER
EXPSTEALCNT		NUMBER
EXPBLKRELCNT		NUMBER
EXPBLKREUCNT		NUMBER
SSOLDERRCNT		NUMBER

NOSPACEERRCNT	NUMBER
ACTIVEBLKS	NUMBER
UNEXPIREDBLKS	NUMBER
EXPIREDBLKS	NUMBER
TUNED_UNDORETENTION	NUMBER

```
SQL> SELECT to_char(begin_time, 'dd-mm-yyyy hh:mi:ss') start_time, to_char(end_time, 'dd-mm-yyyy hh:mi:ss') end_time, ((end_time-begin_time)* 24)*60 minute, undoblks FROM v$undostat;
```

START_TIME	END_TIME	MINUTE	UNDOBLKS
-----	-----	-----	-----
23-11-2013 10:35:02	23-11-2013 10:36:04	1.03	0
23-11-2013 10:25:02	23-11-2013 10:35:02	10	218
23-11-2013 10:15:02	23-11-2013 10:25:02	10	38
23-11-2013 10:05:02	23-11-2013 10:15:02	10	23

```
SQL> SELECT (SUM(undoblks) / SUM ((end_time - begin_time) * 24*60*60))
nr_med_blocuri_undo_sec FROM v$undostat;
```

```
NR_MED_BLOCURI_UNDO_SEC
-----
0.114826753
```

10) Stergerea din dictionar a unui segment de undo

```
SQL> drop rollback segment ubd;
```

Rollback segment dropped.

11) Informatii despre **segmentele temporare de sortare** (folosite in comenzile SQL de sortare)

```
SQL> desc v$sort_segment
```

Name	Null?	Type
-----	-----	----
TABLESPACE_NAME		VARCHAR2(31)
SEGMENT_FILE		NUMBER
SEGMENT_BLOCK		NUMBER
EXTENT_SIZE		NUMBER
CURRENT_USERS		NUMBER
TOTAL_EXTENTS		NUMBER
TOTAL_BLOCKS		NUMBER
USED_EXTENTS		NUMBER
USED_BLOCKS		NUMBER
FREE_EXTENTS		NUMBER
FREE_BLOCKS		NUMBER
ADDED_EXTENTS		NUMBER
EXTENT_HITS		NUMBER
FREED_EXTENTS		NUMBER
FREE_REQUESTS		NUMBER
MAX_SIZE		NUMBER
MAX_BLOCKS		NUMBER
MAX_USED_SIZE		NUMBER
MAX_USED_BLOCKS		NUMBER
MAX_SORT_SIZE		NUMBER

MAX_SORT_BLOCKS	NUMBER
RELATIVE_FNO	NUMBER

SQL> select tablespace_name,max_sort_size,extent_size,max_sort_blocks from v\$sort_segment;

TABLESPACE_NAME	MAX_SORT_SIZE	EXTENT_SIZE	MAX_SORT_BLOCKS
-----	-----	-----	-----
TEMP	1	128	128

12) Informatii despre sesiuni si tablespace-ul in care se afla segmentele temporare de sortare folosite in sesiunea curenta

SQL> desc v\$sort_usage

Name	Null?	Type
-----	-----	----
USERNAME		VARCHAR2(30)
USER		VARCHAR2(30)
SESSION_ADDR		RAW(4)
SESSION_NUM		NUMBER
SQLADDR		RAW(4)
SQLHASH		NUMBER
TABLESPACE		VARCHAR2(31)
CONTENTS		VARCHAR2(9)
SEGTYPE		VARCHAR2(9)
SEGFILE#		NUMBER
SEGBLK#		NUMBER
EXTENTS		NUMBER
BLOCKS		NUMBER
SEGRFNO#		NUMBER

SQL> select username,user,tablespace,contents,extents,blocks from v\$sort_usage;

USERNAME	USER	TABLESPACE	CONTENTS	EXTENTS	BLOCKS
-----	-----	-----	-----	-----	-----
SYS	SCOTT	TEMP	TEMPORARY	1	128

13) Setarea zonei de memorie utilizata pentru sortare in sesiunea curenta la 10K.

SQL> alter system set sort_area_size=10240 deferred;