BDD - TD4

25-03-2021

Partie 1 : Tablespaces

Question 1

La commande suivante nous permet de voir quelques caractéristiques des tablespaces :

```
SELECT * FROM DBA_TABLESPACES;
```

Voir `fig 1`

	TABLESPACE_NAME	BLOCK_SIZE	INITIAL_EXTENT	NEXT_EXTENT	MIN_EXTENTS	MAX_EXTENTS	MAX_SIZE	PCT_INCREASE	MIN_EXTLEN	STATUS	CONTENTS	LOGGING	FORCE_LOGGING	EXTENT_MANAGEMENT	ALLOCATION_TYPE	PLUGGED_IN	
1	SYSTEM	8192	65536	(null)	1	2147483645	2147483645	(null)	65536	ONLINE	PERMANENT	LOGGING	YES	LOCAL	SYSTEM	NO	M
2	SYSAUX	8192	65536	(null)	1	2147483645	2147483645	(null)	65536	ONLINE	PERMANENT	LOGGING	YES	LOCAL	SYSTEM	NO	A
3	UNDOTBS1	8192	65536	(null)	1	2147483645	2147483645	(null)	65536	ONLINE	UNDO	LOGGING	NO	LOCAL	SYSTEM	NO	M
4	TEMP	8192	1048576	1048576	1	(null)	2147483645	0	1048576	ONLINE	TEMPORARY	NOLOGGING	NO	LOCAL	UNIFORM	NO	M
5	USERS	8192	65536	(null)	1	2147483645	2147483645	(null)	65536	ONLINE	PERMANENT	LOGGING	NO	LOCAL	SYSTEM	NO	A
6	ETUDIANTS	8192	65536	(null)	1	2147483645	2147483645	(null)	65536	ONLINE	PERMANENT	LOGGING	NO	LOCAL	SYSTEM	NO	A

Figure 1: fig 1

Question 2

La commande suivante nous permet d avoir plus de caractéristiques des tablespaces :

```
SELECT tablespace_name "Fichiers associés", SUM (bytes/1024) "Espace Total (Ko)", sum(blocks) "Espace Tota
FROM dba_data_files
GROUP BY tablespace_name;
```

Voir `fig 2`

	Fichiers associés	Espace Total (Ko)	Espace Total (blocs)
1	SYSAUX	2631680	328960
2	UNDOTBS1	12582912	1572864
3	USERS	5120	640
4	SYSTEM	1904640	238080
5	ETUDIANTS	11920832	1490104

Figure 2: fig 2

La commande suivante nous permet de connaître également le taux d'occupation de chaque tablespace, ainsi que taille restante par rapport à la taille totale qu'il occupe

```
SELECT DF.tablespace_name, DF.total, DS.libre, ((DF.total-DS.libre)*100/DF.total) "Taux d occupation (%)"
FROM
(SELECT tablespace_name, SUM(bytes) total FROM dba_data_files GROUP BY tablespace_name) DF,
(SELECT tablespace_name, SUM(bytes) libre FROM dba_free_space GROUP BY tablespace_name) DS
WHERE DF.tablespace_name = DS. tablespace_name;
```

Voir `fig 3`

Caractéristiques précises des tablespaces :

	TABLESPACE_NAME	TOTAL	LIBRE	Taux d occupation (%)
1	SYSAUX	2694840320	260308992	90,340466926070038910505836575875486381 32
2	UNDOTBS1	12884901888	12786270208	0,765482584635416666666666666666666666666667
3	USERS	5242880	3473408	33,75
4	SYSTEM	1950351360	1310720	99,932795698924731182795698924731182795 7
5	ETUDIANTS	12206931968	11049959424	9,47799616671051148107783080912473223345

Figure 3: fig 3

La commande suivante nous permet de voir la taille max de chaque tablespaces, son pourcentage d'utilisation et d'autres informations intéressantes.

```
select
    a.TABLESPACE_NAME,
    round(((nvl(sum(b.bytes),0)-nvl(sum(c.free_bytes),0)) / nvl(sum(b.maxbytes),0))*100, 2)||' %' "% Utili
    --a.EXTENT_MANAGEMENT,
    --a.ALLOCATION_TYPE,
    --a.BIGFILE,
    nvl(sum(b.bytes),0)/(1024*1024)||' Mo' "Taille",
    nvl(sum(b.maxbytes),0)/(1024*1024)||' Mo' "Taille Max",
    round((nvl(sum(b.bytes),0)-nvl(sum(c.free_bytes),0))/(1024*1024),1)||' Mo'  "Utilisés",
    nvl(sum(b.count_files),0) "Nb fichiers",
    a.CONTENTS,
    a.SEGMENT_SPACE_MANAGEMENT,
    a.STATUS "Statut"
from DBA_TABLESPACES a,
    (
    select TABLESPACE_NAME,
        sum(BYTES) bytes,
        count(*) count_files,
        sum(greatest(MAXBYTES,BYTES)) maxbytes
    from DBA_DATA_FILES
    group by TABLESPACE_NAME
    union all
    select TABLESPACE_NAME,
        sum(BYTES),
        count(*),
        sum(greatest(MAXBYTES,BYTES)) maxbytes
    from DBA_TEMP_FILES
    group by TABLESPACE_NAME
    ) b,
    (
    select TABLESPACE_NAME,
        sum(BYTES) free_bytes
    from DBA_FREE_SPACE
    group by TABLESPACE_NAME
    union all
    select TABLESPACE_NAME,
        sum(BYTES_FREE) free_bytes
    from V$TEMP_SPACE_HEADER
    group by TABLESPACE_NAME
    ) c
where a.TABLESPACE_NAME = b.TABLESPACE_NAME (+)
    and a.TABLESPACE_NAME = c.TABLESPACE_NAME (+)
group by
    a.TABLESPACE_NAME,
    a.CONTENTS,
    a.EXTENT_MANAGEMENT,
    a.ALLOCATION_TYPE,
    a.SEGMENT_SPACE_MANAGEMENT,
    a.BIGFILE,
```

```
    a.STATUS
order by a.TABLESPACE_NAME;
```

Voir `fig 4`

	TABLESPACE_NAME	% Utilisation	Taille	Taille Max	Utilisés	Nb fichiers	CONTENTS	SEGMENT_SPACE_MANAGEMENT	Statut
1	ETUDIANTS	3,59 %	11641,4375 Mo	30720 Mo	1103,4 Mo	1	PERMANENT	AUTO	ONLINE
2	SYSAUX	7,09 %	2570 Mo	32767,984375 Mo	2321,8 Mo	1	PERMANENT	AUTO	ONLINE
3	SYSTEM	5,67 %	1860 Mo	32767,984375 Mo	1858,8 Mo	1	PERMANENT	MANUAL	ONLINE
4	TEMP	82,41 %	16245,9921875 Mo	16245,9921875 Mo	13389 Mo	1	TEMPORARY	MANUAL	ONLINE
5	UNDOTBS1	,49 %	12288 Mo	19095 Mo	94,1 Mo	1	UNDO	MANUAL	ONLINE
6	USERS	,01 %	5 Mo	32767,984375 Mo	1,7 Mo	1	PERMANENT	AUTO	ONLINE

Figure 4: fig 4

Question 3

Le nombre de segments du tablespace ETUDIANTS :

```
SELECT COUNT(*) FROM DBA_SEGMENTS WHERE tablespace_name='ETUDIANTS';
```

Voir `fig 5`

	COUNT(*)
1	18930

Figure 5: fig 5

Le nombre total d'extensions pour ce tablespace :

```
SELECT SUM(EXTENTS) FROM DBA_SEGMENTS WHERE tablespace_name='ETUDIANTS';
```

Voir `fig 6`

	SUM(EXTENTS)
1	33982

Figure 6: fig 6

Le nombre moyen d'extensions par segment pour ce tablespace :

```
SELECT DBA1.nbSegments, DBA2.nbExtensions, (DBA2.nbExtensions/DBA1.nbSegments) "nbMoyenExtParSeg"
FROM
(SELECT COUNT(*) nbSegments FROM DBA_SEGMENTS WHERE tablespace_name='ETUDIANTS') DBA1,
(SELECT SUM(EXTENTS) nbExtensions FROM DBA_SEGMENTS WHERE tablespace_name='ETUDIANTS') DBA2;
```

Voir `fig 7`

Partie 2

Question 1

```
select o.object_name, o.object_type, s.segment_type
from
(select object_name, object_type
from dba_objects
where owner='RAPHALEN') o,
(select segment_name, segment_type
from dba_segments
where owner='RAPHALEN') s
where o.object_name=s.segment_name (+);
```

Voir `fig 8`

	NBSEGMENTS	NBEXTENSIONS	nbMoyenExtParSeg
1	18931	33984	1,795150810839364006127515714964872431 46

Figure 7: fig 7

Question 2

Description du segment TEST:

```
select segment_name, bytes, blocks, extents
from dba_segments
where tablespace_name = 'ETUDIANTS' and owner='E1800010' and segment_name='TEST';
```

Voir `fig 9`

Ensemble de ses extensions :

```
select extent_id, block_id, blocks
from dba_extents
where owner='E1800010' and segment_name='TEST'
order by extent_id;
```

Voir `fig 10`

Question 3

```
analyze table test compute statistics ;
```

```
--output : Table TEST analysé(s).
```

```
select num_rows, blocks, empty_blocks, avg_space, chain_cnt, avg_row_len
from dba_tables
where owner='E1800010' and table_name='TEST';
```

Chez d'autres étudiants les chiffres ne sont pas les mêmes pourtant j'ai la même requête qu'eux

Voir `fig 11`

Question 4

```
analyze table TESTBIS compute statistics ;
```

```
select num_rows, blocks, empty_blocks, avg_space, chain_cnt, avg_row_len
from dba_tables
where owner='E1800010' and table_name='TESTBIS';
```

Voir `fig 12`

```
UPDATE TESTBIS
SET ename = 'ADAMSADAMS'
WHERE ename = 'ADAMS';
```

```
-- output : 1024 lignes mis à jour
```

```
UPDATE TESTBIS
SET ename = 'SCOTTSCOTT'
WHERE ename = 'SCOTT';
```

```
-- output : 1024 lignes mis à jour
```

```
UPDATE TESTBIS
SET ename = 'BLAKEBLAKE'
WHERE ename = 'BLAKE';
```

```
-- output : 1024 lignes mis à jour
-- constatations :
```

	OBJECT_NAME	OBJECT_TYPE	SEGMENT_TYPE
1	MATMISREFMATCLEPRIMAIRE	INDEX	INDEX
2	MATIERESMIS	TABLE	TABLE
3	MATIEREREFMATCLEPRIMAIRE	INDEX	INDEX
4	MATIERE	TABLE	TABLE
5	MALTEST	TABLE	TABLE
6	MALADIE_PK	INDEX	INDEX
7	MALADIEOLD	TABLE	TABLE
8	MALADIEL2_PK	INDEX	INDEX
9	MALADIEL2	TABLE	TABLE
10	MALADIE	TABLE	TABLE
11	LIGNE_COM	TABLE	TABLE
12	LIGNECOMPK	INDEX	INDEX
13	LES_VENDEURS	TABLE	TABLE
14	JOURNAL	TABLE	TABLE
15	INSCRIPTRETUDRCOURSCLEPRIM	INDEX	INDEX
16	INSCRIPTION	TABLE	TABLE
17	IDXIDSERVICESALARIES	INDEX	INDEX
18	IDXESSAI	INDEX	INDEX
19	IDXENAMESALARIES	INDEX	INDEX
20	IDXENAMEEMP1	INDEX	INDEX
21	IDXENAME	INDEX	INDEX
22	IDXEMP1DEPTNO	INDEX	INDEX
23	EXPVOL	TABLE	TABLE
24	ETUDIANTREFETUDCLEPRIMAIRE	INDEX	INDEX
25	ETUDIANT	TABLE	TABLE
26	ESSAIINDEX	TABLE	TABLE
27	ESSAI	TABLE	TABLE
28	ENSEIGNANTREFENSCLEPRIMAIRE	INDEX	INDEX
29	ENSEIGNANT	TABLE	TABLE
30	EMPRUNT	TABLE	TABLE
31	EMPLOYES	TABLE	TABLE
32	EMP1	TABLE	TABLE
33	EMP	TABLE	TABLE

Figure 8: fig 8

	SEGMENT_NAME	BYTES	BLOCKS	EXTENTS
1	TEST	851968	104	13

Figure 9: fig 9

	EXTENT_ID	BLOCK_ID	BLOCKS
1	0	1138040	8
2	1	1138432	8
3	2	1138456	8
4	3	1138464	8
5	4	1138472	8
6	5	1138480	8
7	6	1138488	8
8	7	1138496	8
9	8	1138504	8
10	9	1138512	8
11	10	1138520	8
12	11	1138528	8
13	12	1190368	8

Figure 10: fig 10

	NUM_ROWS	BLOCKS	EMPTY_BLOCKS	AVG_SPACE	CHAIN_CNT	AVG_ROW_LEN
1	0	95	9	7747	0	0

Figure 11: fig 11

	NUM_ROWS	BLOCKS	EMPTY_BLOCKS	AVG_SPACE	CHAIN_CNT	AVG_ROW_LEN
1	14336	93	3	878	0	40

Figure 12: fig 12

```
analyze table TESTBIS compute statistics ;
```

```
select num_rows, blocks, empty_blocks, avg_space, chain_cnt, avg_row_len
from dba_tables
where owner='E1800010' and table_name='TESTBIS';
```

Voir fig 13

	NUM_ROWS	BLOCKS	EMPTY_BLOCKS	AVG_SPACE	CHAIN_CNT	AVG_ROW_LEN
1	14336	96	0	945	8	42

Figure 13: fig 13

Question 5

```
CREATE TABLE TEST1 AS SELECT * FROM TEST WHERE ename='ADAMS';
```

– output : Table TEST1 créé(e).

```
select extents, blocks
from dba_segments
where owner='E1800010' and segment_name='TEST1';
```

```
analyze table TESTBIS compute statistics ;
```

```
select num_rows, blocks, empty_blocks, avg_space, chain_cnt, avg_row_len
from dba_tables
where owner='E1800010' and table_name='TEST1' ;
```

Question 6

```
DELETE FROM TEST WHERE ename='ADAMS';
```

```
-- output : 1 024 lignes supprimé.
```

Stockage de la table test :

```
select extents, blocks
from dba_segments
where owner='E1800010' and segment_name='TEST';
```

Voir fig 14

	EXTENTS	BLOCKS
1	13	104

Figure 14: fig 14

```
analyze table TEST compute statistics ;
```

```
select num_rows, blocks, empty_blocks, avg_space, chain_cnt, avg_row_len
from dba_tables
where owner='E1800010' and table_name='TEST';
```

Voir fig 15

	NUM_ROWS	BLOCKS	EMPTY_BLOCKS	AVG_SPACE	CHAIN_CNT	AVG_ROW_LEN
1	0	95	9	7747	0	0

Figure 15: fig 15

Question 7

```
INSERT INTO TEST SELECT * FROM TEST1;
```

```
--output : 1 024 lignes inséré.
```

Stockage de la table test :

```
select extents, blocks
from dba_segments
where owner='E1800010' and segment_name='TEST';
```

Voir `fig 16`

	EXTENTS	BLOCKS
1	13	104

Figure 16: fig 16

```
analyze table TEST compute statistics ;
```

```
select num_rows, blocks, empty_blocks, avg_space, chain_cnt, avg_row_len
from dba_tables
where owner='E1800010' and table_name='TEST';
```

Voir `fig 17`

	NUM_ROWS	BLOCKS	EMPTY_BLOCKS	AVG_SPACE	CHAIN_CNT	AVG_ROW_LEN
1	0	95	9	7747	0	0

Figure 17: fig 17

Question 8

1)

```
CREATE TABLE test2
AS
SELECT * FROM test
WHERE ename IN ('ADAMS', 'ALLEN', 'BLAKE', 'CLARK', 'JAMES', 'JONES', 'KING',
'SMITH','MARTIN', 'MILLER', 'TURNER');
```

```
select extents, blocks
from dba_segments
where owner='E1800010' and segment_name='TEST2';
```

```
analyze table TEST2 compute statistics ;
```

```
select num_rows, blocks, empty_blocks, avg_space, chain_cnt, avg_row_len
from dba_tables
where owner='E1800010' and table_name='TEST2';
```

2)

```
DELETE FROM TEST WHERE ename IN ('ADAMS', 'ALLEN', 'BLAKE', 'CLARK', 'JAMES', 'JONES',
'KING', 'SMITH','MARTIN', 'MILLER', 'TURNER');
```

```
select extents, blocks
from dba_segments
where owner='E1800010' and segment_name='TEST';
```

```
analyze table TEST compute statistics ;
```

```
select num_rows, blocks, empty_blocks, avg_space, chain_cnt, avg_row_len
from dba_tables
where owner='E1800010' and table_name='TEST';
```

3)

```
INSERT INTO test
SELECT * from test2 ;
```

```
select extents, blocks
from dba_segments
where owner='E1800010' and segment_name='TEST';
```

```
analyze table TEST compute statistics ;
select num_rows, blocks, empty_blocks, avg_space, chain_cnt, avg_row_len
from dba_tables
where owner='E1800010' and table_name='TEST';
```

On supprime les tables suivantes :

```
DROP TABLE test1;
DROP TABLE test2;
DROP TABLE TESTBIS;
```

```
-- output : Table TEST1 supprimé(e).
--          Table TEST2 supprimé(e).
--          Table TESTBIS supprimé(e).
```

Suppression des tuples de table (Avant la question 9)

validation des tests par un commit

```
COMMIT ;
```

copie du contenu de la table test dans une table TESTBIS et décrisption du stockage de cette table

```
CREATE TABLE TESTBIS AS SELECT * FROM test ;
```

```
-- output : Validation (commit) terminée.
-- output : Table TESTBIS créé(e).
```

```
analyze table TESTBIS compute statistics ;
```

```
select num_rows, blocks, empty_blocks, avg_space, chain_cnt, avg_row_len
from dba_tables
where owner='E1800010' and table_name='TESTBIS';
```

Question 9

```
DELETE FROM TEST;
COMMIT;
```

```
-- output : 14 336 lignes supprimé.
--          Validation (commit) terminée.
```

```
analyze table TESTBIS compute statistics ;
```

```
select num_rows, blocks, empty_blocks, avg_space, chain_cnt, avg_row_len
from dba_tables
where owner='E1800010' and table_name='TESTBIS' ;
```

Question 10

```
DELETE FROM TESTBIS ;
SELECT COUNT(*) FROM TESTBIS ;
```

Voir `fig 18`

	COUNT(*)
1	0

Figure 18: fig 18

```
ROLLBACK ;
SELECT COUNT(*) FROM TESTBIS ;
```

Voir `fig 19`

	COUNT(*)
1	14336

Figure 19: fig 19

```
TRUNCATE TABLE TESTBIS;
SELECT COUNT(*) FROM TESTBIS;
```

Voir `fig 18`

```
ROLLBACK ;
SELECT COUNT(*) FROM TESTBIS;
```

Voir `fig 18`

– Qu'en est-il du stockage de TESTBIS ?

```
analyze table TESTBIS compute statistics ;
select num_rows, blocks, empty_blocks, avg_space, chain_cnt, avg_row_len
from dba_tables
where owner='E1800010' and table_name='TESTBIS' ;
```

– suppression des tables TEST et TESTBIS

```
DROP TABLE TEST;
DROP TABLE TESTBIS;
```