My SQLs on Temporary Tablespace

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0. Question: What are Temporary Tablespaces?

Answer: Temporary tablespaces are used to manage space for database sort operations and for storing global temporary tables. They are usually needed when PGA runs out of allocated memory.

1. Desc DBA_TEMP_FILES

```
SQL> desc dba_temp_files
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------
 FILE_NAME                                          VARCHAR2(513)
 FILE_ID                                            NUMBER
 TABLESPACE_NAME                                    NOT NULL VARCHAR2(30)
 BYTES                                              NUMBER
 BLOCKS                                             NUMBER
 STATUS                                             CHAR(9)
 RELATIVE_FNO                                       NUMBER
 AUTOEXTENSIBLE                                     VARCHAR2(3)
 MAXBYTES                                           NUMBER
 MAXBLOCKS                                          NUMBER
 INCREMENT_BY                                       NUMBER
 USER_BYTES                                         NUMBER
 USER_BLOCKS                                        NUMBER
```

2. To check the default temporary tablespace

```
col property_name format a25
col property_value format a25
col description format a40
SELECT * FROM DATABASE_PROPERTIES where
PROPERTY_NAME='DEFAULT_TEMP_TABLESPACE';
```

```
PROPERTY_NAME             PROPERTY_VALUE            DESCRIPTION
------------------------- ------------------------- ----------------------------------------
DEFAULT_TEMP_TABLESPACE   TEMP                      Name of default temporary tablespace
```

3. To check the size of temporary tablespace

```
set linesize 200
col tablespace_name format a20
select
TABLESPACE_NAME,
BYTES_USED/1024/1024 as Used_space_in_MB,
BYTES_FREE/1024/1024 as Free_space_in_MB,
(bytes_used+bytes_free)/1024/1024 as Total_size_in_MB
from V$TEMP_SPACE_HEADER;
```

4. To Create Temporary tablespace:

```
CREATE TEMPORARY TABLESPACE temp06
TEMPFILE '/u14/oradata/ShibaDB/temp05.dbf' size 50M
Autoextend on
Next 50M
Maxsize unlimited;

CREATE TEMPORARY TABLESPACE temp_ts TEMPFILE
'/u14/oradata/PrimeDG/temp_ts_01.dbf' size 50M;
```

5. To make it a default tablespace:

```
ALTER DATABASE DEFAULT TEMPORARY TABLESPACE temp06;
```

6. DROP TABLESPACE temp INCLUDING CONTENTS AND DATAFILES;

```
drop tablespace temp including contents and datafiles;
```

7. To see the datafile name, tablespace name and their sizes:

```
set linesize 200
set pagesize 200
col file_name format a70
select file_name, bytes/1024/1024 as size_in_mb,
round(bytes/1024/1024/1024 ,2) as size_in_GB, tablespace_name from
dba_data_files
union
select file_name, bytes/1024/1024 as size_in_mb,
round(bytes/1024/1024/1024 ,2) as size_in_GB, tablespace_name from
dba_temp_files
order by 3;
```

8. To check the temp datafiles

```
set linesize 200
set pagesize 200
Break on tablespace_name skip 1
col file_name format a50
select
      tablespace_name,
      file_name,
      bytes/1024/1024 as size_in_mb,
      round(bytes/1024/1024/1024 ,2) as size_in_GB
from
      dba_temp_files;
```

TABLESPACE_NAME	FILE_NAME	SIZE_IN_MB	SIZE_IN_GB
TEMP	/u14/oradata/Batch35/temp01.dbf	60	.06
	/u14/oradata/Batch35/temp02.dbf	1024	1

9. To check the size of all tablespaces:

```
set linesize 200
col tablespace format a50
select
    df.tablespace_name as "Tablespace",
    totalusedspace as "Used MB",
    (df.totalspace - tu.totalusedspace) as "Free MB",
    df.totalspace as "Total MB",
    round(100 * ( (df.totalspace - tu.totalusedspace)/
df.totalspace)) as "Pct. Free",
    (100-(round(100 * ( (df.totalspace - tu.totalusedspace)/
df.totalspace)))) as "Pct. Used"
from
    (select
      tablespace_name,
      round(sum(bytes) / 1048576) TotalSpace
    from
      dba_data_files
    group by tablespace_name) df,
      (select
            round(sum(bytes)/(1024*1024)) totalusedspace,
            tablespace_name
```

```
      from
           dba_segments
      group
           by tablespace_name) tu
    where
      df.tablespace_name = tu.tablespace_name
order by 6 desc;
set linesize 84
```

9. Who is using Temp Tablespace?

```
set linesize 200
set pagesize 200
col tablespace format a10
col size format a6
col sid_serial format a10
col username format a10
col program format a30
SELECT b.tablespace,
ROUND(((b.blocks*p.value)/1024/1024),2)||'M' "SIZE",
a.sid||','||a.serial# SID_SERIAL,
a.username,
a.program,
a.terminal
FROM sys.v_$session a,
sys.v_$sort_usage b,
sys.v_$parameter p
WHERE p.name = 'db_block_size'
AND a.saddr = b.session_addr
ORDER BY b.tablespace, b.blocks;
```

10. Where can I read more on 11g Automatic Memory Management?

http://docs.oracle.com/cd/B28359_01/server.111/b28310/memory003.htm#ADMIN11011

11. How to resize temp datafile

```
ALTER DATABASE tempfile '/u03/odsb01s/data/temp01.dbf' RESIZE
2048M;
```

11.1 How to add a datafile in temp tablespace

```
ALTER tablespace TEMP
Add tempfile
'/u14/oradata/Batch35/te
mp02.dbf'
Size 1024M
Autoextend on
Next 1024M
maxsize unlimited;
```

```
SQL> ALTER tablespace TEMP
Add tempfile '/u14/oradata/Batch35/temp02.dbf'
Size 1024M
Autoextend on
Next 1024M
maxsize unlimited;
  2    3    4    5    6

Tablespace altered.
```

11.2 How to resize temp datafile in OMF

For OMF:

```
ALTER TABLESPACE TEMP
Add tempfile;
```

(OR)

```
ALTER TABLESPACE TEMP
Add tempfile Size 4G;
```

12. Check the Temp tablespace usage? Who is using Temp Tablespace?

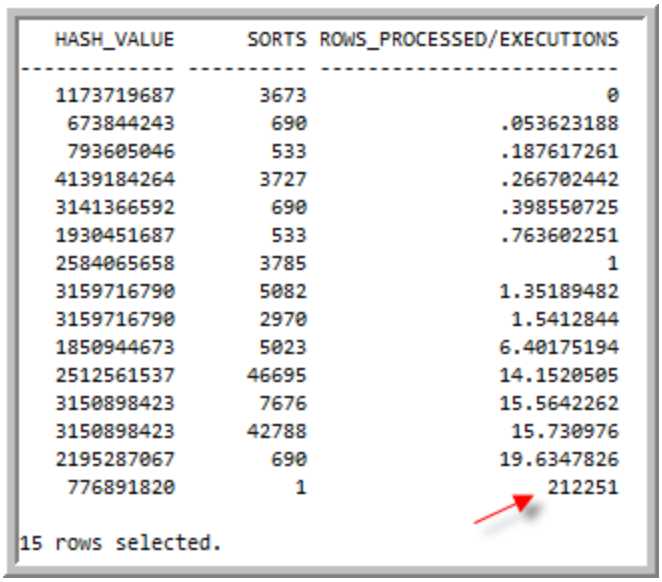
```
select
      b.Total_MB,
      b.Total_MB - round(a.used_blocks*8/1024)
Current_Free_MB,
      round(used_blocks*8/1024)
Current_Used_MB,
      round(max_used_blocks*8/1024)             Max_used_MB
from
      v$sort_segment a,
      (select round(sum(bytes)/1024/1024) Total_MB from
dba_temp_files ) b;
```

TOTAL_MB	CURRENT_FREE_MB	CURRENT_USED_MB	MAX_USED_MB
576	576	0	52

```
col hash_value for a40
col tablespace for a10
col username for a15
set linesize 132 pagesize 1000
SELECT
      s.sid,
      s.username,
      u.tablespace,
      s.sql_hash_value||'/'||u.sqlhash hash_value,
      u.segtype,
      u.contents,
      u.blocks
FROM
      v$session s,
      v$tempseg_usage u
WHERE
      s.saddr=u.session_addr
order by
      u.blocks;
```

SID	USERNAME	TABLESPACE	HASH_VALUE	SEGTYPE	CONTENTS	BLOCKS
12	SYS	TEMP	776891820/1950821498	SORT	TEMPORARY	3712

```
col hash_value for 999999999999
select
      hash_value,
      sorts,
      rows_processed/executions
from
      v$sql
where
      hash_value in (select hash_value from v$open_cursor
where sid=12)
      and
      sorts > 0
      --and
      --PARSING_SCHEMA_NAME='MOID'
order by
      rows_processed/executions;
```



```
  HASH_VALUE      SORTS ROWS_PROCESSED/EXECUTIONS
------------ ---------- -------------------------
  1173719687       3673                         0
   673844243        690                .053623188
   793605046        533                .187617261
  4139184264       3727                .266702442
  3141366592        690                .398550725
  1930451687        533                .763602251
  2584065658       3785                         1
  3159716790       5082                1.35189482
  3159716790       2970                 1.5412844
  1850944673       5023                6.40175194
  2512561537      46695                14.1520505
  3150898423       7676                15.5642262
  3150898423      42788                 15.730976
  2195287067        690                19.6347826
   776891820          1                    212251

15 rows selected.
```

Ref:
https://alexzeng.wordpress.com/2012/06/13/how-to-find-the-sql-that-using-lots-of-temp-tablespace-in-oracle/

13. Temp TBS usage

Note: Received from Asad

```
set linesize 500
col TABLESPACE for a12
col USERNAME for a15
col OSUSER for a15


SELECT
      b.tablespace,
      b.segfile#,
      b.segblk#,
      b.blocks,
      a.sid,
      a.serial#,
      a.username,
      a.sql_id,
      a.osuser,
      a.status
FROM
```

```
      v$session a,
      v$sort_usage b
WHERE
      a.saddr = b.session_addr
ORDER BY
      b.tablespace, b.segfile#, b.segblk#, b.blocks;
```

14. V$TEMPSEG_USAGE

15. Sort Usage

```
select * from v$sort_usage;

Or

SELECT   s.sid "SID",
      s.username "User",
      s.program "Program",
      u.tablespace "Tablespace",
      u.contents "Contents",
      u.extents "Extents",
      u.blocks * 8 / 1024 "Used Space in MB",
      q.sql_text "SQL TEXT",
      a.object "Object",
      k.bytes / 1024 / 1024 "Temp File Size"
  FROM   v$session s,
      v$sort_usage u,
      v$access a,
      dba_temp_files k,
      v$sql q
 WHERE     s.saddr = u.session_addr
      AND s.sql_address = q.address
      AND s.sid = a.sid
      AND u.tablespace = k.tablespace_name;
```

Hope this helps.

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