

Oracle Query - Reclaim / Shrink Datafile

Olá, neste artigo deixo uma query para que vocês possam realizar o shrink/reclaim do espaço disponível nos datafiles.

As vezes realizamos o resize dos datafiles alocando mais espaço do que o necessário ou é realizada alguma rotina de expurgo dos dados em alguma tabela e necessitamos recuperar o espaço fisicamente no disco.

A query abaixo trará o comando necessário a ser executado para realizar o downsize do datafile até o limite máximo permitido dos blocos no header (High water mark).

Query

```
SET LINES 200 pages 2000
SET long 9999999

SELECT tablespace_name,
       'alter database datafile ''' || file_name || ''' resize ' ||
CEIL((nvl(hwm,1) * 8192)/1024/1024 + 5) || 'M;' AS cmd,
       CEIL( (nvl(hwm,1) * 8192)/1024/1024 ) smallest,
       CEIL( blocks * 8192/1024/1024 ) currsz,
       CEIL( blocks * 8192/1024/1024 ) - CEIL((nvl(hwm,1) * 8192)/1024/1024)
savings
FROM dba_data_files a,
     ( SELECT file_id, MAX(block_id+blocks-1) hwm
       FROM dba_extents
       GROUP BY file_id ) b
WHERE a.file_id = b.file_id(+)
AND CEIL( blocks * 8192/1024/1024 ) - CEIL((nvl(hwm,1) * 8192)/1024/1024) > 0
ORDER BY savings DESC
/
```

Abaixo uma outra variação de execução apenas numa tablespace específica:

```
SET LINES 200 pages 2000
SET long 9999999
DEFINE tbsp = '&TABLESPACE_NAME';
WITH
  HWM AS (
    -- GET HIGHEST BLOCK ID FROM EACH DATAFILES ( FROM X$KTFBUE AS WE DON'T
    NEED ALL JOINS FROM DBA_EXTENTS )
    SELECT /*+ MATERIALIZE */ KTFBUESEGTSN TS#, KTFBUEFNO
    RELATIVE_FNO, MAX(KTFBUEBNO+KTFBUEBLKS-1) HWM_BLOCKS
    FROM SYS.X$KTFBUE GROUP BY KTFBUEFNO, KTFBUESEGTSN
  ),
  HWMTS AS (
    -- JOIN TS# WITH TABLESPACE_NAME
    SELECT NAME TABLESPACE_NAME, RELATIVE_FNO, HWM_BLOCKS
    FROM HWM JOIN V$TABLESPACE USING(TS#)
```

```

WHERE NAME = '&tspace'
),
HWMDF AS (
  -- JOIN WITH DATAFILES, PUT 50M MINIMUM FOR DATAFILES WITH NO EXTENTS
  SELECT
    TABLESPACE_NAME, FILE_NAME, NVL (HWM_BLOCKS * (BYTES/BLOCKS), 50 * 1024 * 1024)
    HWM_BYTES, BYTES, AUTOEXTENSIBLE, MAXBYTES
  FROM HWMTS RIGHT JOIN DBA_DATA_FILES USING (TABLESPACE_NAME, RELATIVE_FNO)
)
SELECT
  CASE WHEN AUTOEXTENSIBLE='YES' AND MAXBYTES >= BYTES
  THEN -- WE GENERATE RESIZE STATEMENTS ONLY IF AUTOEXTENSIBLE CAN GROW BACK
  TO CURRENT SIZE
    '/* RECLAIM ' || TO_CHAR(CEIL((BYTES-HWM_BYTES)/1024/1024), 999999)
    || 'M FROM ' || TO_CHAR(CEIL(BYTES/1024/1024), 999999) || 'M */ '
    || 'ALTER DATABASE DATAFILE ''' || FILE_NAME || ''' RESIZE
  ' || CEIL(HWM_BYTES/1024/1024) || 'M; '
  ELSE -- GENERATE ONLY A COMMENT WHEN AUTOEXTENSIBLE IS OFF
    '/* RECLAIM ' || TO_CHAR(CEIL((BYTES-HWM_BYTES)/1024/1024), 999999)
    || 'M FROM ' || TO_CHAR(CEIL(BYTES/1024/1024), 999999)
    || 'M AFTER SETTING AUTOEXTENSIBLE MAXSIZE HIGHER THAN CURRENT SIZE FOR
  FILE '
    || FILE_NAME || ' */ '
  END SQL
FROM HWMDF
WHERE
  TABLESPACE_NAME = '&tspace'
  AND BYTES-HWM_BYTES > 1024 * 1024 -- RESIZE ONLY IF AT LEAST 1MB CAN BE
  RECLAIMED
ORDER BY BYTES-HWM_BYTES DESC
/

```

Abaixo uma outra variação para todas as tablespaces:

```

SET LINES 200 pages 2000
SET long 9999999
WITH
  HWM AS (
    -- GET HIGHEST BLOCK ID FROM EACH DATAFILES ( FROM X$KTFBUE AS WE DON'T
    NEED ALL JOINS FROM DBA_EXTENTS )
    SELECT /*+ MATERIALIZE */ KTFBUESEGTSN TS#, KTFBUEFNO
    RELATIVE_FNO, MAX(KTFBUEBNO+KTFBUEBLKS-1) HWM_BLOCKS
    FROM SYS.X$KTFBUE GROUP BY KTFBUEFNO, KTFBUESEGTSN
  ),
  HWMTS AS (
    -- JOIN TS# WITH TABLESPACE_NAME
    SELECT NAME TABLESPACE_NAME, RELATIVE_FNO, HWM_BLOCKS
    FROM HWM JOIN V$TABLESPACE USING (TS#)
  ),
  HWMDF AS (
    -- JOIN WITH DATAFILES, PUT 50M MINIMUM FOR DATAFILES WITH NO EXTENTS

```

```

SELECT FILE_NAME, NVL (HWM_BLOCKS*(BYTES/BLOCKS), 50*1024*1024)
HWM_BYTES, BYTES, AUTOEXTENSIBLE, MAXBYTES
FROM HWMTS RIGHT JOIN DBA_DATA_FILES USING (TABLESPACE_NAME, RELATIVE_FNO)
)
SELECT
CASE WHEN AUTOEXTENSIBLE='YES' AND MAXBYTES>=BYTES
THEN -- WE GENERATE RESIZE STATEMENTS ONLY IF AUTOEXTENSIBLE CAN GROW BACK
TO CURRENT SIZE
'/* RECLAIM ' || TO_CHAR(CEIL((BYTES-HWM_BYTES)/1024/1024), 999999)
|| 'M FROM ' || TO_CHAR(CEIL(BYTES/1024/1024), 999999) || 'M */ '
|| 'ALTER DATABASE DATAFILE ''' || FILE_NAME || ''' RESIZE
' || CEIL(HWM_BYTES/1024/1024) || 'M;'
ELSE -- GENERATE ONLY A COMMENT WHEN AUTOEXTENSIBLE IS OFF
'/* RECLAIM ' || TO_CHAR(CEIL((BYTES-HWM_BYTES)/1024/1024), 999999)
|| 'M FROM ' || TO_CHAR(CEIL(BYTES/1024/1024), 999999)
|| 'M AFTER SETTING AUTOEXTENSIBLE MAXSIZE HIGHER THAN CURRENT SIZE FOR
FILE '
|| FILE_NAME || ' */ '
END SQL
FROM HWMDF
WHERE
BYTES-HWM_BYTES>1024*1024 -- RESIZE ONLY IF AT LEAST 1MB CAN BE RECLAIMED
ORDER BY BYTES-HWM_BYTES DESC
/

```

- Até a próxima.

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Last update: **08/07/2025 08H:57**

