

Oracle特殊恢复 2018-03-26

原理与实战_05

使用BBED跳过

归档的恢复

Oracle特殊恢复原理与实战

DSI

oracle

使用BBED跳过归档的恢复

模拟场景：在做恢复时发现丢失部分归档

开启归档

```
SQL> archive log list;
Database log mode                Ar
Automatic archival               Ei
Archive destination              U
Oldest online log sequence       4
Next log sequence to archive     4
Current log sequence             4
```

```
SQL> show parameter recovery
```

```
NAME
```

```
-----
db_recovery_file_dest
```

```
db_recovery_file_dest_size
```

```
recovery_parallelism
```

创建表空间、用户、表并插入数据

```
create tablespace skip_arch data
create user lyj identified by lyj
grant dba to lyj;
conn lyj/lyj
create table t1 (id int,name var
insert into t1 values (1,'AAAAAA
commit;
```

对6号文件做备份

```
conn / as sysdba
```

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```
col FILE_NAME for a60
select FILE_ID,FILE_NAME from dbf
```

FILE_ID	FILE_NAME
1	/u01/app/oracle/orada
2	/u01/app/oracle/orada
3	/u01/app/oracle/orada
4	/u01/app/oracle/orada
5	/u01/app/oracle/orada
6	/u01/app/oracle/orada

```
rman target /
backup datafile 6 format '/orada'
```

切换归档日志

```
select sequence#,status from v$al
SEQUENCE# S
----- -
45 A
44 A
43 A
42 A
41 A
40 A
```

```
# 多次切换
alter system switch logfile;
/
```

```
select sequence#,status from v$al
SEQUENCE# S
----- -
51 A
50 A
49 A
48 A
47 A
46 A
```

```
# 查看归档文件
cd /u01/app/oracle/fast_recovery_
ll
total 56544
-rw-r----- 1 oracle oinstall 363
-rw-r----- 1 oracle oinstall 215
-rw-r----- 1 oracle oinstall
```





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```
-rw-r----- 1 oracle oinstall  
-rw-r----- 1 oracle oinstall  
-rw-r----- 1 oracle oinstall  
-rw-r----- 1 oracle oinstall
```

删除48、49号归档

```
rm o1_mf_1_48_fbyrbqww_.arc o1_m  
ll
```

total 56536

```
-rw-r----- 1 oracle oinstall 363  
-rw-r----- 1 oracle oinstall 215  
-rw-r----- 1 oracle oinstall  
-rw-r----- 1 oracle oinstall  
-rw-r----- 1 oracle oinstall
```

离线6号文件

```
select FILE#, CREATION_CHANGE#,CI  
from v$datafile order by 1;
```

FILE#	CREATION_CHANGE#	CHECKPOINT
-------	------------------	------------

1	7	
2	1834	
3	923328	
4	16143	
5	2959979	
6	3570623	

```
SQL> alter database datafile 6 o
```

Database altered.

```
select FILE#, CREATION_CHANGE#,CI  
from v$datafile order by 1;
```

FILE#	CREATION_CHANGE#	CHECKPOINT
-------	------------------	------------

1	7	
2	1834	
3	923328	
4	16143	
5	2959979	
6	3570623	

archivelog模式下，当数据文件offline时，其对应的数据文件头stop scn会更新，同时



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```
controlfile中该datafile的
stop scn信息也会更新，此时也会
更新offline scn，并且offline
scn等于stop scn。
```

对6号文件进行还原

```
rman target /
RMAN> restore datafile 6;

Starting restore at 2018-03-19 11:11:11
using channel ORA_DISK_1

channel ORA_DISK_1: starting datafile backup restore
channel ORA_DISK_1: specifying datafile(s) to restore from backup set
channel ORA_DISK_1: restoring datafile 6 to /u01/app/oracle/oradata/11g/
channel ORA_DISK_1: reading from backup piece /u01/app/oracle/backup/01n
channel ORA_DISK_1: piece handle= /u01/app/oracle/backup/01n
channel ORA_DISK_1: restored backup piece 1
channel ORA_DISK_1: restore complete
Finished restore at 2018-03-19 11:11:11
```

6号数据文件无法被online

```
SQL> alter database datafile 6 online
alter database datafile 6 online
*
ERROR at line 1:
ORA-01113: file 6 needs media recovery
ORA-01110: data file 6: '/u01/app/oracle/oradata/11g/
```

对6号文件进行恢复时因归档丢失报错

```
RMAN> recover datafile 6;

Starting recover at 2018-03-19 11:11:11
using channel ORA_DISK_1

starting media recovery

archived log for thread 1 with sequence 12 not found
archived log for thread 1 with sequence 13 not found
archived log for thread 1 with sequence 14 not found
archived log for thread 1 with sequence 15 not found
RMAN-00571: =====
RMAN-00569: ===== ERROR =====
RMAN-00571: =====
RMAN-03002: failure of recover command at 2018/03/19 11:11:11
RMAN-06053: unable to perform media recovery for datafile 6
```





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```
RMAN-06025: no backup of archived
RMAN-06025: no backup of archived
```

跳归档恢复

```
# 归档序列48、49已丢失，从50开始恢复
select to_char(SEQUENCE#,'xxxxxx')
       to_char(FIRST_CHANGE#,'xx:xx')
from v$archived_log where SEQUENCE# >= 50
```

```
SEQ          SCN
-----
          32      367fd9  # 1
```

把上面的值更新到6号文件头

```
BBED> info
```

```
File#  Name
```

```
-----
1  /u01/app/oracle/oradata/orcl/redo01.log
2  /u01/app/oracle/oradata/orcl/redo02.log
3  /u01/app/oracle/oradata/orcl/redo03.log
4  /u01/app/oracle/oradata/orcl/redo04.log
5  /u01/app/oracle/oradata/orcl/redo05.log
6  /u01/app/oracle/oradata/orcl/redo06.log
```

```
BBED> set file 6 block 1
```

```
FILE#          6
BLOCK#         1
```

```
BBED> map /v
```

```
File: /u01/app/oracle/oradata/orcl/redo06.log
Block: 1
```

```
-----
Data File Header
```

```
struct kcvfh, 860 bytes
  struct kcvfhbfh, 20 bytes
  struct kcvfhhdr, 76 bytes
  ub4 kcvfhbdb
  struct kcvfhcrs, 8 bytes
  ub4 kcvfhcrt
  ub4 kcvfhrlc
  struct kcvfhrls, 8 bytes
  ub4 kcvfhbti
  struct kcvfhbsc, 8 bytes
  ub2 kcvfhbth
  ub2 kcvfhsta
  struct kcvfhckp, 36 bytes
```





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```
BBED> p kcvfhckp
struct kcvfhckp, 36 bytes
  struct kcvpcscn, 8 bytes
    ub4 kscnbas
    ub2 kscnwrp
  ub4 kvcptim
  ub2 kvcpthr
  union u, 12 bytes
    struct kvcprba, 12 bytes
      ub4 kcrbaseq
      ub4 kcrbabno
      ub2 kcrbabof
  ub1 kvcpetb[0]
  ub1 kvcpetb[1]
  ub1 kvcpetb[2]
  ub1 kvcpetb[3]
  ub1 kvcpetb[4]
  ub1 kvcpetb[5]
  ub1 kvcpetb[6]
  ub1 kvcpetb[7]
```

修改SCN

```
BBED> dump /v offset 484 count 3:
File: /u01/app/oracle/oradata/orcl/
Block: 1      Offsets: 484 to 511
-----
b27e3600 00000000 b62ee339 01000000
2e000000 23960000 1000774a 02000000
```

<16 bytes per line>

```
BBED> modify /x d9 offset 484
Warning: contents of previous BFILE
File: /u01/app/oracle/oradata/orcl/
Block: 1      Offsets: 484 to 511
```

```
-----
d97e3600 00000000 b62ee339 01000000
```

<32 bytes per line>

```
BBED> modify /x 7f3600 offset 484
File: /u01/app/oracle/oradata/orcl/
Block: 1      Offsets: 484 to 511
```

```
-----
7f360000 00000000 b62ee339 01000000
```

<32 bytes per line>





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```
BBED> sum apply
Check value for File 6, Block 1:
current = 0xc392, required = 0xc392

# 修改SEQ
SQL> select to_number('2e', 'xxxx:
-----
TO_NUMBER('2E', 'XXXXXXXXXXXXXXXXX
-----

SQL> select to_char(50, 'xxxxxxx:
-----
TO_CHAR(50
-----
32

BBED> dump /v offset 500
File: /u01/app/oracle/oradata/or
Block: 1 Offsets: 500 to
-----
2e000000 23960000 1000774a 02000
00000000 00000000 00000000 00000
<16 bytes per line>

BBED> modify /x 32 offset 500
File: /u01/app/oracle/oradata/or
Block: 1 Offsets:
-----
32000000 23960000 1000774a 02000
<32 bytes per line>

# 修改块号
BBED> dump /v offset 504
File: /u01/app/oracle/oradata/or
Block: 1 Offsets: 504 to
-----
23960000 1000774a 02000000 00000
00000000 00000000 00000000 00000
<16 bytes per line>

BBED> modify /x 0100 offset 504
File: /u01/app/oracle/oradata/or
Block: 1 Offsets:
-----
```





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```
01000000 1000774a 02000000 0000
```

```
BBED> sum apply
```

```
Check value for File 6, Block 1:
current = 0x55ac, required = 0x5!
```

之后6号数据文件在recover后就可以c

```
SQL> recover datafile 6;
```

```
Media recovery complete.
```

```
SQL> alter database datafile 6 on
```

```
Database altered.
```

datafile的status有哪些

datafile的status:

```
KCCFEFDB 0x0001 /* file read-only
KCCFEONL 0x0002 /* file is ONLINE
KCCFERDE 0x0004 /* ReaDing is En
KCCFECGE 0x0008 /* ChanGing is E
KCCFEMRR 0x0010 /* Media Recover
KCCFEGEM 0x0020 /* Generate End l
KCCFECKD 0x0040 /* File record g
KCCFESOR 0x0080 /* Save Offline :
KCCFERMF 0x0100 /* Renamed Missi
KCCFEGOI 0x0200 /* Generate Off-
KCCFECUV 0x0400 /* Checkpoint by
KCCFEDRP 0x0800 /* offline to be
KCCFEODC 0x2000 /* Online at Dic
KCCFEDBR 0x4000 /* entry created
KCCFETRO 0x8000 /* Transition Re
```

示例

```
DATA FILE #1:
```

```
name #8: /u01/app/oracle/orada
creation size=0 block size=8192 :
```

```
0xe = 0x8 + 0x4 + 0x2
```

```
Change/Write + Read + Online => I
```

详解检查点的结构

通过Data File Header Dump, 可以从dump出的trace文件看到检查点最核心的结构,

```
Checkpointed at scn: 0x0000.0030
```




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```
thread:1 rba:(0x35.2.10)
enabled threads: 01000000 0000
```

```
SCN: 0x0000.0036b8dd 03/19/2018 12:00:00
RBA: 日志的地址 (log sequence number)
THREAD: 线程, 1单实例
```

其他内容

Data File Header Dump

```
alter session set events 'immediate trace 1';
如:
alter session set events 'immediate trace 1';
```

level

```
level 1: control file's data file
level 2 & 4 : level 1 + generic datafile
level 3 or higher: level 2 + datafile
level 10: Most commonly used, It is the default level.
```

File Type

```
KCCTYPCF 1 /* control file */
KCCTYPRL 2 /* redo log file */
KCCTYPDF 3 /* vanilla db file */
KCCTYPBC 4 /* backup control file */
KCCTYPBP 5 /* backup piece */
KCCTYPTF 6 /* temporary db file */
KCCTYPCT 7 /* change tracking file */
KCCTYPFL 8 /* flashback database file */
KCCTYPAL 9 /* archive log file */
KCCTYPDC 10 /* datafile copy file */
KCCTYPIR 11 /* incompletely restored file */
KCCTYPEL 12 /* foreign archive log file */
KCCTYPLB 13 /* LOB file */
```



[← Oracle特殊恢复原理与实战_06 使用BBED手工修复block数据](#)
[Oracle特殊恢复原理与实战_03 Control file深入内部解析 →](#)