**1 最理想的情况是11g dataguard配成用standby redolog实时应用。**

**这种模式下主库出现坏块，当数据库被下一次被用到时自动利用备库来修复。  
  
主库  
 SQL> select file\_id, block\_id, blocks from dba\_extents where owner = 'SCOTT' and segment\_name = 'T';  
  
    FILE\_ID   BLOCK\_ID     BLOCKS  
 ---------- ---------- ----------  
      4     520          8  
  
  
 SQL> select min(rowid), max(rowid) from t;  
  
 MIN(ROWID)     MAX(ROWID)  
 ------------------ ------------------  
 AAASwmAAEAAAAILAAA AAASwmAAEAAAAIPAAj  
  
自动段空间管理的数据是从第四个块开始。  
 可以通过dbms\_rowid验证一下。  
 SQL> select DBMS\_ROWID.ROWID\_BLOCK\_NUMBER('AAASwmAAEAAAAILAAA') min\_block, DBMS\_ROWID.ROWID\_BLOCK\_NUMBER('AAASwmAAEAAAAILAAj') max\_block from dual;  
  
 MIN\_BLOCK  MAX\_BLOCK  
 ---------- ----------  
        523    523  
  
构造坏块  
 RMAN> recover datafile 4 block 523 clear;  
  
 Starting recover at 05-FEB-15  
 using target database control file instead of recovery catalog  
 allocated channel: ORA\_DISK\_1  
 channel ORA\_DISK\_1: SID=37 device type=DISK  
 Finished recover at 05-FEB-15  
  
再次查询，数据直接就出来了。  
 SQL> select count(\*) from t;  
  
   COUNT(\*)  
 ----------  
   72  
  
  
alert日志  
 Thu Feb 05 14:30:48 2015  
 Hex dump of (file 4, block 523) in trace file /u01/app/oracle/diag/rdbms/orcl/orcl/trace/orcl\_ora\_6998.trc  
 Corrupt block relative dba: 0x0100020b (file 4, block 523)  
 Bad header found during multiblock buffer read  
 Data in bad block:  
 type: 6 format: 2 rdba: 0x3c24280b  
 last change scn: 0x982f.a9d3a0d0 seq: 0xa2 flg: 0x5e  
 spare1: 0x0 spare2: 0x0 spare3: 0x2f  
 consistency value in tail: 0x38850602  
 check value in block header: 0xbbcf  
 computed block checksum: 0x4e0  
 Reading datafile '/u01/oradata/orcl/users01.dbf' for corruption at rdba: 0x0100020b (file 4, block 523)  
 Reread (file 4, block 523) found same corrupt data (no logical check)  
 Starting background process ABMR  
 Thu Feb 05 14:30:48 2015  
ABMR started with pid=32, OS id=7016  
Automatic block media recovery service is active.  
 Automatic block media recovery requested for (file# 4, block# 523)  
 Thu Feb 05 14:30:48 2015  
 Automatic block media recovery successful for (file# 4, block# 523)  
 Automatic block media recovery successful for (file# 4, block# 523)  
 WARNING: AutoBMR fixed mismatched on-disk block 3c24280b with in-mem rdba 100020b.  
  
  
2 换成最大性能模式，重新制造坏块，查询时报错。  
 SQL> select count(\*) from scott.t;  
 select count(\*) from scott.t  
                            \*  
 ERROR at line 1:  
 ORA-01578: ORACLE data block corrupted (file # 4, block # 523)  
 ORA-01110: data file 4: '/u01/oradata/orcl/users01.dbf'  
  
alert日志  
 Thu Feb 05 14:36:11 2015  
 Hex dump of (file 4, block 523) in trace file /u01/app/oracle/diag/rdbms/orcl/orcl/trace/orcl\_ora\_7120.trc  
 Corrupt block relative dba: 0x0100020b (file 4, block 523)  
 Bad check value found during multiblock buffer read  
 Data in bad block:  
 type: 6 format: 2 rdba: 0x0100020b  
 last change scn: 0x0000.00103885 seq: 0x2 flg: 0x04  
 spare1: 0x0 spare2: 0x0 spare3: 0x0  
 consistency value in tail: 0x38850602  
 check value in block header: 0x5b3d  
 computed block checksum: 0x8201  
 Reading datafile '/u01/oradata/orcl/users01.dbf' for corruption at rdba: 0x0100020b (file 4, block 523)  
 Reread (file 4, block 523) found same corrupt data (no logical check)  
 Thu Feb 05 14:36:11 2015  
 Corrupt Block Found  
          TSN = 4, TSNAME = USERS  
          RFN = 4, BLK = 523, RDBA = 16777739  
          OBJN = 76838, OBJD = 76838, OBJECT = T, SUBOBJECT =  
          SEGMENT OWNER = SCOTT, SEGMENT TYPE = Table Segment  
 Errors in file /u01/app/oracle/diag/rdbms/orcl/orcl/trace/orcl\_ora\_7120.trc  (incident=18160):  
 ORA-01578: ORACLE data block corrupted (file # 4, block # 523)  
 ORA-01110: data file 4: '/u01/oradata/orcl/users01.dbf'  
 Incident details in: /u01/app/oracle/diag/rdbms/orcl/orcl/incident/incdir\_18160/orcl\_ora\_7120\_i18160.trc  
 Thu Feb 05 14:36:13 2015  
 Sweep [inc][18160]: completed  
 Hex dump of (file 4, block 523) in trace file /u01/app/oracle/diag/rdbms/orcl/orcl/incident/incdir\_18160/orcl\_m000\_7173\_i18160\_a.trc  
 Corrupt block relative dba: 0x0100020b (file 4, block 523)  
 Bad check value found during validation  
 Data in bad block:  
 type: 6 format: 2 rdba: 0x0100020b  
 last change scn: 0x0000.00103885 seq: 0x2 flg: 0x04  
 spare1: 0x0 spare2: 0x0 spare3: 0x0  
 consistency value in tail: 0x38850602  
 check value in block header: 0x5b3d  
 computed block checksum: 0x8201  
 Reread of blocknum=523, file=/u01/oradata/orcl/users01.dbf. found same corrupt data  
 Reread of blocknum=523, file=/u01/oradata/orcl/users01.dbf. found same corrupt data  
 Reread of blocknum=523, file=/u01/oradata/orcl/users01.dbf. found same corrupt data  
 Reread of blocknum=523, file=/u01/oradata/orcl/users01.dbf. found same corrupt data  
 Reread of blocknum=523, file=/u01/oradata/orcl/users01.dbf. found same corrupt data  
 Thu Feb 05 14:36:13 2015  
 Dumping diagnostic data in directory=[cdmp\_20150205143613], requested by (instance=1, osid=7120), summary=[incident=18160].  
  
  
此时oracle无法自动修复坏块。但是可以通过rman修复  
 接下来分两种情况  
 1 如果有备份，就从备份恢复。分别读数据文件备份和归档备份。  
 RMAN> recover datafile 4 block 523;  
  
 Starting recover at 05-FEB-15  
 using target database control file instead of recovery catalog  
 allocated channel: ORA\_DISK\_1  
 channel ORA\_DISK\_1: SID=20 device type=DISK  
  
 channel ORA\_DISK\_1: restoring block(s)  
 channel ORA\_DISK\_1: specifying block(s) to restore from backup set  
 restoring blocks of datafile 00004  
 channel ORA\_DISK\_1: reading from backup piece /u01/app/oracle/fast\_recovery\_area/ORCL/backupset/2015\_02\_05/o1\_mf\_nnndf\_TAG20150205T135105\_bf6169pq\_.bkp  
 channel ORA\_DISK\_1: piece handle=/u01/app/oracle/fast\_recovery\_area/ORCL/backupset/2015\_02\_05/o1\_mf\_nnndf\_TAG20150205T135105\_bf6169pq\_.bkp tag=TAG20150205T135105  
 channel ORA\_DISK\_1: restored block(s) from backup piece 1  
 channel ORA\_DISK\_1: block restore complete, elapsed time: 00:00:01  
  
 starting media recovery  
  
 archived log for thread 1 with sequence 37 is already on disk as file /u01/oradata/orcl/arch/log\_1\_37\_853863284.arc  
 archived log for thread 1 with sequence 38 is already on disk as file /u01/oradata/orcl/arch/log\_1\_38\_853863284.arc  
 channel ORA\_DISK\_1: starting archived log restore to default destination  
 channel ORA\_DISK\_1: restoring archived log  
 archived log thread=1 sequence=36  
 channel ORA\_DISK\_1: reading from backup piece /u01/app/oracle/fast\_recovery\_area/ORCL/backupset/2015\_02\_05/o1\_mf\_annnn\_TAG20150205T135243\_bf619cvv\_.bkp  
 channel ORA\_DISK\_1: piece handle=/u01/app/oracle/fast\_recovery\_area/ORCL/backupset/2015\_02\_05/o1\_mf\_annnn\_TAG20150205T135243\_bf619cvv\_.bkp tag=TAG20150205T135243  
 channel ORA\_DISK\_1: restored backup piece 1  
 channel ORA\_DISK\_1: restore complete, elapsed time: 00:00:01  
 media recovery complete, elapsed time: 00:00:01  
 Finished recover at 05-FEB-15  
  
  
  
2 如果没有备份，就自动从备库修复  
 RMAN> recover datafile 4 block 523;  
  
 Starting recover at 05-FEB-15  
 using channel ORA\_DISK\_1  
finished standby search, restored 1 blocks  
  
 starting media recovery  
 media recovery complete, elapsed time: 00:00:01  
  
 Finished recover at 05-FEB-15  
  
  
alert日志  
 Thu Feb 05 14:48:17 2015  
 alter database recover datafile list clear  
 Completed: alter database recover datafile list clear  
 Started Block Media Recovery  
 Recovery of Online Redo Log: Thread 1 Group 2 Seq 50 Reading mem 0  
   Mem# 0: /u01/oradata/orcl/redo02.log**

Completed Block Media Recovery