

【RMAN】利用备份片还原数据库

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群里有同学说把 ORACLE_BASE 目录删掉了，现在只有备份片和归档文件了，试问如何恢复。坑，，，，咋能这么干，ORACLE_BASE 都敢删，，试着恢复了下，并且记录下来，当然软件安装部分就不记录了。

我再说说目前的情况，只有备份片和归档文件，且从文件名称是看不出 dbname 和 dbid 的，在这种情况下其实恢复控制文件是很重要的了，但是鬼知道备份片里边是不是有控制文件的备份呢？我们可能碰到的就是这样的情况，只有备份文件，其它的什么都不知道。我们且看这样的情况下如何恢复呢？

演示环境：

OS: RHEL 6.5

DB: 11.2.0.3.0

1.1.1 原库备份并传输到测试库

原库情况:

```
[oracle@rhel6_lhr orallg]$ ORACLE_SID=orallg
[oracle@rhel6_lhr orallg]$ sqlplus / as sysdba
```

SQL*Plus: Release 11.2.0.3.0 Production on Thu Apr 30 15:36:11 2015

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Connected to an idle instance.

```
15:36:19 SQL> startup
ORACLE instance started.
```

```
Total System Global Area 409194496 bytes
Fixed Size 2228864 bytes
Variable Size 281021824 bytes
Database Buffers 117440512 bytes
Redo Buffers 8503296 bytes
Database mounted.
Database opened.
```

```
15:37:20 SQL>
15:37:50 SQL>
15:37:50 SQL> show parameter name
```

| NAME | TYPE | VALUE |
|-----------------------|---------|--------|
| db_file_name_convert | string | |
| db_name | string | orallg |
| db_unique_name | string | orallg |
| global_names | boolean | FALSE |
| instance_name | string | orallg |
| lock_name_space | string | |
| log_file_name_convert | string | |
| processor_group_name | string | |
| service_names | string | orallg |

```
15:47:37 SQL> col FILE_NAME format a50
15:47:47 SQL> select FILE_NAME,FILE_ID,a.TABLESPACE_NAME, b.status ts_status ,BYTES from dba_data_files a,dba_tablespaces b where a.TABLESPACE_NAME=b.TABLESPACE_NAME;
```

| FILE_NAME | FILE_ID | TABLESPACE_NAME | TS_STATUS | BYTES |
|--|---------|-----------------|-----------|-----------|
| /u01/app/oracle/oradata/orallg/users01.dbf | 4 | USERS | ONLINE | 5242880 |
| /u01/app/oracle/oradata/orallg/undotbs01.dbf | 3 | UNDOTBS1 | ONLINE | 99614720 |
| /u01/app/oracle/oradata/orallg/sysaux01.dbf | 2 | SYSAUX | ONLINE | 545259520 |
| /u01/app/oracle/oradata/orallg/system01.dbf | 1 | SYSTEM | ONLINE | 744488960 |
| /u01/app/oracle/oradata/orallg/example01.dbf | 5 | EXAMPLE | READ ONLY | 328335360 |

```
15:47:48 SQL> create table lhr.test as select * from dba_objects;
```

Table created.

```
15:47:49 SQL> select count(1) from lhr.test;
```

| COUNT(1) |
|----------|
| 75204 |

```
15:47:50 SQL>
```

执行备份，当然生产库上不能这么简单的备份：

```
[oracle@rhel6_lhr ~]$ ORACLE_SID=orallg
[oracle@rhel6_lhr ~]$ ps -ef|grep ora_
oracle    3282   2997    0 15:36 pts/2    00:00:00 grep ora_
[oracle@rhel6_lhr ~]$ ps -ef|grep ora_
oracle    3286   2997    0 15:36 pts/2    00:00:00 grep ora_
[oracle@rhel6_lhr ~]$ rman target /
```

Recovery Manager: Release 11.2.0.3.0 - Production on Thu Apr 30 15:36:52 2015

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connected to target database: ORA11G (DBID=4270446895)

RMAN> show all;

```
using target database control file instead of recovery catalog
RMAN configuration parameters for database with db_unique_name ORA11G are:
CONFIGURE RETENTION POLICY TO REDUNDANCY 1; # default
CONFIGURE BACKUP OPTIMIZATION OFF; # default
CONFIGURE DEFAULT DEVICE TYPE TO DISK; # default
CONFIGURE CONTROLFILE AUTOBACKUP OFF; # default
CONFIGURE CONTROLFILE AUTOBACKUP FORMAT FOR DEVICE TYPE DISK TO '%F'; # default
CONFIGURE DEVICE TYPE DISK PARALLELISM 1 BACKUP TYPE TO BACKUPSET; # default
CONFIGURE DATAFILE BACKUP COPIES FOR DEVICE TYPE DISK TO 1; # default
CONFIGURE ARCHIVELOG BACKUP COPIES FOR DEVICE TYPE DISK TO 1; # default
CONFIGURE MAXSETSIZE TO UNLIMITED; # default
CONFIGURE ENCRYPTION FOR DATABASE OFF; # default
CONFIGURE ENCRYPTION ALGORITHM 'AES128'; # default
CONFIGURE COMPRESSION ALGORITHM 'BASIC' AS OF RELEASE 'DEFAULT' OPTIMIZE FOR LOAD TRUE ; # default
CONFIGURE ARCHIVELOG DELETION POLICY TO NONE; # default
CONFIGURE SNAPSHOT CONTROLFILE NAME TO '/u01/app/oracle/product/11.2.0/dbhome_1/dbs/snapcf_orallg.f'; # default
```

RMAN> list backupset;

```
using target database control file instead of recovery catalog
specification does not match any backup in the repository
```

RMAN> backup database plus archivelog delete input;

```
Starting backup at 2015-04-30 16:00:45
current log archived
allocated channel: ORA_DISK_1
channel ORA_DISK_1: SID=18 device type=DISK
channel ORA_DISK_1: starting archived log backup set
channel ORA_DISK_1: specifying archived log(s) in backup set
input archived log thread=1 sequence=6 RECID=1 STAMP=878399828
input archived log thread=1 sequence=7 RECID=2 STAMP=878399829
input archived log thread=1 sequence=8 RECID=3 STAMP=878400047
channel ORA_DISK_1: starting piece 1 at 2015-04-30 16:00:48
channel ORA_DISK_1: finished piece 1 at 2015-04-30 16:00:49
piece handle=/u01/app/oracle/flash_recovery_area/ORA11G/backupset/2015_04_30/ol_mf_annnn_TAG20150430T160048_bn3r9jd7_.bkp tag=TAG20150430T160048 comment=NONE
channel ORA_DISK_1: backup set complete, elapsed time: 00:00:01
channel ORA_DISK_1: deleting archived log(s)
archived log file name=/u01/app/oracle/flash_recovery_area/ORA11G/archivelog/2015_04_30/ol_mf_1_6_bn3r2m01_.arc RECID=1 STAMP=878399828
archived log file name=/u01/app/oracle/flash_recovery_area/ORA11G/archivelog/2015_04_30/ol_mf_1_7_bn3r2nz5_.arc RECID=2 STAMP=878399829
archived log file name=/u01/app/oracle/flash_recovery_area/ORA11G/archivelog/2015_04_30/ol_mf_1_8_bn3r9hrl_.arc RECID=3 STAMP=878400047
Finished backup at 2015-04-30 16:00:49
```

```
Starting backup at 2015-04-30 16:00:49
using channel ORA_DISK_1
channel ORA_DISK_1: starting full datafile backup set
```

```
channel ORA_DISK_1: specifying datafile(s) in backup set
input datafile file number=00001 name=/u01/app/oracle/oradata/orallg/system01.dbf
input datafile file number=00002 name=/u01/app/oracle/oradata/orallg/sysaux01.dbf
input datafile file number=00005 name=/u01/app/oracle/oradata/orallg/example01.dbf
input datafile file number=00003 name=/u01/app/oracle/oradata/orallg/undotbs01.dbf
input datafile file number=00004 name=/u01/app/oracle/oradata/orallg/users01.dbf
channel ORA_DISK_1: starting piece 1 at 2015-04-30 16:00:49
channel ORA_DISK_1: finished piece 1 at 2015-04-30 16:02:34
piece handle=/u01/app/oracle/flash_recovery_area/ORA11G/backupset/2015_04_30/ol_mf_nnndf_TAG20150430T160049_bn3r9ksp_.bkp tag=TAG20150430T160049 comment=NONE
channel ORA_DISK_1: backup set complete, elapsed time: 00:01:45
channel ORA_DISK_1: starting full datafile backup set
channel ORA_DISK_1: specifying datafile(s) in backup set
including current control file in backup set
including current SPFILE in backup set
channel ORA_DISK_1: starting piece 1 at 2015-04-30 16:02:37
channel ORA_DISK_1: finished piece 1 at 2015-04-30 16:02:39
piece handle=/u01/app/oracle/flash_recovery_area/ORA11G/backupset/2015_04_30/ol_mf_ncsnf_TAG20150430T160049_bn3rdxyz_.bkp tag=TAG20150430T160049 comment=NONE
channel ORA_DISK_1: backup set complete, elapsed time: 00:00:02
Finished backup at 2015-04-30 16:02:39
```

```
Starting backup at 2015-04-30 16:02:39
current log archived
using channel ORA_DISK_1
channel ORA_DISK_1: starting archived log backup set
channel ORA_DISK_1: specifying archived log(s) in backup set
input archived log thread=1 sequence=9 RECID=4 STAMP=878400159
channel ORA_DISK_1: starting piece 1 at 2015-04-30 16:02:39
channel ORA_DISK_1: finished piece 1 at 2015-04-30 16:02:40
piece handle=/u01/app/oracle/flash_recovery_area/ORA11G/backupset/2015_04_30/ol_mf_annnn_TAG20150430T160239_bn3rdzd7_.bkp tag=TAG20150430T160239 comment=NONE
channel ORA_DISK_1: backup set complete, elapsed time: 00:00:01
channel ORA_DISK_1: deleting archived log(s)
archived log file name=/u01/app/oracle/flash_recovery_area/ORA11G/archivelog/2015_04_30/ol_mf_1_9_bn3rdz8k_.arc RECID=4 STAMP=878400159
Finished backup at 2015-04-30 16:02:40
```

RMAN>

RMAN>

RMAN> list backupset;

List of Backup Sets
=====

| BS Key | Size | Device Type | Elapsed Time | Completion Time |
|--------|-------------|--|----------------|-------------------------|
| 1 | 11.61M | DISK | 00:00:00 | 2015-04-30 16:00:48 |
| | BP Key: 1 | Status: AVAILABLE | Compressed: NO | Tag: TAG20150430T160048 |
| | Piece Name: | /u01/app/oracle/flash_recovery_area/ORA11G/backupset/2015_04_30/ol_mf_annnn_TAG20150430T160048_bn3r9jd7_.bkp | | |

List of Archived Logs in backup set 1

| Thrd | Seq | Low SCN | Low Time | Next SCN | Next Time |
|------|-----|---------|---------------------|----------|---------------------|
| 1 | 6 | 1087169 | 2015-03-13 14:24:40 | 1094093 | 2015-04-30 15:57:07 |
| 1 | 7 | 1094093 | 2015-04-30 15:57:07 | 1094096 | 2015-04-30 15:57:08 |
| 1 | 8 | 1094096 | 2015-04-30 15:57:08 | 1094204 | 2015-04-30 16:00:47 |

| BS Key | Type | LV | Size | Device Type | Elapsed Time | Completion Time |
|--|------|------|-------|-------------|---------------------|---|
| 2 | Full | | 1.13G | DISK | 00:01:43 | 2015-04-30 16:02:32 |
| BP Key: 2 Status: AVAILABLE Compressed: NO Tag: TAG20150430T160049 | | | | | | |
| Piece Name: /u01/app/oracle/flash_recovery_area/ORA11G/backupset/2015_04_30/o1_mf_nnndf_TAG20150430T160049_bn3r9ksp_.bkp | | | | | | |
| List of Datafiles in backup set 2 | | | | | | |
| File | LV | Type | Ckp | SCN | Ckp Time | Name |
| 1 | | Full | | 1094214 | 2015-04-30 16:00:49 | /u01/app/oracle/oradata/orallg/system01.dbf |

```
2      Full 1094214    2015-04-30 16:00:49 /u01/app/oracle/oradata/orallg/sysaux01.dbf
3      Full 1094214    2015-04-30 16:00:49 /u01/app/oracle/oradata/orallg/undotbs01.dbf
4      Full 1094214    2015-04-30 16:00:49 /u01/app/oracle/oradata/orallg/users01.dbf
5      Full 1092435    2015-04-30 15:42:04 /u01/app/oracle/oradata/orallg/example01.dbf

BS Key  Type LV Size      Device Type Elapsed Time Completion Time
-----
3      Full   9.36M    DISK        00:00:04     2015-04-30 16:02:38
      BP Key: 3   Status: AVAILABLE Compressed: NO  Tag: TAG20150430T160049
      Piece Name: /u01/app/oracle/flash_recovery_area/ORAl1G/backupset/2015_04_30/o1_mf_ncsnf_TAG20150430T160049_bn3rdxyz_.bkp
      SPFILE Included: Modification time: 2015-04-30 15:56:17
      SPFILE db_unique_name: ORAl1G
      Control File Included: Ckp SCN: 1094280      Ckp time: 2015-04-30 16:02:34

BS Key  Size      Device Type Elapsed Time Completion Time
-----
4      19.00K    DISK        00:00:00     2015-04-30 16:02:39
      BP Key: 4   Status: AVAILABLE Compressed: NO  Tag: TAG20150430T160239
      Piece Name: /u01/app/oracle/flash_recovery_area/ORAl1G/backupset/2015_04_30/o1_mf_annnn_TAG20150430T160239_bn3rdzd7_.bkp

List of Archived Logs in backup set 4
Thrd Seq      Low SCN      Low Time      Next SCN      Next Time
-----
1      9            1094204      2015-04-30 16:00:47 1094286      2015-04-30 16:02:39

RMAN>
```

```
[root@rhel6_lhr ~]# cd /u01/app/oracle/flash_recovery_area/ORAl1G/backupset/2015_04_30/
[root@rhel6_lhr 2015_04_30]# ll -lh
total 1.2G
-rw-r----- 1 oracle asmadmin 12M Apr 30 16:00 o1_mf_annnn_TAG20150430T160048_bn3r9jd7_.bkp
-rw-r----- 1 oracle asmadmin 20K Apr 30 16:02 o1_mf_annnn_TAG20150430T160239_bn3rdzd7_.bkp
-rw-r----- 1 oracle asmadmin 9.4M Apr 30 16:02 o1_mf_ncsnf_TAG20150430T160049_bn3rdxyz_.bkp
-rw-r----- 1 oracle asmadmin 1.2G Apr 30 16:02 o1_mf_nnndf_TAG20150430T160049_bn3r9ksp_.bkp
[root@rhel6_lhr 2015_04_30]# cd ..
[root@rhel6_lhr backupset]# ll
total 4
drwxr-x--- 2 oracle asmadmin 4096 Apr 30 16:02 2015_04_30
[root@rhel6_lhr backupset]# scp 2015_04_30 oracle@192.168.59.157:/tmp
The authenticity of host '192.168.59.157 (192.168.59.157)' can't be established.
RSA key fingerprint is 77:e6:11:1a:7c:c7:81:7c:88:c9:21:18:51:2a:84:d1.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '192.168.59.157' (RSA) to the list of known hosts.
oracle@192.168.59.157's password:
2015_04_30: not a regular file
[root@rhel6_lhr backupset]# scp -r 2015_04_30/ oracle@192.168.59.157:/tmp
oracle@192.168.59.157's password:
o1_mf_annnn_TAG20150430T160048_bn3r9jd7_.bkp                                100% 12MB 11.6MB/s 00:00
o1_mf_nnndf_TAG20150430T160049_bn3r9ksp_.bkp                             100% 1157MB 77.1MB/s 00:15
o1_mf_ncsnf_TAG20150430T160049_bn3rdxyz_.bkp                             100% 9600KB 9.4MB/s 00:00
o1_mf_annnn_TAG20150430T160239_bn3rdzd7_.bkp                             100% 20KB 19.5KB/s 00:00
[root@rhel6_lhr backupset]#
```

1.1.2 测试库编辑 pfile 文件

llg 只写 db_name 即可，控制文件可以写上，免得后边又回来修改。

```
[oracle@testdb dbs]$ pwd
/u01/app/oracle/product/11.2.0/dbhome_1/dbs
[oracle@testdb dbs]$ more initorallg.ora
db_name=orallg
control_files='/u01/app/oracle/oradata/orallg/control01.ctl','/u01/app/oracle/flash_recovery_area/orallg/control02.ctl'
[oracle@testdb dbs]$
```

1.1.3 找回控制文件--备份集中含有控制文件

重点来了：

由于没有控制文件，所以首先只能启动数据库到 nomount 状态

```
[oracle@testdb dbs]$ ORACLE_SID=orallg
[oracle@testdb dbs]$ rman target /
```

Recovery Manager: Release 11.2.0.3.0 - Production on Thu Apr 30 16:16:53 2015

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connected to target database (not started)

RMAN> startup nomount;

Oracle instance started

Total System Global Area 250560512 bytes

Fixed Size 2227256 bytes

Variable Size 192938952 bytes

Database Buffers 50331648 bytes

Redo Buffers 5062656 bytes

RMAN>

首先我们要判断一下备份集中是否含有控制文件的备份，如果有我们可以直接还原，如果没有那就只有创建控制文件了，那么如何判断备份集中是否含有控制文件的备份呢？这里提供几种办法：① 推荐：**采用 dbms_backup_restore.restoreControlfileTo 从备份片中来尝试找回控制文件** ② 尝试采用创建临时库来找回控制文件 ③ 其它第三方工具来解析备份集

1.1.3.1 方法一：采用 dbms_backup_restore.restoreControlfileTo 从备份片中来尝试找回控制文件

在 Oracle 816 以后的版本中,Oracle 提供了一个包:DBMS_BACKUP_RESTORE. DBMS_BACKUP_RESTORE 包是由 dbmsbkrs.sql 和 prvtbkrs.plb 这两个脚本创建的.catproc.sql 脚本运行后会调用这两个包.所以是每个数据库都有的这个包是 Oracle 服务器和操作系统之间 IO 操作的接口.由恢复管理器直接调用。由此可见，我们可以在数据库 nomount 情况下调用这些 package ,来达到我们的恢复目的。

从前边的备份中我们知道 control 文件和 spfile 其实是在备份片：ol_mf_ncsnf_TAG20150430T160049_bn3rdxyz_.bkp 中，但是这里我们假装不知道位置，然后挨个尝试一下：

```
[oracle@testdb dbs]$ ORACLE_SID=ora11g
[oracle@testdb 2015_04_30]$ cd /tmp/2015_04_30/
[oracle@testdb 2015_04_30]$ ll
total 1206296
-rw-r-----. 1 oracle oinstall    12173312 Apr 30 16:06 ol_mf_annnn_TAG20150430T160048_bn3r9jd7_.bkp
-rw-r-----. 1 oracle oinstall      19968 Apr 30 16:06 ol_mf_annnn_TAG20150430T160239_bn3rdzd7_.bkp
-rw-r-----. 1 oracle oinstall    9830400 Apr 30 16:06 ol_mf_ncsnf_TAG20150430T160049_bn3rdxyz_.bkp
-rw-r-----. 1 oracle oinstall 1213218816 Apr 30 16:06 ol_mf_nnndf_TAG20150430T160049_bn3r9ksp_.bkp
[oracle@testdb 2015_04_30]$ sqlplus / as sysdba

SQL*Plus: Release 11.2.0.3.0 Production on Thu Apr 30 16:56:34 2015

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Connected to:
Oracle Database 11g Enterprise Edition Release 11.2.0.3.0 - 64bit Production
With the Partitioning, OLAP, Data Mining and Real Application Testing options


SQL> DECLARE
  2   devtype varchar2(256);
  3   done boolean;
  4   BEGIN
  5   devtype:=sys.dbms_backup_restore.deviceAllocate(type=>'',ident=>'T1');
  6   sys.dbms_backup_restore.restoreSetDatafile;
  7   sys.dbms_backup_restore.restoreControlfileTo(cfname=>'/tmp/2015_04_30/control01.ctl');
  8   sys.dbms_backup_restore.restoreBackupPiece(done=>done,handle=>'/tmp/2015_04_30/ol_mf_annnn_TAG20150430T160048_bn3r9jd7_.bkp', params=>null);
  9   sys.dbms_backup_restore.deviceDeallocate;
 10   END;
 11   /
DECLARE
*
ERROR at line 1:
ORA-19624: operation failed, retry possible
ORA-19870: error while restoring backup piece
/tmp/2015_04_30/ol_mf_annnn_TAG20150430T160048_bn3r9jd7_.bkp
ORA-19626: backup set type is archived log - can not be processed by this
conversation
ORA-06512: at "SYS.X$DBMS_BACKUP_RESTORE", line 5827
ORA-06512: at line 8


SQL> DECLARE
  2   devtype varchar2(256);
  3   done boolean;
  4   BEGIN
  5   devtype:=sys.dbms_backup_restore.deviceAllocate(type=>'',ident=>'T1');
  6   sys.dbms_backup_restore.restoreSetDatafile;
  7   sys.dbms_backup_restore.restoreControlfileTo(cfname=>'/tmp/2015_04_30/control01.ctl');
  8   sys.dbms_backup_restore.restoreBackupPiece(done=>done,handle=>'/tmp/2015_04_30/ol_mf_annnn_TAG20150430T160239_bn3rdzd7_.bkp', params=>null);
  9   sys.dbms_backup_restore.deviceDeallocate;
 10   END;
 11   /
DECLARE
*
ERROR at line 1:
ORA-19568: a device is already allocated to this session
ORA-06512: at "SYS.X$DBMS_BACKUP_RESTORE", line 235
ORA-06512: at "SYS.X$DBMS_BACKUP_RESTORE", line 210
ORA-06512: at line 5


SQL> exit
Disconnected from Oracle Database 11g Enterprise Edition Release 11.2.0.3.0 - 64bit Production
With the Partitioning, OLAP, Data Mining and Real Application Testing options
[oracle@testdb 2015_04_30]$ sqlplus / as sysdba
```

SQL*Plus: Release 11.2.0.3.0 Production on Thu Apr 30 16:57:08 2015

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Connected to:
Oracle Database 11g Enterprise Edition Release 11.2.0.3.0 - 64bit Production
With the Partitioning, OLAP, Data Mining and Real Application Testing options

```
SQL> DECLARE
  2  devtype varchar2(256);
  3  done boolean;
  4  BEGIN
  5  devtype:=sys.dbms_backup_restore.deviceAllocate(type=>'',ident=>'T1');
  6  sys.dbms_backup_restore.restoreSetDatafile;
  7  sys.dbms_backup_restore.restoreControlfileTo(cfname=>' /tmp/2015_04_30/control01.ctl');
  8  sys.dbms_backup_restore.restoreBackupPiece(done=>done,handle=>' /tmp/2015_04_30/ol_mf_annnn_TAG20150430T160239_bn3rdzd7_.bkp', params=>null);
  9  sys.dbms_backup_restore.deviceDeallocate;
 10  END;
 11  /
DECLARE
*
ERROR at line 1:
ORA-19624: operation failed, retry possible
ORA-19870: error while restoring backup piece
/tmp/2015_04_30/ol_mf_annnn_TAG20150430T160239_bn3rdzd7_.bkp
ORA-19626: backup set type is archived log - can not be processed by this
conversation
ORA-06512: at "SYS.X$DBMS_BACKUP_RESTORE", line 5827
ORA-06512: at line 8
```

```
SQL> exit
Disconnected from Oracle Database 11g Enterprise Edition Release 11.2.0.3.0 - 64bit Production
With the Partitioning, OLAP, Data Mining and Real Application Testing options
```

```
[oracle@testdb 2015_04_30]$ sqlplus / as sysdba
```

SQL*Plus: Release 11.2.0.3.0 Production on Thu Apr 30 16:57:33 2015

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Connected to:
Oracle Database 11g Enterprise Edition Release 11.2.0.3.0 - 64bit Production
With the Partitioning, OLAP, Data Mining and Real Application Testing options

```
SQL> DECLARE
  2  devtype varchar2(256);
  3  done boolean;
  4  BEGIN
  5  devtype:=sys.dbms_backup_restore.deviceAllocate(type=>'',ident=>'T1');
  6  sys.dbms_backup_restore.restoreSetDatafile;
  7  sys.dbms_backup_restore.restoreControlfileTo(cfname=>' /tmp/2015_04_30/control01.ctl');
  8  sys.dbms_backup_restore.restoreBackupPiece(done=>done,handle=>' /tmp/2015_04_30/ol_mf_nnndf_TAG20150430T160049_bn3r9ksp_.bkp', params=>null);
  9  sys.dbms_backup_restore.deviceDeallocate;
 10  END;
 11  /
DECLARE
*
ERROR at line 1:
ORA-19697: standby control file not found in backup set
ORA-06512: at "SYS.X$DBMS_BACKUP_RESTORE", line 5827
ORA-06512: at line 8
```



```

SQL> exit
Disconnected from Oracle Database 11g Enterprise Edition Release 11.2.0.3.0 - 64bit Production
With the Partitioning, OLAP, Data Mining and Real Application Testing options
[oracle@testdb 2015_04_30]$ sqlplus / as sysdba

SQL*Plus: Release 11.2.0.3.0 Production on Thu Apr 30 16:57:46 2015

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Connected to:
Oracle Database 11g Enterprise Edition Release 11.2.0.3.0 - 64bit Production
With the Partitioning, OLAP, Data Mining and Real Application Testing options


SQL> DECLARE
  2  devtype varchar2(256);
  3  done boolean;
  4  BEGIN
  5  devtype:=sys.dbms_backup_restore.deviceAllocate(type=>'',ident=>'T1');
  6  sys.dbms_backup_restore.restoreSetDatafile;
  7  sys.dbms_backup_restore.restoreControlfileTo(cfname=>' /tmp/2015_04_30/control01.ctl');
  8  sys.dbms_backup_restore.restoreBackupPiece(done=>done,handle=>' /tmp/2015_04_30/ol_mf_ncsnf_TAG20150430T160049_bn3rdxyz_.bkp', params=>null);
  9  sys.dbms_backup_restore.deviceDeallocate;
 10  END;
 11  /

PL/SQL procedure successfully completed.

SQL>

```

当合适的情况下，我们发现恢复了控制文件了，接下来就是启动数据库到 **mount** 状态了。

小插曲：在同一个会话里执行会报错：ORA-19590: conversation already active，所以我整理了一下脚本，如下，可以直接运行：

```

DECLARE
  devtype varchar2(256);
  done boolean;
  BEGIN
  devtype:=sys.dbms_backup_restore.deviceAllocate(type=>'',ident=>'T1');
  sys.dbms_backup_restore.restoreSetDatafile;
  sys.dbms_backup_restore.restoreControlfileTo(cfname=>' /tmp/2015_04_30/control01.ctl');
  sys.dbms_backup_restore.restoreBackupPiece(done=>done,handle=>' /tmp/2015_04_30/ol_mf_annnn_TAG20150430T160048_bn3r9jd7_.bkp', params=>null);
  sys.dbms_backup_restore.deviceDeallocate;
  END;
/
conn / as sysdba

```

```

DECLARE
  devtype varchar2(256);
  done boolean;
  BEGIN
  devtype:=sys.dbms_backup_restore.deviceAllocate(type=>'',ident=>'T1');
  sys.dbms_backup_restore.restoreSetDatafile;
  sys.dbms_backup_restore.restoreControlfileTo(cfname=>' /tmp/2015_04_30/control01.ctl');
  sys.dbms_backup_restore.restoreBackupPiece(done=>done,handle=>' /tmp/2015_04_30/ol_mf_annnn_TAG20150430T160239_bn3rdzd7_.bkp', params=>null);
  sys.dbms_backup_restore.deviceDeallocate;

```

```
END;
/

conn / as sysdba


DECLARE
    devtype varchar2(256);
    done boolean;
BEGIN
    devtype:=sys.dbms_backup_restore.deviceAllocate(type=>',ident=>'T1');
    sys.dbms_backup_restore.restoreSetDatafile;
    sys.dbms_backup_restore.restoreControlfileTo(cfname=>'/tmp/2015_04_30/control01.ctl');
    sys.dbms_backup_restore.restoreBackupPiece(done=>done,handle=>'/tmp/2015_04_30/o1_mf_ncsnf_TAG20150430T160049_bn3rdxyz_.bkp', params=>null);
    sys.dbms_backup_restore.deviceDeallocate;
END;
/
```

conn / as sysdba

```
DECLARE
    devtype varchar2(256);
    done boolean;
BEGIN
    devtype:=sys.dbms_backup_restore.deviceAllocate(type=>',ident=>'T1');
    sys.dbms_backup_restore.restoreSetDatafile;
    sys.dbms_backup_restore.restoreControlfileTo(cfname=>'/tmp/2015_04_30/control01.ctl');
    sys.dbms_backup_restore.restoreBackupPiece(done=>done,handle=>'/tmp/2015_04_30/o1_mf_nnndf_TAG20150430T160049_bn3r9ksp_.bkp', params=>null);
    sys.dbms_backup_restore.deviceDeallocate;
END;
/
```

执行过程:

```
[oracle@testdb orallg]$ sqlplus / as sysdba
```

```
SQL*Plus: Release 11.2.0.3.0 Production on Thu Apr 30 19:13:05 2015
```

```
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```

```
Connected to:
Oracle Database 11g Enterprise Edition Release 11.2.0.3.0 - 64bit Production
With the Partitioning, OLAP, Data Mining and Real Application Testing options
```

```
SQL> DECLARE
2   devtype varchar2(256);
3   done boolean;
4   BEGIN
5   devtype:=sys.dbms_backup_restore.deviceAllocate(type=>'',ident=>'T1');
6   sys.dbms_backup_restore.restoreSetDatafile;
7   sys.dbms_backup_restore.restoreControlfileTo(cfname=>' /tmp/2015_04_30/control01.ctl');
8   sys.dbms_backup_restore.restoreBackupPiece(done=>done, handle=>' /tmp/2015_04_30/o1_mf_annnn_TAG20150430T160048_bn3r9jd7_.bkp', params=>null);
9   sys.dbms_backup_restore.deviceDeallocate;
10  END;
```

```
11 /
DECLARE
*
ERROR at line 1:
ORA-19624: operation failed, retry possible
ORA-19870: error while restoring backup piece
/tmp/2015_04_30/ol_mf_annnn_TAG20150430T160048_bn3r9jd7_.bkp
ORA-19626: backup set type is archived log - can not be processed by this
conversation
ORA-06512: at "SYS.X$DBMS_BACKUP_RESTORE", line 5827
ORA-06512: at line 8

SQL> conn / as sysdba

Connected.
SQL> SQL> DECLARE
 2  devtype varchar2(256);
 3  done boolean;
 4  BEGIN
 5  devtype:=sys.dbms_backup_restore.deviceAllocate(type=>'',ident=>'T1');
 6  sys.dbms_backup_restore.restoreSetDatafile;
 7  sys.dbms_backup_restore.restoreControlfileTo(cfname=>' /tmp/2015_04_30/control01.ctl');
 8  sys.dbms_backup_restore.restoreBackupPiece(done=>done,handle=>' /tmp/2015_04_30/ol_mf_annnn_TAG20150430T160239_bn3rdzd7_.bkp', params=>null);
 9  sys.dbms_backup_restore.deviceDeallocate;
10  END;
11 /
DECLARE
*
ERROR at line 1:
ORA-19624: operation failed, retry possible
ORA-19870: error while restoring backup piece
/tmp/2015_04_30/ol_mf_annnn_TAG20150430T160239_bn3rdzd7_.bkp
ORA-19626: backup set type is archived log - can not be processed by this
conversation
ORA-06512: at "SYS.X$DBMS_BACKUP_RESTORE", line 5827
ORA-06512: at line 8

SQL> conn / as sysdba

Connected.
SQL> SQL> DECLARE
 2  devtype varchar2(256);
 3  done boolean;
 4  BEGIN
 5  devtype:=sys.dbms_backup_restore.deviceAllocate(type=>'',ident=>'T1');
 6  sys.dbms_backup_restore.restoreSetDatafile;
 7  sys.dbms_backup_restore.restoreControlfileTo(cfname=>' /tmp/2015_04_30/control01.ctl');
 8  sys.dbms_backup_restore.restoreBackupPiece(done=>done,handle=>' /tmp/2015_04_30/ol_mf_ncsnf_TAG20150430T160049_bn3rdxyz_.bkp', params=>null);
 9  sys.dbms_backup_restore.deviceDeallocate;
10  END;
11 /

conn / as sysdba

PL/SQL procedure successfully completed.

DECLARE
  devtype varchar2(256);
  done boolean;
  BEGIN
Connected.
SQL> SQL> 2 3 4 5 devtype:=sys.dbms_backup_restore.deviceAllocate(type=>'',ident=>'T1');
6 sys.dbms_backup_restore.restoreSetDatafile;
```

```
7 sys.dbms_backup_restore.restoreControlfileTo(cfname=>' /tmp/2015_04_30/control01.ctl');
8 sys.dbms_backup_restore.restoreBackupPiece(done=>done,handle=>' /tmp/2015_04_30/ol_mf_nnndf_TAG20150430T160049_bn3r9ksp_.bkp', params=>null);
9 sys.dbms_backup_restore.deviceDeallocate;
10 END;
11 /
DECLARE
*
ERROR at line 1:
ORA-19697: standby control file not found in backup set
ORA-06512: at "SYS.X$DBMS_BACKUP_RESTORE", line 5827
ORA-06512: at line 8

SQL>
```

控制文件恢复了，接下来的操作就容易的多了。

一、启动数据库到 mount 状态

```
[oracle@testdb dbs]$ more initorallg.ora
db_name=orallg
control_files='/u01/app/oracle/oradata/orallg/control01.ctl','/u01/app/oracle/flash_recovery_area/orallg/control02.ctl'
[oracle@testdb 2015_04_30]$ ll
total 1215816
-rw-r-----. 1 oracle oinstall 9748480 Apr 30 16:57 control01.ctl
-rw-r-----. 1 oracle oinstall 12173312 Apr 30 16:06 ol_mf_annnn_TAG20150430T160048_bn3r9jd7_.bkp
-rw-r-----. 1 oracle oinstall 19968 Apr 30 16:06 ol_mf_annnn_TAG20150430T160239_bn3rdzd7_.bkp
-rw-r-----. 1 oracle oinstall 9830400 Apr 30 16:06 ol_mf_ncsnf_TAG20150430T160049_bn3rdxyz_.bkp
-rw-r-----. 1 oracle oinstall 1213218816 Apr 30 16:06 ol_mf_nnndf_TAG20150430T160049_bn3r9ksp_.bkp
[oracle@testdb 2015_04_30]$ cp control01.ctl /u01/app/oracle/oradata/orallg/control01.ctl
cp: cannot create regular file `/u01/app/oracle/oradata/orallg/control01.ctl': No such file or directory
[oracle@testdb 2015_04_30]$ mkdir -p /u01/app/oracle/oradata/orallg
[oracle@testdb 2015_04_30]$ cp control01.ctl /u01/app/oracle/oradata/orallg/control01.ctl
[oracle@testdb 2015_04_30]$ cp control01.ctl /u01/app/oracle/flash_recovery_area/orallg/control02.ctl
[oracle@testdb 2015_04_30]$
[oracle@testdb 2015_04_30]$
[oracle@testdb 2015_04_30]$
[oracle@testdb 2015_04_30]$ echo $ORACLE_SID
orallg
[oracle@testdb 2015_04_30]$ sqlplus / as sysdba
```

SQL*Plus: Release 11.2.0.3.0 Production on Thu Apr 30 17:03:14 2015

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Connected to:
Oracle Database 11g Enterprise Edition Release 11.2.0.3.0 - 64bit Production
With the Partitioning, OLAP, Data Mining and Real Application Testing options

```
SQL> shutdown abort;
ORACLE instance shut down.
SQL> startup mount;
ORACLE instance started.
```

```
Total System Global Area 250560512 bytes
Fixed Size 2227256 bytes
Variable Size 192938952 bytes
Database Buffers 50331648 bytes
Redo Buffers 5062656 bytes
Database mounted.
SQL>
```

```
SQL> col FILE_NAME format a50
SQL> select file#,name FILE_NAME,status from v$datafile;
```

| FILE# | FILE_NAME | STATUS |
|-------|--|--------|
| 1 | /u01/app/oracle/oradata/orallg/system01.dbf | SYSTEM |
| 2 | /u01/app/oracle/oradata/orallg/sysaux01.dbf | ONLINE |
| 3 | /u01/app/oracle/oradata/orallg/undotbs01.dbf | ONLINE |
| 4 | /u01/app/oracle/oradata/orallg/users01.dbf | ONLINE |
| 5 | /u01/app/oracle/oradata/orallg/example01.dbf | ONLINE |

二、重新注册备份集，还原 spfile，还原数据库，不完全恢复数据库

将控制文件中的原库备份信息删除，然后重新注册备份集。

```
[oracle@testdb 2015_04_30]$ rman target /

Recovery Manager: Release 11.2.0.3.0 - Production on Thu Apr 30 17:06:33 2015

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connected to target database: ORA11G (DBID=4270446895, not open)

RMAN> list backupset;

using target database control file instead of recovery catalog

List of Backup Sets
=====

BS Key   Size       Device Type Elapsed Time Completion Time
-----
1        11.61M     DISK        00:00:00      30-APR-15
BP Key: 1  Status: AVAILABLE Compressed: NO  Tag: TAG20150430T160048
Piece Name: /u01/app/oracle/flash_recovery_area/ORA11G/backupset/2015_04_30/o1_mf_annnn_TAG20150430T160048_bn3r9jd7_.bkp

List of Archived Logs in backup set 1
Thrd Seq   Low SCN   Low Time  Next SCN  Next Time
-----
1      6        1087169   13-MAR-15 1094093   30-APR-15
1      7        1094093   30-APR-15 1094096   30-APR-15
1      8        1094096   30-APR-15 1094204   30-APR-15

BS Key   Type LV Size       Device Type Elapsed Time Completion Time
-----
2        Full  1.13G     DISK        00:01:43      30-APR-15
BP Key: 2  Status: AVAILABLE Compressed: NO  Tag: TAG20150430T160049
Piece Name: /u01/app/oracle/flash_recovery_area/ORA11G/backupset/2015_04_30/o1_mf_nnndf_TAG20150430T160049_bn3r9ksp_.bkp
List of Datafiles in backup set 2
File LV Type Ckp SCN   Ckp Time  Name
----
1      Full 1094214   30-APR-15 /u01/app/oracle/oradata/orallg/system01.dbf
2      Full 1094214   30-APR-15 /u01/app/oracle/oradata/orallg/sysaux01.dbf
3      Full 1094214   30-APR-15 /u01/app/oracle/oradata/orallg/undotbs01.dbf
4      Full 1094214   30-APR-15 /u01/app/oracle/oradata/orallg/users01.dbf
5      Full 1092435   30-APR-15 /u01/app/oracle/oradata/orallg/example01.dbf

RMAN> delete backupset;
```

allocated channel: ORA_DISK_1
channel ORA_DISK_1: SID=170 device type=DISK

List of Backup Pieces

| BP Key | BS Key | Pc# | Cp# | Status | Device Type | Piece Name |
|--------|--------|-----|-----|-----------|-------------|--|
| 1 | 1 | 1 | 1 | AVAILABLE | DISK | /u01/app/oracle/flash_recovery_area/ORA11G/backupset/2015_04_30/o1_mf_annnn_TAG20150430T160048_bn3r9jd7_.bkp |
| 2 | 2 | 1 | 1 | AVAILABLE | DISK | /u01/app/oracle/flash_recovery_area/ORA11G/backupset/2015_04_30/o1_mf_nnndf_TAG20150430T160049_bn3r9ksp_.bkp |

Do you really want to delete the above objects (enter YES or NO)? yes

RMAN-06207: WARNING: 2 objects could not be deleted for DISK channel(s) due
RMAN-06208: to mismatched status. Use CROSSCHECK command to fix status
RMAN-06210: List of Mismatched objects
RMAN-06211: =====

| RMAN-06212: | Object Type | Filename/Handle |
|-------------|--------------|--|
| RMAN-06213: | ----- | ----- |
| RMAN-06214: | Backup Piece | /u01/app/oracle/flash_recovery_area/ORA11G/backupset/2015_04_30/o1_mf_annnn_TAG20150430T160048_bn3r9jd7_.bkp |
| RMAN-06214: | Backup Piece | /u01/app/oracle/flash_recovery_area/ORA11G/backupset/2015_04_30/o1_mf_nnndf_TAG20150430T160049_bn3r9ksp_.bkp |

RMAN> crosscheck backupset;

using channel ORA_DISK_1
crosschecked backup piece: found to be 'EXPIRED'
backup piece handle=/u01/app/oracle/flash_recovery_area/ORA11G/backupset/2015_04_30/o1_mf_annnn_TAG20150430T160048_bn3r9jd7_.bkp RECID=1 STAMP=878400048
crosschecked backup piece: found to be 'EXPIRED'
backup piece handle=/u01/app/oracle/flash_recovery_area/ORA11G/backupset/2015_04_30/o1_mf_nnndf_TAG20150430T160049_bn3r9ksp_.bkp RECID=2 STAMP=878400049
Crosschecked 2 objects

RMAN> list backupset;

List of Backup Sets
=====

| BS Key | Size | Device Type | Elapsed Time | Completion Time |
|--|--------|-------------|--------------|-----------------|
| 1 | 11.61M | DISK | 00:00:00 | 30-APR-15 |
| BP Key: 1 Status: EXPIRED Compressed: NO Tag: TAG20150430T160048 | | | | |
| Piece Name: /u01/app/oracle/flash_recovery_area/ORA11G/backupset/2015_04_30/o1_mf_annnn_TAG20150430T160048_bn3r9jd7_.bkp | | | | |

| List of Archived Logs in backup set 1 | | | | | |
|---------------------------------------|-----|---------|-----------|----------|-----------|
| Thrd | Seq | Low SCN | Low Time | Next SCN | Next Time |
| 1 | 6 | 1087169 | 13-MAR-15 | 1094093 | 30-APR-15 |
| 1 | 7 | 1094093 | 30-APR-15 | 1094096 | 30-APR-15 |
| 1 | 8 | 1094096 | 30-APR-15 | 1094204 | 30-APR-15 |

| BS Key | Type | LV | Size | Device Type | Elapsed Time | Completion Time |
|--|------|----|-------|-------------|--------------|-----------------|
| 2 | Full | | 1.13G | DISK | 00:01:43 | 30-APR-15 |
| BP Key: 2 Status: EXPIRED Compressed: NO Tag: TAG20150430T160049 | | | | | | |
| Piece Name: /u01/app/oracle/flash_recovery_area/ORA11G/backupset/2015_04_30/o1_mf_nnndf_TAG20150430T160049_bn3r9ksp_.bkp | | | | | | |

| List of Datafiles in backup set 2 | | | | | |
|-----------------------------------|----|------|---------|-----------|--|
| File | LV | Type | Ckp SCN | Ckp Time | Name |
| 1 | | Full | 1094214 | 30-APR-15 | /u01/app/oracle/oradata/orallg/system01.dbf |
| 2 | | Full | 1094214 | 30-APR-15 | /u01/app/oracle/oradata/orallg/sysaux01.dbf |
| 3 | | Full | 1094214 | 30-APR-15 | /u01/app/oracle/oradata/orallg/undotbs01.dbf |
| 4 | | Full | 1094214 | 30-APR-15 | /u01/app/oracle/oradata/orallg/users01.dbf |
| 5 | | Full | 1092435 | 30-APR-15 | /u01/app/oracle/oradata/orallg/example01.dbf |

```

RMAN> delete backupset;

using channel ORA_DISK_1

List of Backup Pieces
BP Key   BS Key Pc# Cp# Status      Device Type Piece Name
-----
1        1      1   1  EXPIRED      DISK        /u01/app/oracle/flash_recovery_area/ORA11G/backupset/2015_04_30/o1_mf_annnn_TAG20150430T160048_bn3r9jd7_.bkp
2        2      1   1  EXPIRED      DISK        /u01/app/oracle/flash_recovery_area/ORA11G/backupset/2015_04_30/o1_mf_nnndf_TAG20150430T160049_bn3r9ksp_.bkp

Do you really want to delete the above objects (enter YES or NO)? yes
deleted backup piece
backup piece handle=/u01/app/oracle/flash_recovery_area/ORA11G/backupset/2015_04_30/o1_mf_annnn_TAG20150430T160048_bn3r9jd7_.bkp RECID=1 STAMP=878400048
deleted backup piece
backup piece handle=/u01/app/oracle/flash_recovery_area/ORA11G/backupset/2015_04_30/o1_mf_nnndf_TAG20150430T160049_bn3r9ksp_.bkp RECID=2 STAMP=878400049
Deleted 2 objects
```

```

RMAN> list backupset;

specification does not match any backup in the repository

RMAN> catalog start with '/tmp/2015_04_30/';

searching for all files that match the pattern /tmp/2015_04_30/
```

```

List of Files Unknown to the Database
=====
File Name: /tmp/2015_04_30/o1_mf_annnn_TAG20150430T160048_bn3r9jd7_.bkp
File Name: /tmp/2015_04_30/o1_mf_nnndf_TAG20150430T160049_bn3r9ksp_.bkp
File Name: /tmp/2015_04_30/o1_mf_ncsnf_TAG20150430T160049_bn3rdxyz_.bkp
File Name: /tmp/2015_04_30/o1_mf_annnn_TAG20150430T160239_bn3rdzd7_.bkp
File Name: /tmp/2015_04_30/control01.ctl
```

```

Do you really want to catalog the above files (enter YES or NO)? yes
cataloging files...
cataloging done
```

```

List of Cataloged Files
=====
File Name: /tmp/2015_04_30/o1_mf_annnn_TAG20150430T160048_bn3r9jd7_.bkp
File Name: /tmp/2015_04_30/o1_mf_nnndf_TAG20150430T160049_bn3r9ksp_.bkp
File Name: /tmp/2015_04_30/o1_mf_ncsnf_TAG20150430T160049_bn3rdxyz_.bkp
File Name: /tmp/2015_04_30/o1_mf_annnn_TAG20150430T160239_bn3rdzd7_.bkp
File Name: /tmp/2015_04_30/control01.ctl
```

```

RMAN> list backupset;
```

```

List of Backup Sets
=====

BS Key   Size      Device Type Elapsed Time Completion Time
-----
3        11.61M    DISK        00:00:00      30-APR-15
BP Key: 3   Status: AVAILABLE Compressed: NO   Tag: TAG20150430T160048
Piece Name: /tmp/2015_04_30/o1_mf_annnn_TAG20150430T160048_bn3r9jd7_.bkp
```

```

List of Archived Logs in backup set 3
Thrd Seq      Low SCN      Low Time     Next SCN     Next Time
-----
1      6           1087169      13-MAR-15   1094093      30-APR-15
1      7           1094093      30-APR-15   1094096      30-APR-15
1      8           1094096      30-APR-15   1094204      30-APR-15
```

```

BS Key   Type LV Size      Device Type Elapsed Time Completion Time
```

```
-----
4      Full    1.13G      DISK      00:00:00      30-APR-15
      BP Key: 4   Status: AVAILABLE Compressed: NO   Tag: TAG20150430T160049
      Piece Name: /tmp/2015_04_30/ol_mf_nnndf_TAG20150430T160049_bn3r9ksp_.bkp
List of Datafiles in backup set 4
File LV Type Ckp SCN      Ckp Time  Name
-----
1      Full 1094214    30-APR-15 /u01/app/oracle/oradata/orallg/system01.dbf
2      Full 1094214    30-APR-15 /u01/app/oracle/oradata/orallg/sysaux01.dbf
3      Full 1094214    30-APR-15 /u01/app/oracle/oradata/orallg/undotbs01.dbf
4      Full 1094214    30-APR-15 /u01/app/oracle/oradata/orallg/users01.dbf
5      Full 1092435    30-APR-15 /u01/app/oracle/oradata/orallg/example01.dbf
```

```
BS Key  Type LV Size      Device Type Elapsed Time Completion Time
-----
```

```
5      Full    9.36M      DISK      00:00:00      30-APR-15
      BP Key: 5   Status: AVAILABLE Compressed: NO   Tag: TAG20150430T160049
      Piece Name: /tmp/2015_04_30/ol_mf_ncsnf_TAG20150430T160049_bn3rdxyz_.bkp
SPFILE Included: Modification time: 30-APR-15
SPFILE db_unique_name: ORA11G
Control File Included: Ckp SCN: 1094280      Ckp time: 30-APR-15
```

```
BS Key  Size      Device Type Elapsed Time Completion Time
-----
```

```
6      19.00K     DISK      00:00:00      30-APR-15
      BP Key: 6   Status: AVAILABLE Compressed: NO   Tag: TAG20150430T160239
      Piece Name: /tmp/2015_04_30/ol_mf_annnn_TAG20150430T160239_bn3rdzd7_.bkp
```

```
List of Archived Logs in backup set 6
Thrd Seq      Low SCN      Low Time     Next SCN     Next Time
-----
1      9           1094204     30-APR-15   1094286     30-APR-15
```

RMAN> restore spfile from '/tmp/2015_04_30/ol_mf_ncsnf_TAG20150430T160049_bn3rdxyz_.bkp';

Starting restore at 30-APR-15
allocated channel: ORA_DISK_1
channel ORA_DISK_1: SID=179 device type=DISK

channel ORA_DISK_1: restoring spfile from AUTOBACKUP /tmp/2015_04_30/ol_mf_ncsnf_TAG20150430T160049_bn3rdxyz_.bkp
channel ORA_DISK_1: SPFILE restore from AUTOBACKUP complete
Finished restore at 30-APR-15

RMAN>

RMAN> restore database;

Starting restore at 30-APR-15
using channel ORA_DISK_1

channel ORA_DISK_1: starting datafile backup set restore
channel ORA_DISK_1: specifying datafile(s) to restore from backup set
channel ORA_DISK_1: restoring datafile 00001 to /u01/app/oracle/oradata/orallg/system01.dbf
channel ORA_DISK_1: restoring datafile 00002 to /u01/app/oracle/oradata/orallg/sysaux01.dbf
channel ORA_DISK_1: restoring datafile 00003 to /u01/app/oracle/oradata/orallg/undotbs01.dbf
channel ORA_DISK_1: restoring datafile 00004 to /u01/app/oracle/oradata/orallg/users01.dbf
channel ORA_DISK_1: restoring datafile 00005 to /u01/app/oracle/oradata/orallg/example01.dbf
channel ORA_DISK_1: reading from backup piece /tmp/2015_04_30/ol_mf_nnndf_TAG20150430T160049_bn3r9ksp_.bkp
channel ORA_DISK_1: piece handle=/tmp/2015_04_30/ol_mf_nnndf_TAG20150430T160049_bn3r9ksp_.bkp tag=TAG20150430T160049
channel ORA_DISK_1: restored backup piece 1
channel ORA_DISK_1: restore complete, elapsed time: 00:01:15
Finished restore at 30-APR-15

先尝试做完全恢复，等到报错再做不完全恢复：

```

RMAN> recover database;

Starting recover at 30-APR-15
using channel ORA_DISK_1
datafile 5 not processed because file is read-only

starting media recovery

channel ORA_DISK_1: starting archived log restore to default destination
channel ORA_DISK_1: restoring archived log
archived log thread=1 sequence=9
channel ORA_DISK_1: reading from backup piece /tmp/2015_04_30/o1_mf_annnn_TAG20150430T160239_bn3rdzd7_.bkp
channel ORA_DISK_1: piece handle=/tmp/2015_04_30/o1_mf_annnn_TAG20150430T160239_bn3rdzd7_.bkp tag=TAG20150430T160239
channel ORA_DISK_1: restored backup piece 1
channel ORA_DISK_1: restore complete, elapsed time: 00:00:01
archived log file name=/u01/app/oracle/product/11.2.0/dbhome_1/dbs/arch1_9_874246769.dbf thread=1 sequence=9
unable to find archived log
archived log thread=1 sequence=10
RMAN-00571: =====
RMAN-00569: ===== ERROR MESSAGE STACK FOLLOWS =====
RMAN-00571: =====
RMAN-03002: failure of recover command at 04/30/2015 17:11:33
RMAN-06054: media recovery requesting unknown archived log for thread 1 with sequence 10 and starting SCN of 1094286

RMAN> recover database until sequence 10;

Starting recover at 30-APR-15
using channel ORA_DISK_1
datafile 5 not processed because file is read-only

starting media recovery
media recovery complete, elapsed time: 00:00:00

Finished recover at 30-APR-15


RMAN> alter database open resetlogs;

database opened

RMAN>
RMAN> shutdown abort;

Oracle instance shut down

RMAN> exit

Recovery Manager complete.
```

这里恢复到 10 号停止了，10 号文件很有可能丢失或者是在线日志，如果是在线日志，且在线日志可以找到，那么我们就可以做完全恢复了，不用丢失数据了，这里不演示了，在其它方法中演示。这里我们重新启动数据库就会以 spfile 来启动数据库了，当然不建议使用 shutdown abort 来强制关库：

```

[oracle@testdb 2015_04_30]$ sqlplus / as sysdba

SQL*Plus: Release 11.2.0.3.0 Production on Thu Apr 30 17:42:20 2015
```

Copyright (c) 1982, 2011, Oracle. All rights reserved.

Connected to an idle instance.

SQL> startup
ORACLE instance started.

Total System Global Area 409194496 bytes
Fixed Size 2228864 bytes
Variable Size 276827520 bytes
Database Buffers 121634816 bytes
Redo Buffers 8503296 bytes
Database mounted.
Database opened.

SQL> show parameter spfile

| NAME | TYPE | VALUE |
|--------|--------|--|
| spfile | string | /u01/app/oracle/product/11.2.0/dbhome_1/dbs/spfileorallg.ora |

SQL>

SQL>
SQL> select file#,name FILE_NAME from v\$dbfile;

| FILE# | FILE_NAME |
|-------|--|
| 4 | /u01/app/oracle/oradata/orallg/users01.dbf |
| 3 | /u01/app/oracle/oradata/orallg/undotbs01.dbf |
| 2 | /u01/app/oracle/oradata/orallg/sysaux01.dbf |
| 1 | /u01/app/oracle/oradata/orallg/system01.dbf |
| 5 | /u01/app/oracle/oradata/orallg/example01.dbf |

SQL>
SQL> col FILE_NAME format a50
SQL> select FILE_NAME,FILE_ID,a.TABLESPACE_NAME, b.status ts_status ,BYTES from dba_data_files a,dba_tablespaces b where a.TABLESPACE_NAME=b.TABLESPACE_NAME;

| FILE_NAME | FILE_ID | TABLESPACE_NAME | TS_STATUS | BYTES |
|--|---------|-----------------|-----------|-----------|
| /u01/app/oracle/oradata/orallg/users01.dbf | 4 | USERS | ONLINE | 5242880 |
| /u01/app/oracle/oradata/orallg/undotbs01.dbf | 3 | UNDOTBS1 | ONLINE | 99614720 |
| /u01/app/oracle/oradata/orallg/sysaux01.dbf | 2 | SYSAUX | ONLINE | 566231040 |
| /u01/app/oracle/oradata/orallg/system01.dbf | 1 | SYSTEM | ONLINE | 744488960 |
| /u01/app/oracle/oradata/orallg/example01.dbf | 5 | EXAMPLE | READ ONLY | 328335360 |

17:50:35 SQL> select count(1) from lhr.test;

| COUNT(1) |
|----------|
| 75204 |

17:50:44 SQL>

好，数据库已经恢复，后边要做的就是备份新库等其他操作，这里就不演示了。

1.1.3.2 方法二：尝试采用创建临时库来找回控制文件

由于 RMAN 必须工作在 MOUNT 模式，所有的数据文件都丢失，无法通过只重建控制文件将其启动到 MOUNT 模式，所以这里利用 dbca 创建一个临时数据库环境，数据库的名称与原有名称保持不变，文件存放到默认位置即可。

一、搭建临时库来注册备份集

这里我们假设有一个临时环境供我们测试，ORACLE_SID=orcltest，由于是第二天做的测试，所以我重新对原库做了备份并传递到备份库

```
[root@rhel6_lhr backupset]# scp -r 2015_05_02 oracle@192.168.59.129:/tmp
oracle@192.168.59.129's password:
ol_mf_annnn_TAG20150502T113152_bn8k98y5_.bkp          100% 9728      9.5KB/s   00:00
ol_mf_nnndf_TAG20150502T105103_bn8gxdob_.bkp          100% 236MB     6.6MB/s   00:36
ol_mf_nnndf_TAG20150502T112355_bn8jtcsc_.bkp          100% 1096MB    54.8MB/s   00:20
ol_mf_annnn_TAG20150502T112352_bn8jt975_.bkp          100% 10MB      9.8MB/s   00:00
ol_mf_ncsnf_TAG20150502T112355_bn8k97pm_.bkp          100% 9600KB    9.4MB/s   00:00
[root@rhel6_lhr backupset]#
[root@rhel6_lhr 2015_05_02]# ll -h
total 1.4G
-rw-r----- 1 oracle asmadmin 9.9M May  2 11:23 ol_mf_annnn_TAG20150502T112352_bn8jt975_.bkp
-rw-r----- 1 oracle asmadmin 9.5K May  2 11:31 ol_mf_annnn_TAG20150502T113152_bn8k98y5_.bkp
-rw-r----- 1 oracle asmadmin 9.4M May  2 11:31 ol_mf_ncsnf_TAG20150502T112355_bn8k97pm_.bkp
-rw-r----- 1 oracle asmadmin 236M May  2 10:56 ol_mf_nnndf_TAG20150502T105103_bn8gxdob_.bkp
-rw-r----- 1 oracle asmadmin 1.1G May  2 11:31 ol_mf_nnndf_TAG20150502T112355_bn8jtcsc_.bkp
```

由下边的方法（备份集中无控制文件的备份）的方法得知，这里创建一个临时库的方法比较麻烦，不太推荐：

```
[oracle@orcltest tmp]$ dbca -silent -createDatabase -templateName General_Purpose.dbc -gdbname orcltest -sid orcltest -sysPassword lhr -systemPassword lhr -responseFile NO_VALUE -datafileDestination /u02/app/oracle/oradata -redoLogFileSize 50 -recoveryAreaDestination /u02/app/oracle/flash_recovery_area -storageType FS -characterSet ZHS16GBK -nationalCharacterSet AL16UTF16 -sampleSchema true -memoryPercentage 30 -totalMemory 200 -databaseType OLTP -emConfiguration NONE -automaticMemoryManagement true
Copying database files
1% complete
3% complete
10% complete
17% complete
24% complete
35% complete
Creating and starting Oracle instance
37% complete
42% complete
47% complete
52% complete
53% complete
56% complete
58% complete
Registering database with Oracle Restart
64% complete
Completing Database Creation
68% complete
71% complete
75% complete
85% complete
96% complete
100% complete
Look at the log file "/u02/app/oracle/cfgtoollogs/dbca/orcltest/orcltest0.log" for further details.
[oracle@orcltest tmp]$ crsstat
Name                                Type                                Target    State    Host
```

| | | | | |
|-------------------|--------------------|---------|---------|----------|
| ora.DATA.dg | ora.diskgroup.type | ONLINE | ONLINE | orcltest |
| ora.LISTENER.lsnr | ora.listener.type | ONLINE | ONLINE | orcltest |
| ora.asm | ora.asm.type | ONLINE | ONLINE | orcltest |
| ora.cssd | ora.cssd.type | ONLINE | ONLINE | orcltest |
| ora.diskmon | ora.diskmon.type | OFFLINE | OFFLINE | |
| ora.evmd | ora.evmd.type | ONLINE | ONLINE | orcltest |
| ora.ons | ora.ons.type | OFFLINE | OFFLINE | |
| ora.orcltest.db | ora.database.type | ONLINE | ONLINE | orcltest |

```
[oracle@orcltest 2015_05_02]$ ll
total 1383664
-rw-r----- 1 oracle oinstall 10278400 May  2 11:34 o1_mf_annnn_TAG20150502T112352_bn8jt975_.bkp
-rw-r----- 1 oracle oinstall      9728 May  2 11:33 o1_mf_annnn_TAG20150502T113152_bn8k98y5_.bkp
-rw-r----- 1 oracle oinstall  9830400 May  2 11:34 o1_mf_ncsnf_TAG20150502T112355_bn8k97pm_.bkp
-rw-r----- 1 oracle oinstall 247463936 May  2 11:34 o1_mf_nnndf_TAG20150502T105103_bn8gxdob_.bkp
-rw-r----- 1 oracle oinstall 1149280256 May  2 11:34 o1_mf_nnndf_TAG20150502T112355_bn8jtcsc_.bkp
[oracle@orcltest 2015_05_02]$ ORACLE_SID=orcltest
[oracle@orcltest 2015_05_02]$ sqlplus / as sysdba
```

SQL*Plus: Release 11.2.0.3.0 Production on Sat May 2 11:36:51 2015

Copyright (c) 1982, 2011, Oracle. All rights reserved.

Connected to:
Oracle Database 11g Enterprise Edition Release 11.2.0.3.0 - 64bit Production
With the Partitioning, OLAP, Data Mining and Real Application Testing options

```
SQL> exit
Disconnected from Oracle Database 11g Enterprise Edition Release 11.2.0.3.0 - 64bit Production
With the Partitioning, OLAP, Data Mining and Real Application Testing options
[oracle@orcltest 2015_05_02]$
```

```
[oracle@orcltest 2015_05_02]$ rman target /
```

Recovery Manager: Release 11.2.0.3.0 - Production on Sat May 2 11:37:24 2015

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connected to target database: ORCLTEST (DBID=2626150865)

```
RMAN> list backupset;
```

specification does not match any backup in the repository

```
RMAN>
```

```
RMAN> catalog start with '/tmp/2015_05_02/' ;
```

using target database control file instead of recovery catalog
searching for all files that match the pattern /tmp/2015_05_02/

List of Files Unknown to the Database
=====

File Name: /tmp/2015_05_02/o1_mf_annnn_TAG20150502T113152_bn8k98y5_.bkp
File Name: /tmp/2015_05_02/o1_mf_nnndf_TAG20150502T105103_bn8gxdob_.bkp
File Name: /tmp/2015_05_02/o1_mf_nnndf_TAG20150502T112355_bn8jtcsc_.bkp
File Name: /tmp/2015_05_02/o1_mf_annnn_TAG20150502T112352_bn8jt975_.bkp
File Name: /tmp/2015_05_02/o1_mf_ncsnf_TAG20150502T112355_bn8k97pm_.bkp

Do you really want to catalog the above files (enter YES or NO)? yes
cataloging files...
no files cataloged

List of Files Which Where Not Cataloged
=====

```
File Name: /tmp/2015_05_02/o1_mf_annnn_TAG20150502T113152_bn8k98y5_.bkp
  RMAN-07518: Reason: Foreign database file DBID: 4270446895 Database Name: ORA11G
File Name: /tmp/2015_05_02/o1_mf_nnndf_TAG20150502T105103_bn8gxdob_.bkp
  RMAN-07518: Reason: Foreign database file DBID: 4270446895 Database Name: ORA11G
File Name: /tmp/2015_05_02/o1_mf_nnndf_TAG20150502T112355_bn8jtcs_.bkp
  RMAN-07518: Reason: Foreign database file DBID: 4270446895 Database Name: ORA11G
File Name: /tmp/2015_05_02/o1_mf_annnn_TAG20150502T112352_bn8jt975_.bkp
  RMAN-07518: Reason: Foreign database file DBID: 4270446895 Database Name: ORA11G
File Name: /tmp/2015_05_02/o1_mf_ncsnf_TAG20150502T112355_bn8k97pm_.bkp
  RMAN-07518: Reason: Foreign database file DBID: 4270446895 Database Name: ORA11G

RMAN>

RMAN> catalog backuppiece '/tmp/2015_05_02/o1_mf_annnn_TAG20150502T113152_bn8k98y5_.bkp';

ORA-19870: error while restoring backup piece /tmp/2015_05_02/o1_mf_annnn_TAG20150502T113152_bn8k98y5_.bkp
ORA-19691: /tmp/2015_05_02/o1_mf_annnn_TAG20150502T113152_bn8k98y5_.bkp is from different database: id=4270446895, name=ORA11G

RMAN-00571: =====
RMAN-00569: ===== ERROR MESSAGE STACK FOLLOWS =====
RMAN-00571: =====
RMAN-03002: failure of catalog command at 05/02/2015 11:40:26
RMAN-06209: List of failed objects
RMAN-06211: =====
RMAN-06212: Object Type      Filename/Handle
RMAN-06213: -----
RMAN-06214: Backup Piece      /tmp/2015_05_02/o1_mf_annnn_TAG20150502T113152_bn8k98y5_.bkp

RMAN>

RMAN>
```

由此可以看出，命令 catalog start with '/tmp/2015_05_02/'; 在异库注册可以查看到原库的信息：DBID: 4270446895 Database Name: ORA11G，（10g 下测试也可以获取到这些信息）这里 dbname 和 dbid 都不一样所以不能注册在该数据库下，将备份片的信息加入到控制文件的时候报错，原因在于原有数据库和临时数据库的 DBID 不同，那么我们是否可以尝试修改临时数据库的 DBID，使它与原有数据库 DBID 保持一致呢，试试呗。

1、 修改 dbname 和 dbid

首先启动临时库到 open read only 状态，然后执行脚本：

```
[oracle@orcltest dbs]$ ORACLE_SID=orcltest
[oracle@orcltest dbs]$ sqlplus / as sysdba

SQL*Plus: Release 11.2.0.3.0 Production on Sat May 2 12:56:05 2015

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Connected to:
Oracle Database 11g Enterprise Edition Release 11.2.0.3.0 - 64bit Production
With the Partitioning, OLAP, Data Mining and Real Application Testing options

SQL> shutdown immediate;
Database closed.
Database dismounted.
ORACLE instance shut down.
SQL> startup open read only;
ORACLE instance started.

Total System Global Area 409194496 bytes
Fixed Size 2228864 bytes
Variable Size 281021824 bytes
```

```
Database Buffers      117440512 bytes
Redo Buffers          8503296 bytes
Database mounted.
Database opened.
SQL> @?/dbs/change_dbid.sql
```

PL/SQL procedure successfully completed.

OLD_NAME

ORCLTEST

Enter the new Database Name:ORA11G
Enter the new Database ID:4270446895

PL/SQL procedure successfully completed.

PL/SQL procedure successfully completed.

Convert ORCLTEST(2626156129) to ORA11G(4270446895)

PL/SQL procedure successfully completed.

```
ControlFile:
=> Change Name:1
=> Change DBID:1
DataFile: /u02/app/oracle/oradata/orcltest/system01.dbf
=> Skipped:0
=> Change Name:1
=> Change DBID:1
DataFile: /u02/app/oracle/oradata/orcltest/sysaux01.dbf
=> Skipped:0
=> Change Name:1
=> Change DBID:1
DataFile: /u02/app/oracle/oradata/orcltest/undotbs01.dbf
=> Skipped:0
=> Change Name:1
=> Change DBID:1
DataFile: /u02/app/oracle/oradata/orcltest/users01.dbf
=> Skipped:0
=> Change Name:1
=> Change DBID:1
DataFile: /u02/app/oracle/oradata/orcltest/example01.dbf
=> Skipped:0
=> Change Name:1
=> Change DBID:1
DataFile: /u02/app/oracle/oradata/orcltest/temp01.dbf
=> Skipped:0
=> Change Name:1
=> Change DBID:1
```

PL/SQL procedure successfully completed.

SQL> create pfile from spfile;

File created.

```
SQL> shutdown immediate;
Database closed.
Database dismounted.
ORACLE instance shut down.
```

```
SQL> exit
Disconnected from Oracle Database 11g Enterprise Edition Release 11.2.0.3.0 - 64bit Production
With the Partitioning, OLAP, Data Mining and Real Application Testing options
```

```
[oracle@orcltest dbs]$ ll
total 52
-rw-r--r-- 1 oracle oinstall 2239 May  2 12:33 change_dbid.sql
-rw-rw---- 1 oracle oinstall 1544 May  2 10:56 hc_DBUA5452531.dat
-rw-rw---- 1 oracle oinstall 1544 May  2 12:45 hc_ORA11G.dat
-rw-rw---- 1 oracle oinstall 1544 May  2 12:56 hc_orcltest.dat
-rw-r----- 1 oracle oinstall 165 May  2 10:54 initDBUA5452531.ora
-rw-r--r-- 1 oracle oinstall 2851 May 15  2009 init.ora
-rw-r--r-- 1 oracle oinstall  640 May  2 12:10 initORA11G.ora
-rw-r--r-- 1 oracle oinstall  997 May  2 12:58 initorcltest.ora
-rw-r----- 1 oracle oinstall    0 May  2 10:55 lkinstDBUA5452531
-rw-r----- 1 oracle oinstall  24 May  2 12:10 lkORA11G
-rw-r----- 1 oracle oinstall  24 Apr 21 16:27 lkORCLTEST
-rw-r----- 1 oracle oinstall 1536 May  2 10:54 orapwDBUA5452531
-rw-r----- 1 oracle oinstall 1536 May  2 12:53 orapworcltest
-rw-r----- 1 oracle oinstall 3584 May  2 12:57 spfileorcltest.ora
[oracle@orcltest dbs]$ vi initorcltest.ora
. . . .
*.db_name='ORA11G'
. . . .
[oracle@orcltest dbs]$ mv initorcltest.ora initORA11G.ora
[oracle@orcltest dbs]$ ORACLE_SID=ORA11G
[oracle@orcltest dbs]$ sqlplus / as sysdba

SQL*Plus: Release 11.2.0.3.0 Production on Sat May 2 13:04:44 2015

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Connected to:
Oracle Database 11g Enterprise Edition Release 11.2.0.3.0 - 64bit Production
With the Partitioning, OLAP, Data Mining and Real Application Testing options

SQL> startup mount;
ORACLE instance started.

Total System Global Area  409194496 bytes
Fixed Size                  2228864 bytes
Variable Size              272633216 bytes
Database Buffers           125829120 bytes
Redo Buffers                8503296 bytes
Database mounted.
SQL> alter database open resetlogs;

Database altered.

SQL> select dbid,name from v$database;

   DBID NAME
-----
4270446895 ORA11G

SQL>
```

好了，和原库一样了，现在我们重新注册

2、 重新注册

```
[oracle@orcltest dbs]$ORACLE_SID=ORA11G
[oracle@orcltest dbs]$ rman target /

Recovery Manager: Release 11.2.0.3.0 - Production on Sat May 2 13:10:35 2015

Copyright (c) 1982, 2011, Oracle and/or its affiliates.  All rights reserved.
```

connected to target database: ORA11G (DBID=4270446895)

RMAN> catalog start with '/tmp/2015_05_02/';

using target database control file instead of recovery catalog
searching for all files that match the pattern /tmp/2015_05_02/

List of Files Unknown to the Database
=====

File Name: /tmp/2015_05_02/o1_mf_annnn_TAG20150502T113152_bn8k98y5_.bkp
File Name: /tmp/2015_05_02/o1_mf_nnndf_TAG20150502T105103_bn8gxdob_.bkp
File Name: /tmp/2015_05_02/o1_mf_nnndf_TAG20150502T112355_bn8jtcsc_.bkp
File Name: /tmp/2015_05_02/o1_mf_annnn_TAG20150502T112352_bn8jt975_.bkp
File Name: /tmp/2015_05_02/o1_mf_ncsnf_TAG20150502T112355_bn8k97pm_.bkp

Do you really want to catalog the above files (enter YES or NO)? yes
cataloging files...
cataloging done

List of Cataloged Files
=====

File Name: /tmp/2015_05_02/o1_mf_annnn_TAG20150502T113152_bn8k98y5_.bkp
File Name: /tmp/2015_05_02/o1_mf_nnndf_TAG20150502T105103_bn8gxdob_.bkp
File Name: /tmp/2015_05_02/o1_mf_nnndf_TAG20150502T112355_bn8jtcsc_.bkp
File Name: /tmp/2015_05_02/o1_mf_annnn_TAG20150502T112352_bn8jt975_.bkp
File Name: /tmp/2015_05_02/o1_mf_ncsnf_TAG20150502T112355_bn8k97pm_.bkp

RMAN>

成功注册，接下来就简单了，查看备份集中含有哪些内容

RMAN> list backupset;

List of Backup Sets
=====

| BS Key | Size | Device Type | Elapsed Time | Completion Time |
|--------|--|-------------|--------------|-----------------|
| 1 | 9.00K | DISK | 00:00:00 | 02-MAY-15 |
| | BP Key: 1 Status: AVAILABLE Compressed: NO Tag: TAG20150502T113152 | | | |
| | Piece Name: /tmp/2015_05_02/o1_mf_annnn_TAG20150502T113152_bn8k98y5_.bkp | | | |

List of Archived Logs in backup set 1

| Thrd | Seq | Low SCN | Low Time | Next SCN | Next Time |
|------|-----|---------|-----------|----------|-----------|
| 1 | 15 | 1145640 | 02-MAY-15 | 1145812 | 02-MAY-15 |

| BS Key | Type | LV | Size | Device Type | Elapsed Time | Completion Time |
|--------|--|----|---------|-------------|--------------|-----------------|
| 2 | Full | | 235.99M | DISK | 00:00:00 | 02-MAY-15 |
| | BP Key: 2 Status: AVAILABLE Compressed: NO Tag: TAG20150502T105103 | | | | | |
| | Piece Name: /tmp/2015_05_02/o1_mf_nnndf_TAG20150502T105103_bn8gxdob_.bkp | | | | | |

List of Datafiles in backup set 2

| File | LV | Type | Ckp SCN | Ckp Time | Name |
|------|----|------|---------|-----------|--|
| 1 | | Full | 1122334 | 02-MAY-15 | /u02/app/oracle/oradata/orcltest/system01.dbf |
| 2 | | Full | 1122334 | 02-MAY-15 | /u02/app/oracle/oradata/orcltest/sysaux01.dbf |
| 3 | | Full | 1122334 | 02-MAY-15 | /u02/app/oracle/oradata/orcltest/undotbs01.dbf |
| 4 | | Full | 1122334 | 02-MAY-15 | /u02/app/oracle/oradata/orcltest/users01.dbf |
| 5 | | Full | 1092435 | 30-APR-15 | /u02/app/oracle/oradata/orcltest/example01.dbf |

| BS Key | Type | LV | Size | Device Type | Elapsed Time | Completion Time |
|--------|------|----|------|-------------|--------------|-----------------|
|--------|------|----|------|-------------|--------------|-----------------|


```
3      Full    1.07G      DISK      00:00:00      02-MAY-15
      BP Key: 3      Status: AVAILABLE Compressed: NO  Tag: TAG20150502T112355
      Piece Name: /tmp/2015_05_02/o1_mf_nnndf_TAG20150502T112355_bn8jtcsc_.bkp
List of Datafiles in backup set 3
File LV Type Ckp SCN      Ckp Time  Name
----- --
1      Full 1145650 02-MAY-15 /u02/app/oracle/oradata/orcltest/system01.dbf
2      Full 1145650 02-MAY-15 /u02/app/oracle/oradata/orcltest/sysaux01.dbf
3      Full 1145650 02-MAY-15 /u02/app/oracle/oradata/orcltest/undotbs01.dbf
4      Full 1145650 02-MAY-15 /u02/app/oracle/oradata/orcltest/users01.dbf
5      Full 1092435 30-APR-15 /u02/app/oracle/oradata/orcltest/example01.dbf

BS Key  Size      Device Type Elapsed Time Completion Time
----- --
4      9.80M      DISK      00:00:00      02-MAY-15
      BP Key: 4      Status: AVAILABLE Compressed: NO  Tag: TAG20150502T112352
      Piece Name: /tmp/2015_05_02/o1_mf_annnn_TAG20150502T112352_bn8jt975_.bkp

List of Archived Logs in backup set 4
Thrd Seq      Low SCN      Low Time  Next SCN      Next Time
----- --
1      13      1122206      02-MAY-15 1145003      02-MAY-15
1      14      1145003      02-MAY-15 1145640      02-MAY-15

BS Key  Type LV Size      Device Type Elapsed Time Completion Time
----- --
5      Full    9.36M      DISK      00:00:00      02-MAY-15
      BP Key: 5      Status: AVAILABLE Compressed: NO  Tag: TAG20150502T112355
      Piece Name: /tmp/2015_05_02/o1_mf_ncsnf_TAG20150502T112355_bn8k97pm_.bkp
SPFILE Included: Modification time: 02-MAY-15
SPFILE db unique name: ORA11G
Control File Included: Ckp SCN: 1145807      Ckp time: 02-MAY-15

RMAN>
```

我们可以看到，控制文件和 spfile 都在备份文件： /tmp/2015_05_02/o1_mf_ncsnf_TAG20150502T112355_bn8k97pm_.bkp 中，有归档文件，有数据文件，此时我们就可以考虑还原策略了，我们可以使用备份中的 spfile 和控制文件，也可以只还原数据文件，这个根据自己的需要而定，这里我们测试的话就从 spfile、control file，datafile 都还原吧。

二、 还原操作

1、 还原 spfile

```
RMAN> restore spfile from '/tmp/2015_05_02/o1_mf_ncsnf_TAG20150502T112355_bn8k97pm_.bkp';

Starting restore at 02-MAY-15
allocated channel: ORA_DISK_1
channel ORA_DISK_1: SID=144 device type=DISK

channel ORA_DISK_1: restoring spfile from AUTOBACKUP /tmp/2015_05_02/o1_mf_ncsnf_TAG20150502T112355_bn8k97pm_.bkp
channel ORA_DISK_1: SPFILE restore from AUTOBACKUP complete
Finished restore at 02-MAY-15

RMAN>

[oracle@orcltest ~]$ cd $ORACLE_HOME/dbs
[oracle@orcltest dbs]$ ll spfile*
-rw-r----- 1 oracle oinstall 2560 May  2 13:21 spfileORA11G.ora
-rw-r----- 1 oracle oinstall 3584 May  2 12:57 spfileorcltest.ora
[oracle@orcltest dbs]$
```

2、 还原控制文件

```

RMAN> restore controlfile to '/tmp/2015_05_02/cont.ctl' from '/tmp/2015_05_02/o1_mf_ncsnf_TAG20150502T112355_bn8k97pm_.bkp';

Starting restore at 02-MAY-15
using channel ORA_DISK_1

channel ORA_DISK_1: restoring control file
channel ORA_DISK_1: restore complete, elapsed time: 00:00:01
Finished restore at 02-MAY-15

RMAN>
```

这里可以采用原数据库的控制文件，即现在还原出来的控制文件，也可以采用目前临时库的控制文件，都可以，当然，如果备份集中没有控制文件的备份的话我们可以考虑 采用临时库的控制文件，或者备份片段中没有控制文件的备份 这个方法。

3、 还原 database

这里分情况，如果采用原库的控制文件的话，我们可以这样还原：

①、 方法一：采用原库控制文件--推荐

将原库控制文件拷贝到 pfile 定义的相关目录：

```

[oracle@orcltest orcltest]$ cp /tmp/2015_05_02/cont.ctl /u02/app/oracle/flash_recovery_area/orcltest/control02.ctl
[oracle@orcltest orcltest]$ cp /tmp/2015_05_02/cont.ctl /u02/app/oracle/oradata/orcltest/control01.ctl
[oracle@orcltest orcltest]$ cd /u01/app/oracle/oradata/orallg/
[oracle@orcltest dbs]$ rman target /

Recovery Manager: Release 11.2.0.3.0 - Production on Sat May 2 13:32:55 2015

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connected to target database: ORA11G (DBID=4270446895, not open)

RMAN> list backupset;

using target database control file instead of recovery catalog

List of Backup Sets
=====

BS Key   Size       Device Type Elapsed Time Completion Time
-----
6        9.80M      DISK        00:00:00      02-MAY-15
BP Key: 6  Status: AVAILABLE Compressed: NO  Tag: TAG20150502T112352
Piece Name: /u01/app/oracle/flash_recovery_area/ORA11G/backupset/2015_05_02/o1_mf_annnn_TAG20150502T112352_bn8jt975_.bkp

List of Archived Logs in backup set 6
Thrd Seq   Low SCN   Low Time  Next SCN  Next Time
----
1      13       1122206   02-MAY-15 1145003   02-MAY-15
1      14       1145003   02-MAY-15 1145640   02-MAY-15

BS Key   Type LV Size       Device Type Elapsed Time Completion Time
-----

```

```
7      Full    1.07G      DISK      00:07:46      02-MAY-15
      BP Key: 7   Status: AVAILABLE Compressed: NO   Tag: TAG20150502T112355
      Piece Name: /u01/app/oracle/flash_recovery_area/ORAI1G/backupset/2015_05_02/o1_mf_nnndf_TAG20150502T112355_bn8jtcsc_.bkp
List of Datafiles in backup set 7
File LV Type Ckp SCN      Ckp Time  Name
----- --
1      Full 1145650 02-MAY-15 /u01/app/oracle/oradata/orallg/system01.dbf
2      Full 1145650 02-MAY-15 /u01/app/oracle/oradata/orallg/sysaux01.dbf
3      Full 1145650 02-MAY-15 /u01/app/oracle/oradata/orallg/undotbs01.dbf
4      Full 1145650 02-MAY-15 /u01/app/oracle/oradata/orallg/users01.dbf
5      Full 1092435 30-APR-15 /u01/app/oracle/oradata/orallg/example01.dbf

RMAN> delete backupset;

Starting implicit crosscheck backup at 02-MAY-15
allocated channel: ORA_DISK_1
channel ORA_DISK_1: SID=134 device type=DISK
Crosschecked 2 objects
Finished implicit crosscheck backup at 02-MAY-15

Starting implicit crosscheck copy at 02-MAY-15
using channel ORA_DISK_1
Finished implicit crosscheck copy at 02-MAY-15

searching for all files in the recovery area
cataloging files...
cataloging done

List of Cataloged Files
=====
File Name: /u02/app/oracle/flash_recovery_area/ORAI1G/archivelog/2015_05_02/o1_mf_1_2_bn8o55o8_.arc
File Name: /u02/app/oracle/flash_recovery_area/ORAI1G/archivelog/2015_05_02/o1_mf_1_3_bn8o6tkw_.arc
File Name: /u02/app/oracle/flash_recovery_area/ORAI1G/archivelog/2015_05_02/o1_mf_1_1_bn8o4j7z_.arc

using channel ORA_DISK_1

List of Backup Pieces
BP Key  BS Key  Pc# Cp# Status      Device Type Piece Name
----- --
6       6      1  1  EXPIRED      DISK      /u01/app/oracle/flash_recovery_area/ORAI1G/backupset/2015_05_02/o1_mf_annnn_TAG20150502T112352_bn8jt975_.bkp
7       7      1  1  EXPIRED      DISK      /u01/app/oracle/flash_recovery_area/ORAI1G/backupset/2015_05_02/o1_mf_nnndf_TAG20150502T112355_bn8jtcsc_.bkp

Do you really want to delete the above objects (enter YES or NO)? yes
deleted backup piece
backup piece handle=/u01/app/oracle/flash_recovery_area/ORAI1G/backupset/2015_05_02/o1_mf_annnn_TAG20150502T112352_bn8jt975_.bkp RECID=6 STAMP=878642633
deleted backup piece
backup piece handle=/u01/app/oracle/flash_recovery_area/ORAI1G/backupset/2015_05_02/o1_mf_nnndf_TAG20150502T112355_bn8jtcsc_.bkp RECID=7 STAMP=878642635
Deleted 2 objects

RMAN> crosscheck backupset;

using channel ORA_DISK_1
specification does not match any backup in the repository

RMAN> list backupset;

specification does not match any backup in the repository

RMAN> exit

Recovery Manager complete.
[oracle@orcltest dbs]$ rman target /

Recovery Manager: Release 11.2.0.3.0 - Production on Sat May 2 13:33:41 2015
```

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connected to target database: ORA11G (DBID=4270446895, not open)

RMAN> list backupset;

using target database control file instead of recovery catalog
specification does not match any backup in the repository

RMAN> catalog start with '/tmp/2015_05_02/';

searching for all files that match the pattern /tmp/2015_05_02/

List of Files Unknown to the Database

=====

File Name: /tmp/2015_05_02/o1_mf_annnn_TAG20150502T113152_bn8k98y5_.bkp
File Name: /tmp/2015_05_02/o1_mf_nnndf_TAG20150502T105103_bn8gxdob_.bkp
File Name: /tmp/2015_05_02/cont.ctl
File Name: /tmp/2015_05_02/o1_mf_nnndf_TAG20150502T112355_bn8jtcsc_.bkp
File Name: /tmp/2015_05_02/o1_mf_annnn_TAG20150502T112352_bn8jt975_.bkp
File Name: /tmp/2015_05_02/o1_mf_ncsnf_TAG20150502T112355_bn8k97pm_.bkp

Do you really want to catalog the above files (enter YES or NO)? yes
cataloging files...
cataloging done

List of Cataloged Files

=====

File Name: /tmp/2015_05_02/o1_mf_annnn_TAG20150502T113152_bn8k98y5_.bkp
File Name: /tmp/2015_05_02/o1_mf_nnndf_TAG20150502T105103_bn8gxdob_.bkp
File Name: /tmp/2015_05_02/cont.ctl
File Name: /tmp/2015_05_02/o1_mf_nnndf_TAG20150502T112355_bn8jtcsc_.bkp
File Name: /tmp/2015_05_02/o1_mf_annnn_TAG20150502T112352_bn8jt975_.bkp
File Name: /tmp/2015_05_02/o1_mf_ncsnf_TAG20150502T112355_bn8k97pm_.bkp

RMAN> list backupset;

List of Backup Sets

=====

| BS Key | Size | Device Type | Elapsed Time | Completion Time |
|--------|--|-------------|--------------|-----------------|
| 8 | 9.00K | DISK | 00:00:00 | 02-MAY-15 |
| | BP Key: 8 Status: AVAILABLE Compressed: NO Tag: TAG20150502T113152 | | | |
| | Piece Name: /tmp/2015_05_02/o1_mf_annnn_TAG20150502T113152_bn8k98y5_.bkp | | | |

| List of Archived Logs in backup set 8 | | | | | |
|---------------------------------------|-----|---------|-----------|----------|-----------|
| Thrd | Seq | Low SCN | Low Time | Next SCN | Next Time |
| 1 | 15 | 1145640 | 02-MAY-15 | 1145812 | 02-MAY-15 |

| BS Key | Type | LV | Size | Device Type | Elapsed Time | Completion Time |
|-----------------------------------|---|------|---------|-------------|--------------|--|
| 9 | Full | | 235.99M | DISK | 00:00:00 | 02-MAY-15 |
| | BP Key: 9 Status: AVAILABLE Compressed: NO Tag: TAG20150502T105103 | | | | | |
| | Piece Name: /tmp/2015_05_02/o1_mf_nnndf_TAG20150502T105103_bn8gxdob_.bkp | | | | | |
| List of Datafiles in backup set 9 | | | | | | |
| File | LV | Type | Ckp | SCN | Ckp Time | Name |
| 1 | | Full | | 1122334 | 02-MAY-15 | /u01/app/oracle/oradata/orallg/system01.dbf |
| 2 | | Full | | 1122334 | 02-MAY-15 | /u01/app/oracle/oradata/orallg/sysaux01.dbf |
| 3 | | Full | | 1122334 | 02-MAY-15 | /u01/app/oracle/oradata/orallg/undotbs01.dbf |
| 4 | | Full | | 1122334 | 02-MAY-15 | /u01/app/oracle/oradata/orallg/users01.dbf |
| 5 | | Full | | 1092435 | 30-APR-15 | /u01/app/oracle/oradata/orallg/example01.dbf |

```
BS Key  Type LV Size      Device Type Elapsed Time Completion Time
-----
10      Full   1.07G      DISK        00:00:00      02-MAY-15
        BP Key: 10   Status: AVAILABLE Compressed: NO   Tag: TAG20150502T112355
        Piece Name: /tmp/2015_05_02/o1_mf_nnndf_TAG20150502T112355_bn8jtcsc_.bkp
        List of Datafiles in backup set 10
        File LV Type Ckp SCN      Ckp Time  Name
        -----
         1      Full 1145650     02-MAY-15 /u01/app/oracle/oradata/orallg/system01.dbf
         2      Full 1145650     02-MAY-15 /u01/app/oracle/oradata/orallg/sysaux01.dbf
         3      Full 1145650     02-MAY-15 /u01/app/oracle/oradata/orallg/undotbs01.dbf
         4      Full 1145650     02-MAY-15 /u01/app/oracle/oradata/orallg/users01.dbf
         5      Full 1092435     30-APR-15 /u01/app/oracle/oradata/orallg/example01.dbf

BS Key  Size      Device Type Elapsed Time Completion Time
-----
11      9.80M      DISK        00:00:00      02-MAY-15
        BP Key: 11   Status: AVAILABLE Compressed: NO   Tag: TAG20150502T112352
        Piece Name: /tmp/2015_05_02/o1_mf_annnn_TAG20150502T112352_bn8jt975_.bkp

        List of Archived Logs in backup set 11
        Thrd Seq      Low SCN      Low Time  Next SCN      Next Time
        -----
         1  13        1122206      02-MAY-15 1145003        02-MAY-15
         1  14        1145003      02-MAY-15 1145640        02-MAY-15

BS Key  Type LV Size      Device Type Elapsed Time Completion Time
-----
12      Full   9.36M      DISK        00:00:00      02-MAY-15
        BP Key: 12   Status: AVAILABLE Compressed: NO   Tag: TAG20150502T112355
        Piece Name: /tmp/2015_05_02/o1_mf_ncsnf_TAG20150502T112355_bn8k97pm_.bkp
        SPFILE Included: Modification time: 02-MAY-15
        SPFILE db_unique_name: ORA11G
        Control File Included: Ckp SCN: 1145807      Ckp time: 02-MAY-15

RMAN> restore database;

Starting restore at 02-MAY-15
allocated channel: ORA_DISK_1
channel ORA_DISK_1: SID=125 device type=DISK

channel ORA_DISK_1: starting datafile backup set restore
channel ORA_DISK_1: specifying datafile(s) to restore from backup set
channel ORA_DISK_1: restoring datafile 00001 to /u01/app/oracle/oradata/orallg/system01.dbf
channel ORA_DISK_1: restoring datafile 00002 to /u01/app/oracle/oradata/orallg/sysaux01.dbf
channel ORA_DISK_1: restoring datafile 00003 to /u01/app/oracle/oradata/orallg/undotbs01.dbf
channel ORA_DISK_1: restoring datafile 00004 to /u01/app/oracle/oradata/orallg/users01.dbf
channel ORA_DISK_1: reading from backup piece /tmp/2015_05_02/o1_mf_nnndf_TAG20150502T112355_bn8jtcsc_.bkp
channel ORA_DISK_1: ORA-19870: error while restoring backup piece /tmp/2015_05_02/o1_mf_nnndf_TAG20150502T112355_bn8jtcsc_.bkp
ORA-19504: failed to create file "/u01/app/oracle/oradata/orallg/system01.dbf"
ORA-27040: file create error, unable to create file
Linux-x86_64 Error: 2: No such file or directory
Additional information: 1

channel ORA_DISK_1: starting datafile backup set restore
channel ORA_DISK_1: specifying datafile(s) to restore from backup set
channel ORA_DISK_1: restoring datafile 00005 to /u01/app/oracle/oradata/orallg/example01.dbf
channel ORA_DISK_1: reading from backup piece /tmp/2015_05_02/o1_mf_nnndf_TAG20150502T105103_bn8gxdob_.bkp
channel ORA_DISK_1: ORA-19870: error while restoring backup piece /tmp/2015_05_02/o1_mf_nnndf_TAG20150502T105103_bn8gxdob_.bkp
ORA-19504: failed to create file "/u01/app/oracle/oradata/orallg/example01.dbf"
ORA-27040: file create error, unable to create file
Linux-x86_64 Error: 2: No such file or directory
Additional information: 1

failover to previous backup

channel ORA_DISK_1: starting datafile backup set restore
```

```
channel ORA_DISK_1: specifying datafile(s) to restore from backup set
channel ORA_DISK_1: restoring datafile 00001 to /u01/app/oracle/oradata/orallg/system01.dbf
channel ORA_DISK_1: restoring datafile 00002 to /u01/app/oracle/oradata/orallg/sysaux01.dbf
channel ORA_DISK_1: restoring datafile 00003 to /u01/app/oracle/oradata/orallg/undotbs01.dbf
channel ORA_DISK_1: restoring datafile 00004 to /u01/app/oracle/oradata/orallg/users01.dbf
channel ORA_DISK_1: reading from backup piece /tmp/2015_05_02/o1_mf_nnndf_TAG20150502T105103_bn8gxdob_.bkp
channel ORA_DISK_1: ORA-19870: error while restoring backup piece /tmp/2015_05_02/o1_mf_nnndf_TAG20150502T105103_bn8gxdob_.bkp
ORA-19504: failed to create file "/u01/app/oracle/oradata/orallg/system01.dbf"
ORA-27040: file create error, unable to create file
Linux-x86_64 Error: 2: No such file or directory
Additional information: 1
```

```
channel ORA_DISK_1: starting datafile backup set restore
channel ORA_DISK_1: specifying datafile(s) to restore from backup set
channel ORA_DISK_1: restoring datafile 00005 to /u01/app/oracle/oradata/orallg/example01.dbf
channel ORA_DISK_1: reading from backup piece /tmp/2015_05_02/o1_mf_nnndf_TAG20150502T112355_bn8jtcsc_.bkp
channel ORA_DISK_1: ORA-19870: error while restoring backup piece /tmp/2015_05_02/o1_mf_nnndf_TAG20150502T112355_bn8jtcsc_.bkp
ORA-19504: failed to create file "/u01/app/oracle/oradata/orallg/example01.dbf"
ORA-27040: file create error, unable to create file
Linux-x86_64 Error: 2: No such file or directory
Additional information: 1
```

failover to previous backup

```
RMAN-00571: =====
RMAN-00569: ===== ERROR MESSAGE STACK FOLLOWS =====
RMAN-00571: =====
RMAN-03002: failure of restore command at 05/02/2015 13:34:38
RMAN-06026: some targets not found - aborting restore
RMAN-06023: no backup or copy of datafile 5 found to restore
RMAN-06023: no backup or copy of datafile 4 found to restore
RMAN-06023: no backup or copy of datafile 3 found to restore
RMAN-06023: no backup or copy of datafile 2 found to restore
RMAN-06023: no backup or copy of datafile 1 found to restore
```

缺少目录，我们建立目录重试：

```
[oracle@orcltest orcltest]$ mkdir -p /u01/app/oracle/oradata/orallg/
```

RMAN> **restore database;**

Starting restore at 02-MAY-15
using channel ORA_DISK_1

```
channel ORA_DISK_1: starting datafile backup set restore
channel ORA_DISK_1: specifying datafile(s) to restore from backup set
channel ORA_DISK_1: restoring datafile 00001 to /u01/app/oracle/oradata/orallg/system01.dbf
channel ORA_DISK_1: restoring datafile 00002 to /u01/app/oracle/oradata/orallg/sysaux01.dbf
channel ORA_DISK_1: restoring datafile 00003 to /u01/app/oracle/oradata/orallg/undotbs01.dbf
channel ORA_DISK_1: restoring datafile 00004 to /u01/app/oracle/oradata/orallg/users01.dbf
channel ORA_DISK_1: reading from backup piece /tmp/2015_05_02/o1_mf_nnndf_TAG20150502T112355_bn8jtcsc_.bkp
channel ORA_DISK_1: piece handle=/tmp/2015_05_02/o1_mf_nnndf_TAG20150502T112355_bn8jtcsc_.bkp tag=TAG20150502T112355
channel ORA_DISK_1: restored backup piece 1
channel ORA_DISK_1: restore complete, elapsed time: 00:01:06
channel ORA_DISK_1: starting datafile backup set restore
channel ORA_DISK_1: specifying datafile(s) to restore from backup set
channel ORA_DISK_1: restoring datafile 00005 to /u01/app/oracle/oradata/orallg/example01.dbf
channel ORA_DISK_1: reading from backup piece /tmp/2015_05_02/o1_mf_nnndf_TAG20150502T105103_bn8gxdob_.bkp
channel ORA_DISK_1: piece handle=/tmp/2015_05_02/o1_mf_nnndf_TAG20150502T105103_bn8gxdob_.bkp tag=TAG20150502T105103
channel ORA_DISK_1: restored backup piece 1
restore not complete
Restore did not complete for some files from backup piece /tmp/2015_05_02/o1_mf_nnndf_TAG20150502T105103_bn8gxdob_.bkp (piecenum=1, pieces_done=1, done=FALSE, failover=FALSE)
Please check alert log for additional information.
```

failover to previous backup

```
channel ORA_DISK_1: starting datafile backup set restore
channel ORA_DISK_1: specifying datafile(s) to restore from backup set
channel ORA_DISK_1: restoring datafile 00005 to /u01/app/oracle/oradata/orallg/example01.dbf
channel ORA_DISK_1: reading from backup piece /tmp/2015_05_02/ol_mf_nnndf_TAG20150502T112355_bn8jtcsc_.bkp
channel ORA_DISK_1: piece handle=/tmp/2015_05_02/ol_mf_nnndf_TAG20150502T112355_bn8jtcsc_.bkp tag=TAG20150502T112355
channel ORA_DISK_1: restored backup piece 1
channel ORA_DISK_1: restore complete, elapsed time: 00:00:25
Finished restore at 02-MAY-15
```

RMAN> **recover database;**

```
Starting recover at 02-MAY-15
using channel ORA_DISK_1
datafile 5 not processed because file is read-only
```

starting media recovery

```
channel ORA_DISK_1: starting archived log restore to default destination
channel ORA_DISK_1: restoring archived log
archived log thread=1 sequence=15
channel ORA_DISK_1: reading from backup piece /tmp/2015_05_02/ol_mf_annnn_TAG20150502T113152_bn8k98y5_.bkp
channel ORA_DISK_1: piece handle=/tmp/2015_05_02/ol_mf_annnn_TAG20150502T113152_bn8k98y5_.bkp tag=TAG20150502T113152
channel ORA_DISK_1: restored backup piece 1
channel ORA_DISK_1: restore complete, elapsed time: 00:00:01
archived log file name=/u02/app/oracle/flash_recovery_area/ORA11G/archivelog/2015_05_02/ol_mf_1_15_bn8ro53m_.arc thread=1 sequence=15
channel default: deleting archived log(s)
archived log file name=/u02/app/oracle/flash_recovery_area/ORA11G/archivelog/2015_05_02/ol_mf_1_15_bn8ro53m_.arc RECID=10 STAMP=878650661
unable to find archived log
archived log thread=1 sequence=16
RMAN-00571: =====
RMAN-00569: ===== ERROR MESSAGE STACK FOLLOWS =====
RMAN-00571: =====
RMAN-03002: failure of recover command at 05/02/2015 13:37:42
RMAN-06054: media recovery requesting unknown archived log for thread 1 with sequence 16 and starting SCN of 1145812
```

RMAN> **recover database until sequence 16;**

```
Starting recover at 02-MAY-15
using channel ORA_DISK_1
datafile 5 not processed because file is read-only
```

```
starting media recovery
media recovery complete, elapsed time: 00:00:00
```

Finished recover at 02-MAY-15

RMAN> **alter database open resetlogs;**

database opened

RMAN> exit

```
Recovery Manager complete.
[oracle@orcltest dbs]$ sqlplus / as sysdba
```

SQL*Plus: Release 11.2.0.3.0 Production on Sat May 2 13:40:07 2015

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```
Connected to:
Oracle Database 11g Enterprise Edition Release 11.2.0.3.0 - 64bit Production
With the Partitioning, OLAP, Data Mining and Real Application Testing options
```

```
SQL> select count(1) from lhr.test;

COUNT(1)
-----
      75204

SQL>
```

OK，一切搞定，其他的后续工作别忘记了。

②、 方法二：采用临时库的控制文件，或者备份片段中没有控制文件的备份

如果采用临时库的控制文件来还原数据库的，会出现这样的问题：

```

RMAN> restore database;

Starting restore at 02-MAY-15
using target database control file instead of recovery catalog
allocated channel: ORA_DISK_1
channel ORA_DISK_1: SID=134 device type=DISK


RMAN-00571: =====
RMAN-00569: ===== ERROR MESSAGE STACK FOLLOWS =====
RMAN-00571: =====
RMAN-03002: failure of restore command at 05/02/2015 13:48:39
RMAN-06026: some targets not found - aborting restore
RMAN-06023: no backup or copy of datafile 5 found to restore
RMAN-06023: no backup or copy of datafile 4 found to restore
RMAN-06023: no backup or copy of datafile 3 found to restore
RMAN-06023: no backup or copy of datafile 2 found to restore
RMAN-06023: no backup or copy of datafile 1 found to restore


RMAN> list backupset;

using target database control file instead of recovery catalog


List of Backup Sets
=====

BS Key   Size       Device Type Elapsed Time Completion Time
-----
1        9.00K      DISK        00:00:00      02-MAY-15
        BP Key: 1   Status: AVAILABLE Compressed: NO Tag: TAG20150502T113152
        Piece Name: /tmp/2015_05_02/o1_mf_annnn_TAG20150502T113152_bn8k98y5_.bkp


        List of Archived Logs in backup set 1
        Thrd Seq       Low SCN       Low Time      Next SCN      Next Time
        -----
        1      15        1145640       02-MAY-15    1145812       02-MAY-15


BS Key   Type LV Size       Device Type Elapsed Time Completion Time
-----
2        Full  235.99M  DISK        00:00:00      02-MAY-15
        BP Key: 2   Status: AVAILABLE Compressed: NO Tag: TAG20150502T105103
        Piece Name: /tmp/2015_05_02/o1_mf_nnndf_TAG20150502T105103_bn8gxdob_.bkp
        List of Datafiles in backup set 2
        File LV Type Ckp SCN       Ckp Time      Name
        ----
        1        Full 1122334 02-MAY-15 /u02/app/oracle/oradata/orcltest/system01.dbf
        2        Full 1122334 02-MAY-15 /u02/app/oracle/oradata/orcltest/sysaux01.dbf
```


| | | | | |
|---|------|---------|-----------|--|
| 3 | Full | 1122334 | 02-MAY-15 | /u02/app/oracle/oradata/orcltest/undotbs01.dbf |
| 4 | Full | 1122334 | 02-MAY-15 | /u02/app/oracle/oradata/orcltest/users01.dbf |
| 5 | Full | 1092435 | 30-APR-15 | /u02/app/oracle/oradata/orcltest/example01.dbf |

| BS Key | Type | LV | Size | Device | Type | Elapsed Time | Completion Time |
|---|------|------|-------|---------|-----------|--|-----------------|
| 3 | Full | | 1.07G | DISK | | 00:00:00 | 02-MAY-15 |
| BP Key: 3 Status: AVAILABLE Compressed: NO Tag: TAG20150502T112355 | | | | | | | |
| Piece Name: /tmp/2015_05_02/o1_mf_nnndf_TAG20150502T112355_bn8jtcsc_.bkp | | | | | | | |
| List of Datafiles in backup set 3 | | | | | | | |
| File | LV | Type | Ckp | SCN | Ckp Time | Name | |
| 1 | | Full | | 1145650 | 02-MAY-15 | /u02/app/oracle/oradata/orcltest/system01.dbf | |
| 2 | | Full | | 1145650 | 02-MAY-15 | /u02/app/oracle/oradata/orcltest/sysaux01.dbf | |
| 3 | | Full | | 1145650 | 02-MAY-15 | /u02/app/oracle/oradata/orcltest/undotbs01.dbf | |
| 4 | | Full | | 1145650 | 02-MAY-15 | /u02/app/oracle/oradata/orcltest/users01.dbf | |
| 5 | | Full | | 1092435 | 30-APR-15 | /u02/app/oracle/oradata/orcltest/example01.dbf | |

| BS Key | Size | Device | Type | Elapsed Time | Completion Time |
|---|-------|---------|-----------|--------------|-----------------|
| 4 | 9.80M | DISK | | 00:00:00 | 02-MAY-15 |
| BP Key: 4 Status: AVAILABLE Compressed: NO Tag: TAG20150502T112352 | | | | | |
| Piece Name: /tmp/2015_05_02/o1_mf_annnn_TAG20150502T112352_bn8jt975_.bkp | | | | | |
| List of Archived Logs in backup set 4 | | | | | |
| Thrd | Seq | Low SCN | Low Time | Next SCN | Next Time |
| 1 | 13 | 1122206 | 02-MAY-15 | 1145003 | 02-MAY-15 |
| 1 | 14 | 1145003 | 02-MAY-15 | 1145640 | 02-MAY-15 |

| BS Key | Type | LV | Size | Device | Type | Elapsed Time | Completion Time |
|---|------|----|-------|--------|------|--------------|-----------------|
| 5 | Full | | 9.36M | DISK | | 00:00:00 | 02-MAY-15 |
| BP Key: 5 Status: AVAILABLE Compressed: NO Tag: TAG20150502T112355 | | | | | | | |
| Piece Name: /tmp/2015_05_02/o1_mf_ncsnf_TAG20150502T112355_bn8k97pm_.bkp | | | | | | | |
| SPFILE Included: Modification time: 02-MAY-15 | | | | | | | |
| SPFILE db_unique_name: ORA11G | | | | | | | |
| Control File Included: Ckp SCN: 1145807 Ckp time: 02-MAY-15 | | | | | | | |

RMAN>

虽然能用 `list backup` 命令看到相关数据文件的元数据信息，但是执行 `restore database` 却无法找到相应数据文件的备份，这时可以用到强大的 `DBMS_BACKUP_RESTORE` 包执行恢复操作，执行如下 PL/SQL 命令，注意如果同一个数据文件在多个备份集中，只写一个备份集名称即可：

```
SQL> DECLARE
2   devtype varchar2(256);
3   done boolean;
4   BEGIN
5   devtype:=sys.dbms_backup_restore.deviceAllocate (type=>'',ident=>'t1');
6   sys.dbms_backup_restore.restoreSetDatafile;
7   sys.dbms_backup_restore.restoreDatafileTo(dfnumber=>01,toname=>'/u02/app/oracle/oradata/orcltest/system01.dbf');
8   sys.dbms_backup_restore.restoreDatafileTo(dfnumber=>02,toname=>'/u02/app/oracle/oradata/orcltest/sysaux01.dbf');
9   sys.dbms_backup_restore.restoreDatafileTo(dfnumber=>03,toname=>'/u02/app/oracle/oradata/orcltest/undotbs01.dbf');
10  sys.dbms_backup_restore.restoreDatafileTo(dfnumber=>04,toname=>'/u02/app/oracle/oradata/orcltest/users01.dbf');
11  sys.dbms_backup_restore.restoreDatafileTo(dfnumber=>05,toname=>'/u02/app/oracle/oradata/orcltest/example01.dbf');
12  sys.dbms_backup_restore.restoreBackupPiece(done=>done,handle=>'/tmp/2015_05_02/o1_mf_nnndf_TAG20150502T112355_bn8jtcsc_.bkp', params=>null);
13  sys.dbms_backup_restore.deviceDeallocate;
14  END;
15  /
```

PL/SQL procedure successfully completed.

```
[oracle@orcltest orcltest]$ ll -h
total 1.7G
-rw-r----- 1 oracle oinstall 9.3M May  2 14:00 control01.ctl
-rw-r----- 1 oracle oinstall 314M May  2 13:59 example01.dbf
-rw-r----- 1 oracle oinstall 551M May  2 13:59 sysaux01.dbf
-rw-r----- 1 oracle oinstall 721M May  2 13:59 system01.dbf
-rw-r----- 1 oracle oinstall  96M May  2 13:58 undotbs01.dbf
-rw-r----- 1 oracle oinstall  16M May  2 13:58 users01.dbf
[oracle@orcltest orcltest]$
```

好，我们看到数据文件已经到位，接下来就是 **recover** 操作了。

```

RMAN> recover database;

Starting recover at 02-MAY-15
allocated channel: ORA_DISK_1
channel ORA_DISK_1: SID=134 device type=DISK


starting media recovery
media recovery failed
RMAN-00571: =====
RMAN-00569: ===== ERROR MESSAGE STACK FOLLOWS =====
RMAN-00571: =====
RMAN-03002: failure of recover command at 05/02/2015 14:01:45
ORA-00283: recovery session canceled due to errors
RMAN-11003: failure during parse/execution of SQL statement: alter database recover if needed
  start
ORA-00283: recovery session canceled due to errors
ORA-19909: datafile 1 belongs to an orphan incarnation
ORA-01110: data file 1: '/u02/app/oracle/oradata/orcltest/system01.dbf'


RMAN> list incarnation of database;

List of Database Incarnations
DB Key  Inc Key DB Name  DB ID          STATUS  Reset SCN  Reset Time
-----
1        1      ORA11G   4270446895     PARENT  995548    02-MAY-15
3        3      ORA11G   4270446895     ORPHAN  995548    13-MAR-15
2        2      ORA11G   4270446895     CURRENT 1091863    02-MAY-15


RMAN> reset database to incarnation 3;

database reset to incarnation 3


RMAN> list incarnation of database;

List of Database Incarnations
DB Key  Inc Key DB Name  DB ID          STATUS  Reset SCN  Reset Time
-----
1        1      ORA11G   4270446895     ORPHAN  995548    02-MAY-15
3        3      ORA11G   4270446895     CURRENT 995548    13-MAR-15
2        2      ORA11G   4270446895     ORPHAN  1091863    02-MAY-15


RMAN> recover database;

Starting recover at 02-MAY-15
using channel ORA_DISK_1


starting media recovery
media recovery failed
```

```

RMAN-00571: =====
RMAN-00569: ===== ERROR MESSAGE STACK FOLLOWS =====
RMAN-00571: =====
RMAN-03002: failure of recover command at 05/02/2015 14:07:33
ORA-00283: recovery session canceled due to errors
RMAN-11003: failure during parse/execution of SQL statement: alter database recover if needed
start
ORA-00283: recovery session canceled due to errors
ORA-01206: file is not part of this database - wrong database id
ORA-01110: data file 5: '/u02/app/oracle/oradata/orcltest/example01.dbf'

[oracle@orcltest ~]$ oerr ora 1206
01206, 00000, "file is not part of this database - wrong database id"
// *Cause: The database ID in the file header does not match the database id
//          in the control file. The file may be from a different database, or
//          it may not be a database file at all. If the database was rebuilt,
//          this may be a file from before the rebuild. Note that if you see
//          this error when the file is supposed to be plugged in from another
//          database via the Transportable Tablespace feature, it means the
//          database ID in the file header does not match the one expected.
// *Action: Restore a copy of the correct data file and do recovery as needed.
[oracle@orcltest ~]$
```

查了下资料发现：

ORA-01110: data file 9: 'H:xxxxxxxx.dbf'

ORA-01206: file is not part of this database - wrong database id

Datafile 9 was a read-only tablespace, and the source database was actually created with RMAN DUPLICATE. Datafile 9 was read-only during that duplicate operation, and the status hadn’ t changed since then. As you can imagine, the read-only datafiles were not changed and their headers still contained the DBID of the database that was the source of the RMAN DUPLICATE. A similar situation could probably happen if tablespaces were imported using transportable tablespaces feature, and left read only.

The fix in this case is to make tablespaces read-write for a moment, and then change back to read-only. The read-write operation will write new datafile headers and, consequently, put there the “ right ” DBID. IMPORTANT — this has to be done before backup and not after a disaster strikes. This case just emphasizes again the most important rule of any backup/recovery strategy is to do regular test-restores.

If it’ s too late and something hit the fan — well, you probably have a chance to offline drop those tablespaces and, hopefully, be able to import them back, if those are transportable tablespaces, and the metadata dump file is still available.

Another idea would be to offline datafiles and then online them after OPEN RESETLOGS. Should someone try that — let us know if it works

知道了，原来 example 表空间是只读的，这个有点麻烦了，本来没有只读文件的话， **直接 recover 做不完全恢复就 O K 了**，这样一来我们就必须重建控制文件了，这里如果没有只读文件的话直接 r e c o v e r 就可以成功了。

```

SQL> alter database backup controlfile to trace as '/tmp/aab.txt';

Database altered.

SQL>
```

拿出/tmp/aab.txt 中创建控制文件的部分，直接在 n o m o u n t 下创建控制文件， **注意这里去掉只读数据文件，关于只读数据文件的处理参考：<http://blog.itpub.net/26736162/viewspace-1425283/>**：

```

STARTUP NOMOUNT
CREATE CONTROLFILE REUSE DATABASE "ORA11G" RESETLOGS  ARCHIVELOG
    MAXLOGFILES 16
    MAXLOGMEMBERS 3
    MAXDATAFILES 100
```

```

    MAXINSTANCES 8
    MAXLOGHISTORY 292
LOGFILE
GROUP 1 '/u02/app/oracle/oradata/orcltest/redo01.log'  SIZE 50M BLOCKSIZE 512,
GROUP 2 '/u02/app/oracle/oradata/orcltest/redo02.log'  SIZE 50M BLOCKSIZE 512,
GROUP 3 '/u02/app/oracle/oradata/orcltest/redo03.log'  SIZE 50M BLOCKSIZE 512
-- STANDBY LOGFILE
DATAFILE
'/u02/app/oracle/oradata/orcltest/system01.dbf',
'/u02/app/oracle/oradata/orcltest/sysaux01.dbf',
'/u02/app/oracle/oradata/orcltest/undotbs01.dbf',
'/u02/app/oracle/oradata/orcltest/users01.dbf'
-- '/u02/app/oracle/oradata/orcltest/example01.dbf'
CHARACTER SET ZHS16GBK
;
```

```
[oracle@orcltest ~]$ sqlplus / as sysdba

SQL*Plus: Release 11.2.0.3.0 Production on Sat May 2 14:52:41 2015

Copyright (c) 1982, 2011, Oracle. All rights reserved.

Connected to an idle instance.

SQL>
SQL> STARTUP NOMOUNT
CREATE CONTROLFILE REUSE DATABASE "ORA11G" RESETLOGS ARCHIVELOG
    MAXLOGFILES 16
    MAXLOGMEMBERS 3
    MAXDATAFILES 100
    MAXINSTANCES 8
    MAXLOGHISTORY 292
LOGFILE
GROUP 1 '/u02/app/oracle/oradata/orcltest/redo01.log'  SIZE 50M BLOCKSIZE 512,
GROUP 2 '/u02/app/oracle/oradata/orcltest/redo02.log'  SIZE 50M BLOCKSIZE 512,
GROUP 3 '/u02/app/oracle/oradata/orcltest/redo03.log'  SIZE 50M BLOCKSIZE 512
-- STANDBY LOGFILE
DATAFILE
'/u02/app/oracle/oradata/orcltest/system01.dbf',
'/u02/app/oracle/oradata/orcltest/sysaux01.dbf',
'/u02/app/oracle/oradata/orcltest/undotbs01.dbf',
'/u02/app/oracle/oradata/orcltest/users01.dbf'
CHARACTER SET ZHS16GBK
;
ORACLE instance started.

Total System Global Area  409194496 bytes
Fixed Size                  2228864 bytes
Variable Size              272633216 bytes
Database Buffers           125829120 bytes
Redo Buffers                 8503296 bytes
SQL>  2    3    4    5    6    7    8    9   10   11   12   13   14   15   16   17   18

Control file created.

SQL> SQL>
SQL>
SQL>
SQL>
SQL> exit
Disconnected from Oracle Database 11g Enterprise Edition Release 11.2.0.3.0 - 64bit Production
With the Partitioning, OLAP, Data Mining and Real Application Testing options
[oracle@orcltest ~]$ rman target /

Recovery Manager: Release 11.2.0.3.0 - Production on Sat May 2 14:53:01 2015
```

Copyright (c) 1982, 2011, Oracle and/or its affiliates. All rights reserved.

connected to target database: ORA11G (DBID=4270446895, not open)

RMAN> catalog start with '/tmp/2015_05_02/';

using target database control file instead of recovery catalog
searching for all files that match the pattern /tmp/2015_05_02/

List of Files Unknown to the Database

=====

File Name: /tmp/2015_05_02/o1_mf_annnn_TAG20150502T113152_bn8k98y5_.bkp
File Name: /tmp/2015_05_02/o1_mf_nnndf_TAG20150502T105103_bn8gxdob_.bkp
File Name: /tmp/2015_05_02/cont.ctl
File Name: /tmp/2015_05_02/o1_mf_nnndf_TAG20150502T112355_bn8jtcsc_.bkp
File Name: /tmp/2015_05_02/o1_mf_annnn_TAG20150502T112352_bn8jt975_.bkp
File Name: /tmp/2015_05_02/o1_mf_ncsnf_TAG20150502T112355_bn8k97pm_.bkp

Do you really want to catalog the above files (enter YES or NO)? yes
cataloging files...
cataloging done

List of Cataloged Files

=====

File Name: /tmp/2015_05_02/o1_mf_annnn_TAG20150502T113152_bn8k98y5_.bkp
File Name: /tmp/2015_05_02/o1_mf_nnndf_TAG20150502T105103_bn8gxdob_.bkp
File Name: /tmp/2015_05_02/cont.ctl
File Name: /tmp/2015_05_02/o1_mf_nnndf_TAG20150502T112355_bn8jtcsc_.bkp
File Name: /tmp/2015_05_02/o1_mf_annnn_TAG20150502T112352_bn8jt975_.bkp
File Name: /tmp/2015_05_02/o1_mf_ncsnf_TAG20150502T112355_bn8k97pm_.bkp

RMAN> list backupset;

List of Backup Sets

| ===== | | | | | |
|--------|---|-------------|--------------|---------------------|--|
| BS Key | Size | Device Type | Elapsed Time | Completion Time | |
| ----- | | | | | |
| 1 | 9.00K | DISK | 00:00:00 | 2015-05-02 11:31:52 | |
| | BP Key: 1 Status: AVAILABLE Compressed: NO Tag: TAG20150502T113152 | | | | |
| | Piece Name: /tmp/2015_05_02/o1_mf_annnn_TAG20150502T113152_bn8k98y5_.bkp | | | | |

| List of Archived Logs in backup set 1 | | | | | |
|---------------------------------------|-----|---------|---------------------|----------|---------------------|
| Thrd | Seq | Low SCN | Low Time | Next SCN | Next Time |
| ----- | | | | | |
| 1 | 15 | 1145640 | 2015-05-02 11:23:48 | 1145812 | 2015-05-02 11:31:52 |

| BS Key | Type | LV | Size | Device Type | Elapsed Time | Completion Time |
|---|------|------|---------|---------------------|--|---------------------|
| ----- | | | | | | |
| 2 | Full | | 235.99M | DISK | 00:00:00 | 2015-05-02 10:51:03 |
| BP Key: 2 Status: AVAILABLE Compressed: NO Tag: TAG20150502T105103 | | | | | | |
| Piece Name: /tmp/2015_05_02/o1_mf_nnndf_TAG20150502T105103_bn8gxdob_.bkp | | | | | | |
| List of Datafiles in backup set 2 | | | | | | |
| File | LV | Type | Ckp SCN | Ckp Time | Name | |
| ----- | | | | | | |
| 1 | Full | | 1122334 | 2015-05-02 10:51:03 | /u02/app/oracle/oradata/orcltest/system01.dbf | |
| 2 | Full | | 1122334 | 2015-05-02 10:51:03 | /u02/app/oracle/oradata/orcltest/sysaux01.dbf | |
| 3 | Full | | 1122334 | 2015-05-02 10:51:03 | /u02/app/oracle/oradata/orcltest/undotbs01.dbf | |
| 4 | Full | | 1122334 | 2015-05-02 10:51:03 | /u02/app/oracle/oradata/orcltest/users01.dbf | |
| 5 | Full | | 1092435 | 2015-04-30 15:42:04 | | |

| BS Key | Type | LV | Size | Device Type | Elapsed Time | Completion Time |
|--------|------|----|-------|-------------|--------------|---------------------|
| ----- | | | | | | |
| 3 | Full | | 1.07G | DISK | 00:00:00 | 2015-05-02 11:23:55 |

```
BP Key: 3   Status: AVAILABLE   Compressed: NO   Tag: TAG20150502T112355
Piece Name: /tmp/2015_05_02/o1_mf_nnndf_TAG20150502T112355_bn8jtcsc_.bkp
List of Datafiles in backup set 3
File LV Type Ckp SCN      Ckp Time              Name
-----
1      Full 1145650   2015-05-02 11:23:55 /u02/app/oracle/oradata/orcltest/system01.dbf
2      Full 1145650   2015-05-02 11:23:55 /u02/app/oracle/oradata/orcltest/sysaux01.dbf
3      Full 1145650   2015-05-02 11:23:55 /u02/app/oracle/oradata/orcltest/undotbs01.dbf
4      Full 1145650   2015-05-02 11:23:55 /u02/app/oracle/oradata/orcltest/users01.dbf
5      Full 1092435   2015-04-30 15:42:04

BS Key   Size      Device Type Elapsed Time Completion Time
-----
4        9.80M      DISK          00:00:00      2015-05-02 11:23:53
BP Key: 4   Status: AVAILABLE   Compressed: NO   Tag: TAG20150502T112352
Piece Name: /tmp/2015_05_02/o1_mf_annnn_TAG20150502T112352_bn8jt975_.bkp

List of Archived Logs in backup set 4
Thrd Seq      Low SCN      Low Time              Next SCN      Next Time
-----
1     13        1122206      2015-05-02 10:50:47 1145003        2015-05-02 11:21:26
1     14        1145003      2015-05-02 11:21:26 1145640        2015-05-02 11:23:48

BS Key   Type LV Size      Device Type Elapsed Time Completion Time
-----
5        Full   9.36M      DISK          00:00:00      2015-05-02 11:31:50
BP Key: 5   Status: AVAILABLE   Compressed: NO   Tag: TAG20150502T112355
Piece Name: /tmp/2015_05_02/o1_mf_ncsnf_TAG20150502T112355_bn8k97pm_.bkp
SPFILE Included: Modification time: 2015-05-02 11:21:13
SPFILE db_unique_name: ORA11G
Control File Included: Ckp SCN: 1145807      Ckp time: 2015-05-02 11:31:50

RMAN> recover database;

Starting recover at 2015-05-02 14:58:31
using channel ORA_DISK_1

starting media recovery

channel ORA_DISK_1: starting archived log restore to default destination
channel ORA_DISK_1: restoring archived log
archived log thread=1 sequence=15
channel ORA_DISK_1: reading from backup piece /tmp/2015_05_02/o1_mf_annnn_TAG20150502T113152_bn8k98y5_.bkp
channel ORA_DISK_1: piece handle=/tmp/2015_05_02/o1_mf_annnn_TAG20150502T113152_bn8k98y5_.bkp tag=TAG20150502T113152
channel ORA_DISK_1: restored backup piece 1
channel ORA_DISK_1: restore complete, elapsed time: 00:00:01
archived log file name=/u02/app/oracle/flash_recovery_area/ORA11G/archivelog/2015_05_02/o1_mf_1_15_bn8xdzo2_.arc thread=1 sequence=15
channel default: deleting archived log(s)
archived log file name=/u02/app/oracle/flash_recovery_area/ORA11G/archivelog/2015_05_02/o1_mf_1_15_bn8xdzo2_.arc RECID=1 STAMP=878655519
unable to find archived log
archived log thread=1 sequence=16
RMAN-00571: =====
RMAN-00569: ===== ERROR MESSAGE STACK FOLLOWS =====
RMAN-00571: =====
RMAN-03002: failure of recover command at 05/02/2015 14:58:46
RMAN-06054: media recovery requesting unknown archived log for thread 1 with sequence 16 and starting SCN of 1145812

RMAN> recover database until sequence 16;

Starting recover at 2015-05-02 14:59:16
using channel ORA_DISK_1

starting media recovery
media recovery complete, elapsed time: 00:00:01

Finished recover at 2015-05-02 14:59:19
```

```
RMAN> alter database open resetlogs;

database opened

RMAN> exit

Recovery Manager complete.
```

r e c o v e r 过程中的告警日志:

```
Sat May 02 15:00:37 2015
[20103] Successfully onlined Undo Tablespace 2.
Undo initialization finished serial:0 start:13457914 end:13468244 diff:10330 (103 seconds)
Dictionary check beginning
Tablespace 'TEMP' #3 found in data dictionary,
but not in the controlfile. Adding to controlfile.
Tablespace 'EXAMPLE' #6 found in data dictionary,
but not in the controlfile. Adding to controlfile.
File #5 found in data dictionary but not in controlfile.
Creating OFFLINE file 'MISSING00005' in the controlfile.
Dictionary check complete
Verifying file header compatibility for 11g tablespace encryption..
Verifying 11g file header compatibility for tablespace encryption completed
Sat May 02 15:00:39 2015
SMON: enabling tx recovery
*****
WARNING: The following temporary tablespaces contain no files.
      This condition can occur when a backup controlfile has
      been restored.  It may be necessary to add files to these
      tablespaces.  That can be done using the SQL statement:

      ALTER TABLESPACE <tablespace_name> ADD TEMPFILE

Alternatively, if these temporary tablespaces are no longer
needed, then they can be dropped.
      Empty temporary tablespace: TEMP
*****
Database Characterset is ZHS16GBK
Sat May 02 15:00:55 2015
No Resource Manager plan active
*****
WARNING: Files may exists in db_recovery_file_dest
that are not known to the database. Use the RMAN command
CATALOG RECOVERY AREA to re-catalog any such files.
If files cannot be cataloged, then manually delete them
using OS command.
One of the following events caused this:
```

- 1. A backup controlfile was restored.
- 2. A standby controlfile was restored.
- 3. The controlfile was re-created.
- 4. db_recovery_file_dest had previously been enabled and then disabled.

replication_dependency_tracking turned off (no async multimaster replication found)

Sat May 02 15:01:31 2015
Errors in file /u02/app/oracle/diag/rdbms/ora11g/ORA11G/trace/ORA11G_ora_20103.trc (incident=13353):
ORA-25319: Queue table repartitioning aborted
Sat May 02 15:01:31 2015
Checker run found 2 new persistent data failures
Incident details in: /u02/app/oracle/diag/rdbms/ora11g/ORA11G/incident/incdir_13353/ORA11G_ora_20103_i13353.trc
Sat May 02 15:01:48 2015
Dumping diagnostic data in directory=[cdmp_20150502150148], requested by (instance=1, osid=20103), summary=[incident=13353].
Sat May 02 15:01:50 2015
error 25319 happened during Queue table repartitioning
Starting background process QMNC
Sat May 02 15:01:50 2015
QMNC started with pid=26, OS id=20168
LOGSTDBY: Validating controlfile with logical metadata
LOGSTDBY: Validation complete
Sat May 02 15:02:03 2015
Sweep [inc][13353]: completed
Sweep [inc2][13353]: completed
Sat May 02 15:02:24 2015
Completed: alter database open resetlogs
Sat May 02 15:02:24 2015
Errors in file /u02/app/oracle/diag/rdbms/ora11g/ORA11G/trace/ORA11G_mmon_20057.trc (incident=13321):
ORA-25319: Queue table repartitioning aborted
Incident details in: /u02/app/oracle/diag/rdbms/ora11g/ORA11G/incident/incdir_13321/ORA11G_mmon_20057_i13321.trc
error 25319 happened during Queue table repartitioning
Sat May 02 15:02:26 2015
Dumping diagnostic data in directory=[cdmp_20150502150226], requested by (instance=1, osid=20057 (MMON)), summary=[incident=13321].
Sat May 02 15:02:36 2015
db_recovery_file_dest_size of 4122 MB is 0.00% used. This is a user-specified limit on the amount of space that will be used by this database for recovery-related files, and does not reflect the amount of space available in the underlying filesystem or ASM diskgroup.
Sat May 02 15:02:39 2015
Starting background process CJQ0
Sat May 02 15:02:39 2015
CJQ0 started with pid=30, OS id=20198
Sat May 02 15:02:44 2015

http://blog.itpub.net/26736162

Errors in file /u02/app/oracle/diag/rdbms/ora11g/ORA11G/trace/ORA11G_m000_20194.trc:
ORA-25153: Temporary Tablespace is Empty
Setting Resource Manager plan SCHEDULER[0x318E]:DEFAULT_MAINTENANCE_PLAN via scheduler window
Setting Resource Manager plan DEFAULT_MAINTENANCE_PLAN via parameter
Sat May 02 15:02:46 2015
Starting background process VKRM
Sat May 02 15:02:46 2015
VKRM started with pid=20, OS id=20204
Sat May 02 15:02:57 2015
Sweep [inc][13321]: completed
Sweep [inc2][13321]: completed

O K，基本恢复完成，还剩下只读文件了，我们看看只读文件如何恢复：

```
[oracle@orcltest ~]$ sqlplus / as sysdba

SQL*Plus: Release 11.2.0.3.0 Production on Sat May 2 15:02:33 2015

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Connected to:
Oracle Database 11g Enterprise Edition Release 11.2.0.3.0 - 64bit Production
With the Partitioning, OLAP, Data Mining and Real Application Testing options

SQL> set line 9999 pagesize 9999
SQL> col FILE_NAME format a50
SQL> select file#,name FILE_NAME,status from v$datafile;

FILE# FILE_NAME STATUS
-----
1 /u02/app/oracle/oradata/orcltest/system01.dbf SYSTEM
2 /u02/app/oracle/oradata/orcltest/sysaux01.dbf ONLINE
3 /u02/app/oracle/oradata/orcltest/undotbs01.dbf ONLINE
4 /u02/app/oracle/oradata/orcltest/users01.dbf ONLINE
5 /u02/app/oracle/product/11.2.0/dbhome_1/dbs/MISSIN OFFLINE
G00005

SQL> alter database rename file '/u02/app/oracle/product/11.2.0/dbhome_1/dbs/MISSING00005' to '/u02/app/oracle/oradata/orcltest/example01.dbf';

Database altered.

SQL> set line 9999 pagesize 9999
SQL> col FILE_NAME format a50
SQL> select file#,name FILE_NAME,status from v$datafile;

FILE# FILE_NAME STATUS
-----
1 /u02/app/oracle/oradata/orcltest/system01.dbf SYSTEM
2 /u02/app/oracle/oradata/orcltest/sysaux01.dbf ONLINE
3 /u02/app/oracle/oradata/orcltest/undotbs01.dbf ONLINE
4 /u02/app/oracle/oradata/orcltest/users01.dbf ONLINE
5 /u02/app/oracle/oradata/orcltest/example01.dbf OFFLINE

SQL> select FILE_NAME,FILE_ID,a.TABLESPACE_NAME, b.status ts_status ,BYTES from dba_data_files a,dba_tablespaces b where a.TABLESPACE_NAME=b.TABLESPACE_NAME;

FILE_NAME FILE_ID TABLESPACE_NAME TS_STATUS BYTES
-----
/u02/app/oracle/oradata/orcltest/users01.dbf 4 USERS ONLINE 15728640
```

http://blog.itpub.net/26736162

```
/u02/app/oracle/oradata/orcltest/undotbs01.dbf      3 UNDOTBS1      ONLINE      99614720
/u02/app/oracle/oradata/orcltest/sysaux01.dbf      2 SYSAUX        ONLINE      576716800
/u02/app/oracle/oradata/orcltest/system01.dbf      1 SYSTEM        ONLINE      754974720
/u02/app/oracle/oradata/orcltest/example01.dbf     5 EXAMPLE      READ ONLY

SQL> alter tablespace EXAMPLE online;

Tablespace altered.

SQL> select file#,name FILE_NAME,status from v$datafile;

  FILE# FILE_NAME                                     STATUS
-----
1 /u02/app/oracle/oradata/orcltest/system01.dbf      SYSTEM
2 /u02/app/oracle/oradata/orcltest/sysaux01.dbf      ONLINE
3 /u02/app/oracle/oradata/orcltest/undotbs01.dbf      ONLINE
4 /u02/app/oracle/oradata/orcltest/users01.dbf       ONLINE
5 /u02/app/oracle/oradata/orcltest/example01.dbf      ONLINE

SQL> select FILE_NAME,FILE_ID,a.TABLESPACE_NAME, b.status ts_status ,BYTES from dba_data_files a,dba_tablespaces b where a.TABLESPACE_NAME=b.TABLESPACE_NAME;

FILE_NAME                                     FILE_ID TABLESPACE_NAME      TS_STATUS      BYTES
-----
/u02/app/oracle/oradata/orcltest/users01.dbf      4 USERS        ONLINE      15728640
/u02/app/oracle/oradata/orcltest/undotbs01.dbf      3 UNDOTBS1      ONLINE      99614720
/u02/app/oracle/oradata/orcltest/sysaux01.dbf      2 SYSAUX        ONLINE      576716800
/u02/app/oracle/oradata/orcltest/system01.dbf      1 SYSTEM        ONLINE      754974720
/u02/app/oracle/oradata/orcltest/example01.dbf     5 EXAMPLE      READ ONLY    328335360

SQL> select count(1) from lhr.test;

COUNT(1)
-----
75204

SQL> exit
Disconnected from Oracle Database 11g Enterprise Edition Release 11.2.0.3.0 - 64bit Production
With the Partitioning, OLAP, Data Mining and Real Application Testing options
```

临时文件的处理：

```
SQL>
SQL> select * from v$tempfile;

no rows selected

SQL> create temporary tablespace TEMP01 tempfile '/u02/app/oracle/oradata/orcltest/temp01.dbf' size 100m autoextend on next 10m;

Tablespace created.

SQL> alter database default temporary tablespace temp01;

Database altered.

SQL>

SQL> col name for a100
SQL> select file#,name from v$tempfile;

FILE# NAME
```

```
-----
1 /u02/app/oracle/oradata/orcltest/temp01.dbf
SQL>
```

好了，至此我们就恢复了数据库了。

1.1.4 备份集中无控制文件情况下的数据库恢复

如果采用本文中所描述的 3 种方式均判断没有控制文件的备份的时候，那么我们唯一能做的就是重建控制文件了，而 resetlogs 方式重建控制文件之前需要控制文件脚本中的所有数据文件到位才能重建控制文件。

```
[root@orcltest 2015_05_02]# ll -h
total 1.2G
-rw-r----- 1 oracle oinstall 30M May  2 15:49 o1_mf_annnn_TAG20150502T154402_bn9022tb_.bkp
-rw-r----- 1 oracle oinstall 4.0K May  2 15:49 o1_mf_annnn_TAG20150502T154451_bn903mln_.bkp
-rw-r----- 1 oracle oinstall 1.1G May  2 15:49 o1_mf_nnndf_TAG20150502T154404_bn9025w1_.bkp

[root@orcltest 2015_05_02]# pwd
/tmp/2015_05_02

[oracle@orcltest dbs]$ cd $ORACLE_HOME/dbs
[oracle@orcltest dbs]$ more  inittmp.ora
db_name=tmp
[oracle@orcltest dbs]$ ORACLE_SID=tmp
[oracle@orcltest dbs]$ sqlplus / as sysdba

SQL*Plus: Release 11.2.0.1.0 Production on Sun May 3 14:45:45 2015

Copyright (c) 1982, 2009, Oracle.  All rights reserved.

Connected to an idle instance.

SQL> startup nomount;
ORACLE instance started.

Total System Global Area  217157632 bytes
Fixed Size                  2211928 bytes
Variable Size              159387560 bytes
Database Buffers           50331648 bytes
Redo Buffers                5226496 bytes
SQL> DECLARE
2   devtype varchar2(256);
3   done boolean;
4   BEGIN
5   devtype:=sys.dbms_backup_restore.deviceAllocate (type=>'',ident=>'t1');
6   sys.dbms_backup_restore.restoreSetDatafile;
7   sys.dbms_backup_restore.restoreDatafileTo(dfnumber=>01,toname=>'/tmp/2015_05_02/datafile1.dbf');
8   sys.dbms_backup_restore.restoreBackupPiece(done=>done,handle=>'/tmp/2015_05_02/o1_mf_nnndf_TAG20150502T154404_bn9025w1_.bkp', params=>null);
9   sys.dbms_backup_restore.deviceDeallocate;
10  END;
```

11 /

PL/SQL procedure successfully completed.

```
SQL> SQL> ! ls -lh /tmp/2015_05_02/
total 1.9G
-rw-r----- 1 oracle asmadmin 721M May  3 14:46 datafile1.dbf
-rw-r----- 1 oracle oinstall  30M May  2 15:49 ol_mf_annnn_TAG20150502T154402_bn9022tb_.bkp
-rw-r----- 1 oracle oinstall  4.0K May  2 15:49 ol_mf_annnn_TAG20150502T154451_bn903mln_.bkp
-rw-r----- 1 oracle oinstall  1.1G May  2 15:49 ol_mf_nnndf_TAG20150502T154404_bn9025w1_.bkp
```

```
SQL> CREATE CONTROLFILE REUSE DATABASE "tmp" NORESETLOGS ARCHIVELOG
  2  MAXLOGFILES 16
  3  MAXLOGMEMBERS 3
  4  MAXDATAFILES 100
  5  MAXINSTANCES 8
  6  MAXLOGHISTORY 292
  7  LOGFILE
  8  GROUP 1 ' /tmp/2015_05_02/redo01.log' SIZE 50M,
  9  GROUP 2 ' /tmp/2015_05_02/redo02.log' SIZE 50M
 10  DATAFILE
 11  ' /tmp/2015_05_02/datafile1.dbf'
 12  CHARACTER SET ZHS16GBK
 13  ;
CREATE CONTROLFILE REUSE DATABASE "tmp" NORESETLOGS ARCHIVELOG
*
ERROR at line 1:
ORA-01503: CREATE CONTROLFILE failed
ORA-01161: database name ORA11G in file header does not match given name of TMP
ORA-01110: data file 1: ' /tmp/2015_05_02/datafile1.dbf'
```

由此可以看出备份集中的 db_name 为 ORA11G，其实这些都是没有必要的，哪个 dba 不晓得数据库名呢？好吧，我们将 pfile 文件中的 db_name 修改一下，采用 RESETLOGS 创建控制文件，注意必须是 RESETLOGS，NORESETLOGS 需要 online log 文件在位，如下：

```
[oracle@orcltest dbs]$ more inittmp.ora
db_name=ORA11G
[oracle@orcltest dbs]$ echo $ORACLE_SID
tmp
[oracle@orcltest dbs]$ sqlplus / as sysdba

SQL*Plus: Release 11.2.0.1.0 Production on Sun May 3 14:56:44 2015

Copyright (c) 1982, 2009, Oracle.  All rights reserved.

Connected to an idle instance.

SQL> startup nomount;
ORACLE instance started.

Total System Global Area  217157632 bytes
Fixed Size                  2211928 bytes
Variable Size              159387560 bytes
Database Buffers           50331648 bytes
Redo Buffers                5226496 bytes

SQL> CREATE CONTROLFILE REUSE DATABASE "ORA11G" RESETLOGS DATAFILE ' /tmp/2015_05_02/datafile1.dbf' ;

Control file created.

SQL>
SQL> show parameter control_files

NAME                                TYPE                                VALUE
```

```
control_files          string          /u01/app/oracle/product/11.2.0
                        /dbhome_1/dbs/cntrltmp.dbf

SQL>

SQL> set line 9999 pagesize 9999
SQL> col FILE_NAME format a50
SQL> select file#,name FILE_NAME,status from v$datafile;
```

| FILE# | FILE_NAME | STATUS |
|-------|-------------------------------|--------|
| 1 | /tmp/2015_05_02/datafile1.dbf | SYSTEM |

```
SQL>
```

catalog 所有的 backuppiece

```
[oracle@orcltest dbs]$ rman target /

Recovery Manager: Release 11.2.0.1.0 - Production on Sun May 3 15:40:32 2015

Copyright (c) 1982, 2009, Oracle and/or its affiliates. All rights reserved.

connected to target database: ORA11G (DBID=4270446895, not open)

RMAN> list backupset;

using target database control file instead of recovery catalog
specification does not match any backup in the repository

RMAN> catalog start with '/tmp/2015_05_02/';

searching for all files that match the pattern /tmp/2015_05_02/

List of Files Unknown to the Database
=====
File Name: /tmp/2015_05_02/o1_mf_annnn_TAG20150502T154451_bn903mln_.bkp
File Name: /tmp/2015_05_02/o1_mf_annnn_TAG20150502T154402_bn9022tb_.bkp
File Name: /tmp/2015_05_02/o1_mf_nnndf_TAG20150502T154404_bn9025w1_.bkp

Do you really want to catalog the above files (enter YES or NO)? yes
cataloging files...
cataloging done

List of Cataloged Files
=====
File Name: /tmp/2015_05_02/o1_mf_annnn_TAG20150502T154451_bn903mln_.bkp
File Name: /tmp/2015_05_02/o1_mf_annnn_TAG20150502T154402_bn9022tb_.bkp
File Name: /tmp/2015_05_02/o1_mf_nnndf_TAG20150502T154404_bn9025w1_.bkp

RMAN>

RMAN> list backupset;

List of Backup Sets
=====

BS Key   Size       Device Type Elapsed Time Completion Time
-----
1        3.50K      DISK        00:00:00      2015-05-02 15:44:51
BP Key: 1  Status: AVAILABLE Compressed: NO  Tag: TAG20150502T154451
Piece Name: /tmp/2015_05_02/o1_mf_annnn_TAG20150502T154451_bn903mln_.bkp
```

```
List of Archived Logs in backup set 1
Thrd Seq      Low SCN      Low Time      Next SCN      Next Time
-----
1      17          1166181      2015-05-02 15:44:02 1166209      2015-05-02 15:44:51

BS Key  Size      Device Type Elapsed Time Completion Time
-----
2        29.82M    DISK          00:00:00      2015-05-02 15:44:02
BP Key: 2  Status: AVAILABLE Compressed: NO  Tag: TAG20150502T154402
Piece Name: /tmp/2015_05_02/o1_mf_annnn_TAG20150502T154402_bn9022tb_.bkp

List of Archived Logs in backup set 2
Thrd Seq      Low SCN      Low Time      Next SCN      Next Time
-----
1      16          1145812      2015-05-02 11:31:52 1166181      2015-05-02 15:44:02

BS Key  Type LV Size      Device Type Elapsed Time Completion Time
-----
3        Full   1.07G    DISK          00:00:00      2015-05-02 15:44:04
BP Key: 3  Status: AVAILABLE Compressed: NO  Tag: TAG20150502T154404
Piece Name: /tmp/2015_05_02/o1_mf_nnndf_TAG20150502T154404_bn9025w1_.bkp
List of Datafiles in backup set 3
File LV Type Ckp SCN      Ckp Time      Name
----
1      Full 1166189      2015-05-02 15:44:04 /tmp/2015_05_02/datafile1.dbf
2      Full 1166189      2015-05-02 15:44:04
3      Full 1166189      2015-05-02 15:44:04
4      Full 1166189      2015-05-02 15:44:04
5      Full 1166189      2015-05-02 15:44:04
6      Full 1166189      2015-05-02 15:44:04

RMAN>

RMAN> list backupset of spfile;

specification does not match any backup in the repository

RMAN> list backupset of controlfile;

specification does not match any backup in the repository

RMAN> list backupset of archive log all;

List of Backup Sets
=====

BS Key  Size      Device Type Elapsed Time Completion Time
-----
1        3.50K    DISK          00:00:00      2015-05-02 15:44:51
BP Key: 1  Status: AVAILABLE Compressed: NO  Tag: TAG20150502T154451
Piece Name: /tmp/2015_05_02/o1_mf_annnn_TAG20150502T154451_bn903mln_.bkp

List of Archived Logs in backup set 1
Thrd Seq      Low SCN      Low Time      Next SCN      Next Time
-----
1      17          1166181      2015-05-02 15:44:02 1166209      2015-05-02 15:44:51

BS Key  Size      Device Type Elapsed Time Completion Time
-----
2        29.82M    DISK          00:00:00      2015-05-02 15:44:02
BP Key: 2  Status: AVAILABLE Compressed: NO  Tag: TAG20150502T154402
Piece Name: /tmp/2015_05_02/o1_mf_annnn_TAG20150502T154402_bn9022tb_.bkp

List of Archived Logs in backup set 2
```

```
Thrd Seq      Low SCN      Low Time                Next SCN      Next Time
-----
1      16          1145812      2015-05-02 11:31:52 1166181      2015-05-02 15:44:02

RMAN> list backupset of database;

List of Backup Sets
=====

BS Key   Type LV Size       Device Type Elapsed Time Completion Time
-----
3        Full    1.07G      DISK        00:00:00     2015-05-02 15:44:04
        BP Key: 3   Status: AVAILABLE Compressed: NO  Tag: TAG20150502T154404
        Piece Name: /tmp/2015_05_02/ol_mf_nnndf_TAG20150502T154404_bn9025w1_.bkp
List of Datafiles in backup set 3
File LV Type Ckp SCN      Ckp Time                Name
-----
1        Full 1166189      2015-05-02 15:44:04 /tmp/2015_05_02/datafile1.dbf
2        Full 1166189      2015-05-02 15:44:04
3        Full 1166189      2015-05-02 15:44:04
4        Full 1166189      2015-05-02 15:44:04
5        Full 1166189      2015-05-02 15:44:04
6        Full 1166189      2015-05-02 15:44:04
```

由备份集我们可以看出，有 16 和 17 号的归档文件备份，有 6 个数据文件备份，这里我们使用 dbms_backup_restore package 来 restore datafile。请注意：datafile 的名字不重要，只要对于要恢复的 datafile，是唯一的名字即可。

```
[oracle@orcltest dbs]$ sqlplus / as sysdba

SQL*Plus: Release 11.2.0.1.0 Production on Sun May 3 15:59:43 2015

Copyright (c) 1982, 2009, Oracle. All rights reserved.

Connected to:
Oracle Database 11g Enterprise Edition Release 11.2.0.1.0 - 64bit Production
With the Partitioning, OLAP, Data Mining and Real Application Testing options

SQL>
SQL> DECLARE
2     devtype varchar2(256);
3     done boolean;
4     BEGIN
devtype := dbms_backup_restore.DeviceAllocate(type=>null, ident=>'d1');
6     dbms_backup_restore.RestoreSetDatafile;
7     --dbms_backup_restore.RestoreDatafileTo(dfnumber => 1, toname => '/tmp/2015_05_02/datafile1.dbf');
8     dbms_backup_restore.RestoreDatafileTo(dfnumber => 2, toname => '/tmp/2015_05_02/datafile2.dbf');
9     dbms_backup_restore.RestoreDatafileTo(dfnumber => 3, toname => '/tmp/2015_05_02/datafile3.dbf');
10    dbms_backup_restore.RestoreDatafileTo(dfnumber => 4, toname => '/tmp/2015_05_02/datafile4.dbf');
11    dbms_backup_restore.RestoreDatafileTo(dfnumber => 5, toname => '/tmp/2015_05_02/datafile5.dbf');
12    dbms_backup_restore.RestoreDatafileTo(dfnumber => 6, toname => '/tmp/2015_05_02/datafile6.dbf');
13    dbms_backup_restore.RestoreBackupPiece(done => done, handle => '/tmp/2015_05_02/ol_mf_nnndf_TAG20150502T154404_bn9025w1_.bkp', params => null);
14    dbms_backup_restore.DeviceDeallocate;
15    END;
16    /

PL/SQL procedure successfully completed.

SQL>
```

```
SQL> set line 9999 pagesize 9999
SQL> col FILE_NAME format a50
SQL> select file#,name FILE_NAME,status from v$datafile;

FILE# FILE_NAME STATUS
-----
1 /tmp/2015_05_02/datafile1.dbf SYSTEM

SQL> shutdown abort;
ORACLE instance shut down.
SQL>
```

告警日志:

```
Sun May 03 15:59:44 2015
Full restore complete of datafile 6 to datafile copy /tmp/2015_05_02/datafile6.dbf. Elapsed time: 0:00:00
checkpoint is 1166189
last deallocation scn is 995550
Full restore complete of datafile 4 to datafile copy /tmp/2015_05_02/datafile4.dbf. Elapsed time: 0:00:02
checkpoint is 1166189
last deallocation scn is 3
Full restore complete of datafile 3 to datafile copy /tmp/2015_05_02/datafile3.dbf. Elapsed time: 0:00:02
checkpoint is 1166189
last deallocation scn is 1157819
Undo Optimization current scn is 1157346
Sun May 03 16:00:30 2015
Full restore complete of datafile 5 to datafile copy /tmp/2015_05_02/datafile5.dbf. Elapsed time: 0:00:44
checkpoint is 1166189
last deallocation scn is 1015098
Sun May 03 16:01:03 2015
Full restore complete of datafile 2 to datafile copy /tmp/2015_05_02/datafile2.dbf. Elapsed time: 0:01:18
checkpoint is 1166189
last deallocation scn is 1090388
```

元数据显示只有 datafile 1，不奇怪，刚刚创建控制文件的时候只帶了一个 sysem 文件，那么我们就需要重建控制文件以便帶上所有需要恢复的 datafiles

```
STARTUP NOMOUNT
CREATE CONTROLFILE REUSE DATABASE "ORA11G" RESETLOGS ARCHIVELOG
MAXLOGFILES 16
MAXLOGMEMBERS 3
MAXDATAFILES 100
MAXINSTANCES 8
MAXLOGHISTORY 292
LOGFILE
```



```
GROUP 1 '/tmp/2015_05_02/redo01.log' SIZE 50M BLOCKSIZE 512,
GROUP 2 '/tmp/2015_05_02/redo02.log' SIZE 50M BLOCKSIZE 512,
GROUP 3 '/tmp/2015_05_02/redo03.log' SIZE 50M BLOCKSIZE 512
-- STANDBY LOGFILE
DATAFILE
'/tmp/2015_05_02/datafile1.dbf',
'/tmp/2015_05_02/datafile2.dbf',
'/tmp/2015_05_02/datafile3.dbf',
'/tmp/2015_05_02/datafile4.dbf',
'/tmp/2015_05_02/datafile5.dbf',
'/tmp/2015_05_02/datafile6.dbf'
CHARACTER SET ZHS16GBK
;
```

```
SQL> startup nomount;
ORACLE instance started.

Total System Global Area  217157632 bytes
Fixed Size                  2211928 bytes
Variable Size              159387560 bytes
Database Buffers           50331648 bytes
Redo Buffers                5226496 bytes
SQL>

SQL> CREATE CONTROLFILE REUSE DATABASE "ORA11G" RESETLOGS  ARCHIVELOG
 2      MAXLOGFILES 16
 3      MAXLOGMEMBERS 3
 4      MAXDATAFILES 100
 5      MAXINSTANCES 8
 6      MAXLOGHISTORY 292
 7 LOGFILE
 8 GROUP 1 '/tmp/2015_05_02/redo01.log' SIZE 50M BLOCKSIZE 512,
 9 GROUP 2 '/tmp/2015_05_02/redo02.log' SIZE 50M BLOCKSIZE 512,
10 GROUP 3 '/tmp/2015_05_02/redo03.log' SIZE 50M BLOCKSIZE 512
11 -- STANDBY LOGFILE
12 DATAFILE
13 '/tmp/2015_05_02/datafile1.dbf',
14 '/tmp/2015_05_02/datafile2.dbf',
15 '/tmp/2015_05_02/datafile3.dbf',
16 '/tmp/2015_05_02/datafile4.dbf',
17 '/tmp/2015_05_02/datafile5.dbf',
18 '/tmp/2015_05_02/datafile6.dbf'
19 CHARACTER SET ZHS16GBK
20 ;

Control file created.

SQL>

SQL> set line 9999 pagesize 9999
SQL> col FILE_NAME format a50
SQL> select file#,name FILE_NAME,status from v$datafile;
```

| FILE# | FILE_NAME | STATUS |
|-------|-------------------------------|---------|
| 1 | /tmp/2015_05_02/datafile1.dbf | SYSTEM |
| 2 | /tmp/2015_05_02/datafile2.dbf | RECOVER |

```
3 /tmp/2015_05_02/datafile3.dbf RECOVER
4 /tmp/2015_05_02/datafile4.dbf RECOVER
5 /tmp/2015_05_02/datafile5.dbf RECOVER
6 /tmp/2015_05_02/datafile6.dbf RECOVER

6 rows selected.

SQL>
```

若是该备份不是冷备份，那么我们需要 recover database，我们需要 catalog 包括 archivelog 的 backuppiece，然后 restore archivelog，然后再 recover

```
[oracle@orcltest dbs]$ rman target /

Recovery Manager: Release 11.2.0.1.0 - Production on Sun May 3 16:21:53 2015

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connected to target database: ORA11G (DBID=4270446895, not open)

RMAN> list backupset;

using target database control file instead of recovery catalog
specification does not match any backup in the repository

RMAN> catalog start with '/tmp/2015_05_02/';

searching for all files that match the pattern /tmp/2015_05_02/

List of Files Unknown to the Database
=====
File Name: /tmp/2015_05_02/o1_mf_annnn_TAG20150502T154451_bn903mln_.bkp
File Name: /tmp/2015_05_02/o1_mf_annnn_TAG20150502T154402_bn9022tb_.bkp
File Name: /tmp/2015_05_02/o1_mf_nnndf_TAG20150502T154404_bn9025w1_.bkp

Do you really want to catalog the above files (enter YES or NO)? yes
cataloging files...
cataloging done

List of Cataloged Files
=====
File Name: /tmp/2015_05_02/o1_mf_annnn_TAG20150502T154451_bn903mln_.bkp
File Name: /tmp/2015_05_02/o1_mf_annnn_TAG20150502T154402_bn9022tb_.bkp
File Name: /tmp/2015_05_02/o1_mf_nnndf_TAG20150502T154404_bn9025w1_.bkp

RMAN> recover database;

Starting recover at 2015-05-03 16:23:31
allocated channel: ORA_DISK_1
channel ORA_DISK_1: SID=96 device type=DISK

starting media recovery

channel ORA_DISK_1: starting archived log restore to default destination
channel ORA_DISK_1: restoring archived log
archived log thread=1 sequence=17
channel ORA_DISK_1: reading from backup piece /tmp/2015_05_02/o1_mf_annnn_TAG20150502T154451_bn903mln_.bkp
channel ORA_DISK_1: piece handle=/tmp/2015_05_02/o1_mf_annnn_TAG20150502T154451_bn903mln_.bkp tag=TAG20150502T154451
channel ORA_DISK_1: restored backup piece 1
channel ORA_DISK_1: restore complete, elapsed time: 00:00:01
archived log file name=/u01/app/oracle/product/11.2.0/dbhome_1/dbs/arch1_17_874246769.dbf thread=1 sequence=17
unable to find archived log
archived log thread=1 sequence=18
RMAN-00571: =====
```

RMAN-00569: ===== ERROR MESSAGE STACK FOLLOWS =====
RMAN-00571: =====
RMAN-03002: failure of recover command at 05/03/2015 16:23:34
RMAN-06054: media recovery requesting unknown archived log for thread 1 with sequence 18 and starting SCN of 1166209

RMAN> recover database until sequence 18;

Starting recover at 2015-05-03 16:23:44
using channel ORA_DISK_1

starting media recovery
media recovery complete, elapsed time: 00:00:00

Finished recover at 2015-05-03 16:23:44

RMAN> alter database open resetlogs;

database opened

RMAN>

RMAN> exit

Recovery Manager complete.
[oracle@orcltest dbs]\$ sqlplus / as sysdba

SQL*Plus: Release 11.2.0.3.0 Production on Sun May 3 16:41:58 2015

Copyright (c) 1982, 2011, Oracle. All rights reserved.

Connected to:
Oracle Database 11g Enterprise Edition Release 11.2.0.3.0 - 64bit Production
With the Partitioning, OLAP, Data Mining and Real Application Testing options

SQL> show parameter name

| NAME | TYPE | VALUE |
|-----------------------|---------|--------|
| db_file_name_convert | string | |
| db_name | string | ORA11G |
| db_unique_name | string | ORA11G |
| global_names | boolean | FALSE |
| instance_name | string | tmp |
| lock_name_space | string | |
| log_file_name_convert | string | |
| processor_group_name | string | |
| service_names | string | ORA11G |

SQL>
SQL> shutdown immediate;
Database closed.
Database dismounted.
ORACLE instance shut down.
SQL> startup
ORACLE instance started.

Total System Global Area 250560512 bytes
Fixed Size 2227256 bytes
Variable Size 192938952 bytes
Database Buffers 50331648 bytes
Redo Buffers 5062656 bytes
Database mounted.
Database opened.
SQL> set line 9999 pagesize 9999
SQL> col FILE_NAME format a50

```
SQL> select file#,name FILE_NAME,status from v$datafile;
```

| FILE# | FILE_NAME | STATUS |
|-------|-------------------------------|--------|
| 1 | /tmp/2015_05_02/datafile1.dbf | SYSTEM |
| 2 | /tmp/2015_05_02/datafile2.dbf | ONLINE |
| 3 | /tmp/2015_05_02/datafile3.dbf | ONLINE |
| 4 | /tmp/2015_05_02/datafile4.dbf | ONLINE |
| 5 | /tmp/2015_05_02/datafile5.dbf | ONLINE |
| 6 | /tmp/2015_05_02/datafile6.dbf | ONLINE |

6 rows selected.

```
SQL>
```

```
SQL> col FILE_NAME format a50
```

```
SQL> select FILE_NAME,FILE_ID,a.TABLESPACE_NAME, b.status ts_status ,BYTES from dba_data_files a,dba_tablespaces b where a.TABLESPACE_NAME=b.TABLESPACE_NAME;
```

| FILE_NAME | FILE_ID | TABLESPACE_NAME | TS_STATUS | BYTES |
|-------------------------------|---------|-----------------|-----------|-----------|
| /tmp/2015_05_02/datafile6.dbf | 6 | AA | ONLINE | 5242880 |
| /tmp/2015_05_02/datafile5.dbf | 5 | EXAMPLE | ONLINE | 328335360 |
| /tmp/2015_05_02/datafile4.dbf | 4 | USERS | ONLINE | 15728640 |
| /tmp/2015_05_02/datafile3.dbf | 3 | UNDOTBS1 | ONLINE | 99614720 |
| /tmp/2015_05_02/datafile2.dbf | 2 | SYSAUX | ONLINE | 576716800 |
| /tmp/2015_05_02/datafile1.dbf | 1 | SYSTEM | ONLINE | 754974720 |

6 rows selected.

```
SQL> select count(1) from hr.test;
```

| COUNT(1) |
|----------|
| 75204 |

recover 过程告警日志：

```
Sun May 03 16:39:56 2015
alter database recover datafile list clear
Completed: alter database recover datafile list clear
alter database recover datafile list
1,2,3,4,5,6
Completed: alter database recover datafile list
1,2,3,4,5,6
alter database recover if needed
start until cancel using backup controlfile
Media Recovery Start
started logmerger process
Parallel Media Recovery started with 2 slaves
ORA-279 signalled during: alter database recover if needed
start until cancel using backup controlfile
...
alter database recover logfile '/u02/app/oracle/product/11.2.0/dbhome_1/dbs/arch1_17_874246769.dbf'
Media Recovery Log /u02/app/oracle/product/11.2.0/dbhome_1/dbs/arch1_17_874246769.dbf
ORA-279 signalled during: alter database recover logfile '/u02/app/oracle/product/11.2.0/dbhome_1/dbs/arch1_17_874246769.dbf'...
```

```
alter database recover cancel
Media Recovery Canceled
Completed: alter database recover cancel
```

临时文件的处理：

```
SQL>
SQL> select * from v$tempfile;

no rows selected

SQL> create temporary tablespace TEMP01 tempfile '/tmp/2015_05_02/temp01.dbf' size 100m autoextend on next 10m;

Tablespace created.

SQL> alter database default temporary tablespace temp01;

Database altered.

SQL>

SQL> col name for a100
SQL> select file#,name from v$tempfile;

FILE# NAME
-----
1 /tmp/2015_05_02/temp01.dbf

SQL>
```

接下来就是把数据文件命名格式化，执行如下代码：

```
shutdown immediate;
cp /tmp/2015_05_02/*.dbf /u02/app/oracle/oradata/ORAA11G/
cp /tmp/2015_05_02/*.log /u02/app/oracle/oradata/ORAA11G/
mv datafile1.dbf AA.dbf
mv datafile5.dbf EXAMPLE01.dbf
mv AA.dbf SYSTEM01.dbf
mv datafile4.dbf USERS01.dbf
mv datafile3.dbf UNDOTBS1.dbf
mv datafile2.dbf SYSAUX01.dbf
mv datafile6.dbf AA.dbf
```

```
startup mount
alter database rename file'/tmp/2015_05_02/datafile6.dbf' to '/u02/app/oracle/oradata/ORAA11G/AA.dbf';
alter database rename file'/tmp/2015_05_02/datafile5.dbf' to '/u02/app/oracle/oradata/ORAA11G/EXAMPLE01.dbf';
alter database rename file'/tmp/2015_05_02/datafile4.dbf' to '/u02/app/oracle/oradata/ORAA11G/USERS01.dbf';
alter database rename file'/tmp/2015_05_02/datafile3.dbf' to '/u02/app/oracle/oradata/ORAA11G/UNDOTBS1.dbf';
alter database rename file'/tmp/2015_05_02/datafile2.dbf' to '/u02/app/oracle/oradata/ORAA11G/SYSAUX01.dbf';
alter database rename file'/tmp/2015_05_02/datafile1.dbf' to '/u02/app/oracle/oradata/ORAA11G/SYSTEM01.dbf';
```

```
SQL> set line 9999 pagesize 9999
SQL> col FILE_NAME format a50
SQL> select file#,name FILE_NAME,status from v$datafile;
```

| FILE# | FILE_NAME | STATUS |
|-------|--|--------|
| 1 | /u02/app/oracle/oradata/ORA11G/SYSTEM01.dbf | SYSTEM |
| 2 | /u02/app/oracle/oradata/ORA11G/SYSAUX01.dbf | ONLINE |
| 3 | /u02/app/oracle/oradata/ORA11G/UNDOTBS1.dbf | ONLINE |
| 4 | /u02/app/oracle/oradata/ORA11G/USERS01.dbf | ONLINE |
| 5 | /u02/app/oracle/oradata/ORA11G/EXAMPLE01.dbf | ONLINE |
| 6 | /u02/app/oracle/oradata/ORA11G/AA.dbf | ONLINE |

6 rows selected.

```
SQL> alter database open;
```

Database altered.

```
SQL> set line 9999 pagesize 9999
SQL> col FILE_NAME format a50
SQL> select file#,name FILE_NAME,status from v$datafile;
```

| FILE# | FILE_NAME | STATUS |
|-------|--|--------|
| 1 | /u02/app/oracle/oradata/ORA11G/SYSTEM01.dbf | SYSTEM |
| 2 | /u02/app/oracle/oradata/ORA11G/SYSAUX01.dbf | ONLINE |
| 3 | /u02/app/oracle/oradata/ORA11G/UNDOTBS1.dbf | ONLINE |
| 4 | /u02/app/oracle/oradata/ORA11G/USERS01.dbf | ONLINE |
| 5 | /u02/app/oracle/oradata/ORA11G/EXAMPLE01.dbf | ONLINE |
| 6 | /u02/app/oracle/oradata/ORA11G/AA.dbf | ONLINE |

6 rows selected.

```
SQL> col FILE_NAME format a50
SQL> select FILE_NAME,FILE_ID,a.TABLESPACE_NAME, b.status ts_status ,BYTES from dba_data_files a,dba_tablespaces b where a.TABLESPACE_NAME=b.TABLESPACE_NAME;
```

| FILE_NAME | FILE_ID | TABLESPACE_NAME | TS_STATUS | BYTES |
|--|---------|-----------------|-----------|-----------|
| /u02/app/oracle/oradata/ORA11G/AA.dbf | 6 | AA | ONLINE | 5242880 |
| /u02/app/oracle/oradata/ORA11G/EXAMPLE01.dbf | 5 | EXAMPLE | ONLINE | 328335360 |
| /u02/app/oracle/oradata/ORA11G/USERS01.dbf | 4 | USERS | ONLINE | 15728640 |
| /u02/app/oracle/oradata/ORA11G/UNDOTBS1.dbf | 3 | UNDOTBS1 | ONLINE | 99614720 |
| /u02/app/oracle/oradata/ORA11G/SYSAUX01.dbf | 2 | SYSAUX | ONLINE | 576716800 |
| /u02/app/oracle/oradata/ORA11G/SYSTEM01.dbf | 1 | SYSTEM | ONLINE | 754974720 |

6 rows selected.

```
SQL>
```

好了，至此，整个数据库恢复完成，至于修改 INSTANCE_NAME，pfile 文件，密码文件、tnsnames 文件，这些都是基本功了，这里就不赘述了。

1.1.5 总结

1. 只有备份片段的情况下，我们可以尝试将备份片注册到其它数据库这样来获取 dbname 和 dbid
2. 控制文件备份不存在的情况下，我们可以利用 dbms_backup_restore 先把 1 号文件恢复，然后重建控制文件后再注册备份集来获取其它数据文件。
3. 可以使用包 dbms_backup_restore 在 nomount 状态下来尝试获取控制文件的备份

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本文作者：小麦苗，只专注于数据库的技术，更注重技术的运用

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