ParnassusData is a software company

# PRM-DUL 针对Oracle 数据库的拯救恢 复测试



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建立日期:	Oct 30, 2014
更新日期:	Oct 31, 2014



# Oracle 紧急服务国内热线电话: 400-690-3643

# 文档控制

变更记录

日期	作者及更新人	版本号	变更信息	
30-Oct-14	Biot Wang	1.0	Initial	

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文档分发

分发号	文档名	分发位置
1	ORCLRECOVE-1	JIRA

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简介

# 本文目的

Parnassusdata Recovery Management Tool's testing.

# 相关参考

1) PRM 技术白皮书

2)

http://parnassusdata.com/sites/default/files/ParnassusDat a\_PRMForOracle\_3206.zip

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# 测试准备

#### 实验环境

Clone one Virtual Machine.

OEL5u7 + Oracle 11g non-ASM (Here is pd\_prm\_test)



### Java openJDK 安装

#### 使用 OEL5u7 安装光盘镜像中自带的 openJDK 安装:

Login with root.

\$ java -version
[root@pd ~]# java -version
java version "1.4.2" gij (GNU libgcj) version 4.1.2 20080704 (Red Hat 4.1.2-51)
Copyright (C) 2006 Free Software Foundation, Inc.
This is free software; see the source for copying conditions. There is NO
warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.
[root@pd ~]#

\*\*由于 PRM-DUL 推荐使用 Java 1.6 以上版本,因此需要另行安装更高版本 JDK. 推荐安装 openJDK。

PRM-DUL For Oracle 数据库灾难拯救工具下载: http://www.parnassusdata.com/

# Oracle 紧急服务国内热线电话: 400-690-3643

虚拟机 cdrom 倒入安装光盘 ISO 文件。

# cd / media

# mkdir disk

# mount / dev/cdrom / media/ disk

#### # cd disk

# ls			
[root@pd media]	# cd disk		
[root@pd disk]#	ls		
blafdoc.css	eula.py	README-en.html	
Cluster	GPL	RELEASE-NOTES-en	supportinfo
ClusterStorage		RELEASE-NOTES-en.html	TRANS.TBL
EULA		RPM-GPG-KEY	
eula.en_US	README-en	RPM-GPG-KEY-oracle	
[root@pd disk]#			

#### # yum install java

B	root@pd:/media/disk – 🗖					
updated > Processing Dependency: tzdata-java for package: java-1.6.0-openjdk > Running transaction check > Package tzdata-java.x86_64 0:2011g-1.el5 set to be updated > Finished Dependency Resolution						
Dependencies Resolved						
Package	Arch	Version	Reposi	tory	Size	
Installing: java-1.6.0-openjdk Installing for depende tzdata-java	x86_64 encies: x86_64	1:1.6.0.0-1.22.1.9.8.0.1.el5_6	oel5u7	1	37 M	
Transaction Summary	<u>x00_01</u>	20119 1.119				
Install 2 Package(s) Upgrade 0 Package(s)						
Total download size: : Is this ok [y/N]:	37 M					v

#### 切换版本

## 

#### 安装设置完成

# java -version

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[root@pd disk]# java -version java version "1.6.0\_20" OpenJDK Runtime Environment (IcedTea6 1.9.8) (rhel-1.22.1.9.8.0.1.el5\_6-x86\_64) OpenJDK 64-Bit Server VM (build 19.0-b09, mixed mode) [root@pd disk]# []

### Oracle 数据库安装

由于被克隆的环境中已安装 Oracle 11g 数据库。 所以可直接使用,如果实验环境中未安装数据库,可参考:

- 1) PD\_使用 VirtualBox 在 Oracle Linux 5.7 上安装 Oracle Database 11g Release 2 RAC 的最佳实践.pdf
- 2) PD\_虚拟个人实验环境的模板搭建.pdf

#### PRM 安装

Login with oracle \$ mkdir tmp

Upload file ParnassusData\_PRMForOracle\_3206.zip to /home/oracle/tmp by using FTP.

#### # cd ~

# unzip tmp/ParnassusData\_PRMForOracle\_3206.zip
# cd ParnassusData\_PRMForOracle\_3206
# chmod 750 prm.bat
# chmod 750 prm.sh
# chmod 750 prm\_startup.sh

启动 Linux X window # startx

Open terminal 并启动 PRM-DUL # cd ParnassusData\_PRMForOracle\_3206 # sh prm.sh

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<b>2</b>	pd_prm_test [Running]	- Oracle VM VirtualBox	- • ×
Machine View Devices Help			
🐥 Applications Places System 🛞			🖺 11:04 РМ 🔇
ParnassusData Recovery Manager - "	www.parnassusdata.com	Professional Oracle Database Disaster Recovery	V3.2 - • ×
Tools Help			
Database Data Files			_
Database	h		
	-	-	
Version 3.2 (Build 3206) - Community Edit	ion - Aug 20, 2014		1
Convright @ 2012-2014 ParnassusData S	offware Inc		2
Copyright + 2012-2014 Parliassusbata s	ontmare, me.		7
Image: The second secon	cle_3206 Parr	nassusData Recovery Manager - www.parnassusdata.c	P
		S 🖉 🖶 🖬 🗐	🞯 🖲 Right Ctrl

开启成功。

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# 测试恢复场景

Sample 1: Table Truncate Recovery Sample 2: Table Truncate Recovery (DataBridge) Sample 3: 数据库字典受损导致数据库无法启动 Sample 4 & Sample 5: 字典库受损严重或 SYSTEM 表空间已丢 失 Sample 6: 从损坏的 ASM Diskgroup 中 Clone 数据文件 Sample 7: SYSTEM 表空间讹误导致 ASM 数据库无法打开 Sample 8: 在无 SYSTEM 表空间下的 ASM 文件恢复

#### Sample 1

#### **Table Truncate Recovery**

1. 模拟重现场景:

#### SQL> select \* from v\$tablespace

Worksh	eet Q	uery Build	er			
se	select * from v\$tablespace					
<b>AY</b>						
▶ Que	ry Resul	t X				
📌 🚇	i 🔂 🅦	SQL   All	Rows Fetched: 6 in 0.003 second	s		
	2 TS#	2 NAME	INCLUDED_IN_DATABASE_BACKUP	BIGFILE	FLASHBACK_ON	ENCRYPT_IN_BACKUP
1	. 0	SYSTEM	YES	NO	YES	(null)
2	1	SYSAUX	YES	NO	YES	(null)
3	2	UNDOTBS1	YES	NO	YES	(null)
4	4	USERS	YES	NO	YES	(null)
5	3	TEMP	NO	NO	YES	(null)
6	6	EXAMPLE	YES	NO	YES	(null)

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

Workshe	Worksheet Query Builder						
sel	<pre>select file#, ts#, status, name from v\$datafile</pre>						
Quer	y Result	x					
1	🔂 🏂 s	QL   All	Rows Fetc	hed: 5 in 0.003 seconds			
	FILE#	2 TS#	STATUS	2 NAME			
1	1	. 0	SYSTEM	/u01/app/oracle/oradata/PD/system01.dbf			
2	2	1	ONLINE	/u01/app/oracle/oradata/PD/sysaux01.dbf			
3	3	2	ONLINE	/u01/app/oracle/oradata/PD/undotbs01.dbf			
4	4	4	ONLINE	/u01/app/oracle/oradata/PD/users01.dbf			
5	5	6	ONLINE	/u01/app/oracle/oradata/PD/example01.dbf			

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SQL> create user prmuser identified by oracle;

SQL> grant dba to prmuser;

SQL> create table prmuser.test\_tbl(empno number primary

key, name varchar2(50), age number, role varchar2(30))

tablespace USERS;

SQL>	create user prmuser identified by oracle;
User	created.
SQL>	create table prmuser.test_tbl(empno number primary key, name varchar2(50), age number, role varchar2(30)) tablespace USERS;
Table	e created.
SQL>	

以 prmuser 登陆数据库并插入表数据:

# sqlplus prmuser/oracle@PD

SQL> insert into prmuser.test\_tbl values(1, 'HZY', 29, 'ROLE1');

SQL> insert into prmuser.test\_tbl values(2, 'LXB', 29, 'ROLE2');

SQL> insert into prmuser.test\_tbl values(3, 'WWH', 30, 'ROLE3');

SQL> commit;



SQL> col name for a20 SQL> col role for a20 SQL> select \* from test\_tbl;

诗檀软件 专业 Oracle 数据库服务 <u>www.parnassusdata.com</u>

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 SQL> select \* from test\_tbl;

 EMPNO NAME
 AGE ROLE

 1 HZY
 29 ROLE1

 2 LXB
 29 ROLE2

 3 WWH
 30 ROLE3

 SQL> [

#### SQL> select count(\*) from test\_tbl;



SQL> select bytes/1024/1024 from dba\_segments where segment\_name=upper('test\_tbl') and

owner=upper('prmuser');



#### SQL> truncate table test tbl;



- 2. 使用 PRM-DUL 恢复
- 1) Login with oracle and start PRM
- 2)

Tools -> Recovery Wizard -> Next Select 'Dictionary Mode' -> Next

SQL> select \* from sys.props\$ where name in ('NLS\_CHARACTERSET','NLS\_NCHAR\_CHARACTERSET');

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Provide a contraction of the second s	MForOracle_3206/prmd	ata/parnassus_d – 🗖 🗙
[oracle@pd parnassus dbinfo DB	20141103060344]\$ ls	<b>^</b>
bootstrap\$.dat	sys.indcompart\$.ctl	sys.props\$.dat
dict.ddl	sys.indcompart\$.dat	sys.tabcompart\$.ctl
EXT.dat	sys.ind\$.ctl	sys.tabcompart\$.dat
prmuser.test_tbl.ctl	sys.ind\$.dat	sys.tab\$.ctl
prmuser.test_tbl.dat.truncated	sys.indpart\$.ctl	sys.tab\$.dat
scanTables_extentsMode.out	sys.indpart\$.dat	sys.tabpart\$.ctl
SEG.dat	sys.indsubpart\$.ctl	sys.tabpart\$.dat
sys.attribute\$.ctl	sys.indsubpart\$.dat	sys.tabsubpart\$.ctl
sys.attribute\$.dat	sys.lobcomppart\$.ctl	sys.tabsubpart\$.dat
sys.col\$.ctl	sys.lobcomppart\$.dat	sys.ts\$.ctl
sys.col\$.dat	sys.lob\$.ctl	sys.ts\$.dat
sys.collection\$.ctl	sys.lob\$.dat	sys.type\$.ctl
sys.collection\$.dat	sys.lobfrag\$.ctl	sys.type\$.dat
sys.coltype\$.ctl	sys.lobfrag\$.dat	sys.undo\$.ctl
sys.coltype\$.dat	sys.obj\$.ctl	sys.undo\$.dat
sys.icol\$.ctl	sys.obj\$.dat	sys.user\$.ctl
sys.icol\$.dat	sys.props\$.ctl	sys.user\$.dat
[oracle@pd parnassus_dbinfo_DB_	20141103060344]\$ cat p:	rmuser.test_tbl.dat.truncat
ed		
"1" "HZY" "29" "ROLE1"		
"2" "LXB" "29" "ROLE2"		
"3" "WWH" "30" "ROLE3"		
[oracle@pd parnassus_dbinfo_DB_	20141103060344]\$	~



\$ sqlldr control=prmuser.test\_tbl.ctl direct=true

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#### 恢复成功

SQL> selec	t * from prmuser.test_tbl;		
EMPNO	NAME	AGE	ROLE
1	HZY	29	ROLE1
2	LXB	29	ROLE2
3	WWH	30	ROLE3

## Sample 2

#### Table Truncate Recovery (DataBridge)

#### 1. 模拟重现场景

				0	racle	@pd:	~
<u>F</u> ile <u>E</u> dit	<u>V</u> iew	<u>T</u> erminal	Ta <u>b</u> s	<u>H</u> elp			
[oracle@p	d ~]\$	sqlplus	prmus	er/ora	cle@P	D;	
SQL*Plus:	Relea	se 11.2	.0.4.0	Produ	ction	on	Мо
Copyright	(c) 1	982, 20	13, Ora	acle.	Αιι	righ	its
Connected Oracle Da With the SQL> trun Table tru SQL> sele no rows s SQL>	to: tabase Partit cate t ncated ct (1) electe	llg En ioning, able te from to d	terpri: OLAP, st_tbl	se Edi Data I ; l;	tion Minin	Rele g an	as Id

#### 2. 使用 PRM-DUL (DataBridge)恢复

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1) Login with oracle and start  $\ensuremath{\mathsf{PRM}}$ 

2)

Tools -> Recovery Wizard -> Next

Select 'Dictionary Mode' -> Next

New Database Connection					
Connection Name Connect	Connection Name	PD_DBridge_001			
	Lisername	prmuser			
	osemane	prindser			
	Password	*****			
	Hostname	192.168.1.110			
	Port	1521			
			-	_	
	<ul> <li>Service name</li> </ul>	PD			
	Save	Test	Ē	Cancel	
Column Namo		Data Bridge			×
EMPNO	NL	IMBER			
AGE	VA NL	IMBER			
ROLE	VA	RCHARZ			
	DR Con	nortion			
If need to remap table?	PD DBridg	e 001			If data truncated?
Target table name	get table name If to specify data object id?			pecify data object id?	
est_bl03 EXAMPLE					

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oracle	@pd:~ _			
<u>F</u> ile <u>E</u> dit <u>V</u> iew <u>T</u> erminal Ta <u>b</u> s <u>H</u> elp				
[oracle@pd ~]\$ sqlplus prmuser/oracle@H	°D;			
SQL*Plus: Release 11.2.0.4.0 Production	) on Mon Nov 3 12:10:50 2014			
Copyright (c) 1982, 2013, Oracle. All	rights reserved.			
Connected to: Oracle Database 11g Enterprise Edition Release 11.2.0.4.0 - 64bit Production With the Partitioning, OLAP, Data Mining and Real Application Testing options				
SQL> create table test_tbl04 as select	<pre>* from test_tbl where 1=0;</pre>			
Table created.				
SQL> desc test_tbl04; Name	Null? Type			
EMPNO NAME AGE ROLE	NUMBER VARCHAR2(50) NUMBER VARCHAR2(30)			
SQL> select count(*) from test_tbl04;				
COUNT (*) 				
SQL>				

For prmuser.test\_tbl truncated table recovery testing results:

DateBridged	Tablespace	Created	Results
Table		before	
		DataBridged?	
test_tbl01	USERS	Ν	Recovered
test_tbl02	USERS	Ν	Recovered
test_tbl03	EXAMPLE	Ν	Recovered
test_tbl04	USERS	Y	Recovered

恢复成功

### Sample 3

#### 数据库字典受损导致数据库无法启动

此场景指数据库字典受损还不太严重但已无法启动数据库的情况下

#### 1. 模拟重现场景

1) Clone one virtual machine (pd\_prm\_test\_1)

Change the related server ip 192.168.1.120 (original is

#### 192.168.1.110)

Start the virtual machine pd\_prm\_test, we will extract data from pd\_prm\_test\_1 and databridged to pd\_prm\_test.

2) Login with oracle in pd\_prm\_test\_1
\$ sqlplus / as sysdba
SQL> create user prmuser identified by oracle;
SQL> grant dba to prmuser;
SQL> exit

\$ sqlplus prmuser/oracle@PD SQL> create table test\_sys\_tbl(empno number, name varchar2(30)) tablespace USERS; SQL> insert into test\_sys\_tbl values(1, 'TEST1'); SQL> insert into test\_sys\_tbl values(1, 'TEST2'); SQL> commit; SQL> select \* from test\_sys\_tbl; SQL> select \* from test\_sys\_tbl; SQL> select \* from test\_sys\_tbl; I TEST1 2 TEST2

3) Drop table sys.ts\$
SQL> delete from ts\$;
7 rows deleted.
SQL> commit;
Commit complete.
SQL> alter system checkpoint;
System altered.

Shutdown 后, 启动不能:

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e oracie@pd:~	
<u>F</u> ile <u>E</u> dit <u>V</u> iew <u>T</u> erminal Ta <u>b</u> s <u>H</u> elp	
[oracle@pd ~]\$ sqlplus / as sysdba;	<b></b>
SQL*Plus: Release 11.2.0.4.0 Production on Tue Nov 4 23:52:11 2014	
Copyright (c) 1982, 2013, Oracle. All rights reserved.	
Connected to an idle instance.	
SQL> startup ORACLE instance started.	
Total System Global Area 1653518336 bytes	
Fixed Size 2253784 bytes	
Variable Size 1006636072 bytes	
Database Buffers 637534208 bytes	
Redo Buffers 7094272 bytes	
Database mounted.	
ORA-01092: ORACLE instance terminated. Disconnection forced	
ORA-01405: fetched column value is NULL	
Process ID: 5063	
Session ID: 1 Serial number: 5	
	=
COL >	_
JŲL∕	<b>T</b>

- 2. 使用 PRM-DUL (DataBridge)恢复
- 1) Login with oracle and start PRM
- 2) Tools -> Recovery Wizard -> Next

Select 'Dictionary Mode' -> Next

3) 选择所需恢复表所在的 db file (包括 system db file)

	Data File	Block Size	Offset
	(v01/eep/eepele/eepedete/0D/evetem01.dbf	0100	0.1301
	/uu1/app/oracie/oradata/PD/system01.dbf	8192	0
	/uoi/app/oracie/oraciacid/FD/userso1.ubi	0152	0
	٠		
Load file		Choose Files	5 Load
Cancel Help	]		< Back

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#### 4) Do DataBridge:

	New Database Connection		
n Name Connec	Connection Name	PD_P110	
	Username	prmuser	
	Password	****	
	Hostname	192.168.1.110	
	Port	1521	
7.7			
	Service name	PD	
	Save	Test Cancel	

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Column Name EMPIO NAME	Column Type NUMBER VARCHAR2	
If need to remap table? arget table name	DB Connection PD_P110 Tablespace USERS	If data truncated? If to specify data object id?
	ħ.	Data Bridge Cancel
		ParnassusData Reco

Go to pd\_prm\_test server and login with oracle:

\$ sqlplus prmuser/oracle@PD

SQL> SQL>	col na select	ame form t * from	a25 test_sys_tbl;
	EMPNO	NAME	
	1 2	TEST1 TEST2	
SQL>	_		

数据被成功抽出。

Sample 4 & Sample 5

### 字典库受损严重或 SYSTEM 表空间已丢失。

- 1. 模拟重现场景
- 1) Clone one virtual machine (pd\_prm\_test\_2)

Change the related server ip 192.168.1.130 (original is 192.168.1.110)

Start the virtual machine pd\_prm\_test, we will extract data from pd\_prm\_test\_2 and databridged to pd\_prm\_test.

2) Login with oracle in pd\_prm\_test\_2
\$ sqlplus / as sysdba
SQL> create user prmuser identified by oracle;
SQL> grant dba to prmuser;
SQL> exit

\$ sqlplus prmuser/oracle@PD SQL> create table test\_null\_tbl(empno number, name

varchar2(30), blb blob, chk varchar2(5)) tablespace USERS SQL> insert into test null tbl values(1, 'TEST1', to\_blob('110010000110011'), NULL); SQL> insert into test\_null\_tbl values(2, 'TEST2', to blob('110010000110011'), NULL); SQL> insert into test\_null\_tbl values(3, 'TEST3', to\_blob('110010000110011'), NULL); SQL> insert into test\_null\_tbl values(4, 'TEST4', to\_blob('110010000110011'), NULL); SQL> insert into test\_null\_tbl values(5, 'TEST5', to\_blob('110010000110011'), NULL); SQL> insert into test\_null\_tbl values(6, 'TEST6', to\_blob('110010000110011'), NULL); SQL> insert into test\_null\_tbl values(7, 'TEST7', to\_blob('110010000110011'), NULL); SQL> insert into test\_null\_tbl values(8, 'TEST8', to\_blob('110010000110011'), NULL); SQL> insert into test\_null\_tbl values(9, 'TEST9', to blob('110010000110011'), NULL); SQL> insert into test\_null\_tbl values(10, 'TEST10', to\_blob('110010000110011'), NULL); SQL> insert into test\_null\_tbl values(11, 'TEST11', NULL, NULL); SQL> insert into test\_null\_tbl values(12, 'TEST12', NULL, NULL); SQL> insert into test\_null\_tbl values(13, 'TEST13', NULL, NULL);

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SQL> insert into test\_null\_tbl values(14, 'TEST14', NULL, NULL); SQL> insert into test\_null\_tbl values(15, 'TEST15', NULL, NULL); SQL> insert into test\_null\_tbl values(16, 'TEST16', NULL, NULL); SQL> insert into test\_null\_tbl values(17, 'TEST17', NULL, NULL); SQL> insert into test\_null\_tbl values(18, 'TEST18', NULL, NULL); SQL> insert into test null tbl values(19, 'TEST19', NULL, NULL); SQL> insert into test\_null\_tbl values(20, 'TEST20', NULL, NULL); SQL> insert into test\_null\_tbl values(21, 'TEST21', NULL, NULL); SQL> insert into test\_null\_tbl values(22, 'TEST22', NULL, NULL); SQL> insert into test null tbl values(23, 'TEST23', NULL, NULL); SQL> insert into test\_null\_tbl values(24, 'TEST24', NULL, NULL); SQL> insert into test\_null\_tbl values(25, 'TEST25', NULL, NULL); SQL> insert into test\_null\_tbl values(26, 'TEST26', NULL, NULL); SQL> insert into test\_null\_tbl values(27, 'TEST27', NULL, NULL); SQL> insert into test\_null\_tbl values(28, 'TEST28', NULL, NULL); SQL> insert into test\_null\_tbl values(29, 'TEST29', NULL, NULL); SQL> insert into test\_null\_tbl values(30, 'TEST30', NULL, NULL); SQL> insert into test\_null\_tbl values(31, 'TEST31', NULL, 'Y31');

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SQL> insert into test\_null\_tbl values(32, 'TEST32', NULL, 'Y32');

SQL> insert into test\_null\_tbl values(33, 'TEST33', NULL, NULL);

SQL> insert into test\_null\_tbl values(34, 'TEST34', NULL,

NULL);

SQL> insert into test\_null\_tbl values(35, 'TEST35', NULL,

NULL);

SQL> commit;

SQL> alter system checkpoint;

关闭数据库后删除 system01.dbf, 启动数据库报错。

😰 pd_p	orm_test_2 [Running] - Oracle VM VirtualBox
Machine View Devices Help	
[oracle@pd ~]\$ sqlplus ≠	as sysdba
SQL*Plus: Release 11.2.0	.4.0 Production on Sat Nov 8 00:47:31 2014
Copyright (c) 1982, 2013	, Oracle. All rights reserved.
Connected to an idle inst	tance.
SQL> startup ORACLE instance started.	
Total System Global Area	1653518336 bytes
Fixed Size	2253784 bytes
Variable Size	1006636072 bytes
Database Buffers	637534208 bytes
Kedo Buffers	7094272 bytes
OPA_01157: compat identia	Sudlock data file 1 - see DBUR trace file
ORA-01110: data file 1:	'/u01/app/oracle/oradata/PD/system01.dbf'
L	
SQL> _	

- 2. 使用 PRM-DUL 进行恢复
- 1) Login with oracle and start PRM
- 2) Tools -> Recovery Wizard -> Next

Use 'Non-dictionary mode'.

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ParnassusData Recovery Wizard
Please choose recovery type:
Non-dictionary mode
O Dictionary mode (ASM)
<ul> <li>Non-dictionary mode (ASM)</li> </ul>

#### Use Default here.

ParnassusDa	ata Recovery Wizard
Endian:	Little Endian
DD Character Cet	
DB Character Set:	AL320TF8
DB National Character Set:	AL16UTF16
Database Name:	
Block Size:	8192
Offset:	0

由于 System 表空间对应文件丢失,因此使用非字典模式恢复。 Choose File 选择需要抽取数据的文件。

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	ParnassusData Recovery	Wizard	
l l			-
	Data File	Block Size	Offset
	/u01/app/oracle/oradata/PD/users01.dbf	8192	0
			-
Load file		Choose	Files Scan
Cancel Help			< Back

#### Click Scan:

# 使用 Scan tables from segments: Machine View Devices Help Applications Places System S ParnassusData Recovery Manager - ww Tools Help Database Data Files Database Database DB\_20141108011448 Scan Database Scan tables from segments Scan tables from extents



	Data Bridge	×
Column Name col1 col2 col3 col4	Column Type NUMBER VARCHAR2 UNKNOWN VARCHAR2	
Ø if need to remap table? Target table name	DB Connection pd_p110 Tablespace USERS	If data truncated?
		Data Bridge Cancel

在192.168.1.110 中查询:

Barp ×	Son PD_1 ×		
> 🗾 🎉	) 🗑 🛃 I 🐼	🕵 i 🏦 🚑 🎸	۵
Worksheet	Query Buil	ler	
selec	t * from PRM	USER.test nu	11 tb1
▲▼ Duery I	lecul+ X		
🔎 Query 1			or i o oor 1
<u>, a di</u>	I B SQL   AII	Rows Fetched:	35 in 0.007 seconds
ž	EMPNO 2 NAME	BLB	CHK
1	1 TEST1	(BLOB)	(null)
2	2 TEST2	(BLOB)	(null)
3	3 TEST3	(BLOB)	(null)
4	4 TEST4	(BLOB)	(null)
5	5 TEST5	(BLOB)	(null)
6	6 TEST6	(BLOB)	(null)
7	7 TEST7	(BLOB)	(null)
8	8 TEST8	(BLOB)	(null)
9	9 TEST9	(BLOB)	(null)
10	10 TEST10	(BLOB)	(null)
11	11 TEST11	(null)	(null)
12	12 TEST12	(null)	(null)
13	13 TEST13	(null)	(null)
14	14 TEST14	(null)	(null)
15	15 TEST15	(null)	(null)

数据抽取完成。

如果使用 Scan tables from extents (针对 Sample 5):



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之后的抽取步骤一致。

Sample 6

#### 从损坏的 ASM Diskgroup 中 Clone 数据文件

#### 1. 确认 Java 版本及 PRM 安装

#### # java -version

#### \*\* 推荐使用 openjdk 1.6 以上

#### Login with oracle

\$ unzip ParnassusData\_PRMForOracle\_3206.zip

[oracle@pd1 ~]\$	LS	
Desktop	oswbb	ParnassusData_PRMForOracle_3206.zip
oradiag_oracle	oswbb730.tar	
[oracle@pd1 ~]\$	unzip Parnassu	usData_PRMForOracle_3206.zip
Archive: Parnas	susData_PRMFor	rOracle_3206.zip
dreating: Par	nassusData_PRM	/ForOracle_3206/
1 (1 - 1 - 1	D 1 DD1	15 - 0 1 - DD06 (6) 1 1

\$ cd ParnassusData\_PRMForOracle\_3206

\$ chmod 750 prm.bat

\$ chmod 750 prm.sh

```
$ chmod 750 prm_startup.sh
[oracle@pd1 ParnassusData_PRMForOracle_3206]$ chmod 750 prm.bat
[oracle@pd1 ParnassusData_PRMForOracle_3206]$ chmod 750 prm.sh
[oracle@pd1 ParnassusData_PRMForOracle_3206]$ chmod 750 prm_startup.sh
[oracle@pd1 ParnassusData_PRMForOracle_3206]$
```

2. Clone 文件

\$ sh prm.sh

#### 关闭数据库 RAC:

1)

\$ srvctl stop database -d PROD

2)

\$ sh prm.sh

# Oracle 紧急服务国内热线电话: 400-690-3643

<pre>oracle@pd1:~/ParnassusData_PRMForOracle_3206</pre>	٤.
<u>F</u> ile <u>E</u> dit <u>V</u> iew <u>T</u> erminal Ta <u>b</u> s <u>H</u> elp	
<pre>[oracle@pd1 ~]\$ cd ParnassusData_PRMForOracle_3206 [oracle@pd1 ParnassusData_PRMForOracle_3206]\$ sh prm.sh It's recommended that you can use JDK 1.6 or higher version Download latest JDK http://www.oracle.com/technetwork/java/javase/downloads/inde x.html</pre>	
P ParnassusData Recovery Manager - www.parnassusdata.com Professional Oracle Database Disaster Recov	e

Tools Help					
Database Data Files					
Database					
	P	Parnas	susData Recovery	Manager	×
	ASM Disks				
			Open	×	
	Look Ir	1: 🛅 dev			
		8:0:0:0 adsp	asm-diske asm-diskf	audio	
		📑 asm-diskb	📄 asm-diskg	🕒 cdrom	
		asm-diskc	📄 asm-diskh	Cdrom-sr0	
		🛅 asm-diskd	📄 asm-diski	🔄 console	
	-				
	File Na	me: "asm-diske	" "asm-diskf" "asm-disk	kg"	
	Files o	f Type: All Files		<b></b>	
	Please se			Open Cancel Ze	e
	Cancel			Open selected file	

D	ParnassusData Recovery Manager	×
ASM Disks		
/dev/asm-diske		
/dev/asm-diskf /dev/asm-diskg		
,,		
	5	
Please select ASM d	isks: Select ASM Analyze	
Cancel		

分析无结果,后台报权限问题:

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<u>F</u> ile <u>E</u> dit <u>V</u> iew <u>T</u> erminal Ta <u>b</u> s <u>H</u>		
	Heip	
[oracle@pd1 ~]\$ cd ParnassusDa [oracle@pd1 ParnassusData_PRMF It's recommended that you can Download latest JDK http://www x.html	ata_PRMFor0racle_3206 For0racle_3206]\$ sh prm.sh use JDK 1.6 or higher version w.oracle.com/technetwork/java/javase/downloads/in 	te
Exception when analysing ASM of /dev/asm-diske (Permission der Issue for analysing ASM disk h Exception when analysing ASM of /dev/asm-diskf (Permission der Issue for analysing ASM disk h Exception when analysing ASM of /dev/asm-diskg (Permission der Issue for analysing ASM disk h	disk header. hied) header for: /dev/asm-diske hied) header for: /dev/asm-diskf disk header. hied) header for: /dev/asm-diskg	

#### \$ ls -l /dev/asm\*

		orac	e@pdi	1:~		- <b>• ×</b>
<u>F</u> ile <u>E</u> dit <u>V</u> iew <u>T</u> e	rminal Ta <u>b</u> s	<u>H</u> elp				
[oracle@pd1 ~]\$ l	s -l /dev/as	m*				<b></b>
brw-rw 1 grid	asmadmin 8,	16 Nov	10 1	1:05	/dev/asm-diskb	
brw-rw 1 grid	asmadmin 8,	32 Nov	10 1	1:05	/dev/asm-diskc	
brw-rw 1 grid	asmadmin 8,	48 Nov	10 1	1:05	/dev/asm-diskd	
brw-rw 1 grid	asmadmin 8,	64 Nov	10 1	1:05	/dev/asm-diske	
brw-rw 1 grid	asmadmin 8,	80 Nov	10 10	0:58	/dev/asm-diskf	
brw-rw 1 grid	asmadmin 8,	96 Nov	10 10	0:58	/dev/asm-diskg	
brw-rw 1 grid	asmadmin 8,	112 Nov	10 1	1:05	/dev/asm-diskh	
brw-rw 1 grid	asmadmin 8,	128 Nov	10 10	0:58	/dev/asm-diski	
ls: /dev/asm: Per [oracle@pd1 ~]\$ i uid=501(oracle) g [oracle@pd1 ~]\$	mission deni d id=6000(oins	ed tall) gr	oups=	€001)	asmdba),6000(oinstall),6001(d	iba) 🗏

组权限不对,需要切换grid用户.且PRM目录无写权限。最好

将 PRM 安装于 grid 用户下,再次尝试。

#### 成功找到 ASM 文件

			Parna	assusData Recovery Manager	×
Need clone?	DG#	File#	File Incarnation#	File path	
	1	256	855827017	+DATA/PROD/CONTROLFILE/Current.256.855827017	
	1	257	855827019	+DATA/PROD/ONLINELOG/group_1.257.855827019	
	1	258	855827023	+DATA/PROD/ONLINELOG/group_2.258.855827023	
	1	259	855827027	+DATA/PROD/DATAFILE/SYSTEM.259.855827027	
	1	260	855827043	+DATA/PROD/DATAFILE/SYSAUX.260.855827043	
	1	261	855827057	+DATA/PROD/DATAFILE/UNDOTBS1.261.855827057	
	1	262	855827063	+DATA/PROD/TEMPFILE/TEMP.262.855827063	
	1	263	855827079	+DATA/PROD/DATAFILE/UNDOTBS2.263.855827079	
	1	264	855827083	+DATA/PROD/DATAFILE/USERS.264.855827083	
	1	265	855828517	+DATA/PROD/ONLINELOG/group_3.265.855828517	
	1	266	855828521	+DATA/PROD/ONLINELOG/group_4.266.855828521	
	1	267	855828525	+DATA/PROD/PARAMETERFILE/spfile.267.855828525	
	1	267	855828525	+DATA/PROD/spfilePROD.ora.267.855828525	
Select all					
Clone to:					
		_	Browse	Cancel	ASM Clone

				Parna	assusData Recovery Manager	×
	Need clone?	DG#	File#	File Incarnation#	File path	
		1	256	855827017	+DATA/PROD/CONTROLFILE/Current.256.855827017	
		1	257	855827019	+DATA/PROD/ONLINELOG/group 1.257.855827019	
		1	258	855827023	+DATA/PROD/ONLINELOG/group 2.258.855827023	
		1	259	855827027	+DATA/PROD/DATAFILE/SYSTEM.259.855827027	
		1	260	855827043	+DATA/PROD/DATAFILE/SYSAUX 260.855827043	
		1	261	855827057	+DATA/PROD/DATAFILE/UNDOTBS1.261.855827057	
	Ĕ	1	262	855827063	+DATA/PROD/TEMPFILE/TEMP.262.855827063	
		- 1	263	855827079	+DATA/PROD/DATAFILE/UNDOTBS2.263.855827079	
	V	1	264	855827083	+DATA/PROD/DATAFILE/USERS 264 855827083	
		1	265	855828517	+DATA/PROD/ONUNELOG/group_3 265 855828517	
		1	266	855828521	+DATA/PROD/ONLINELOG/group 4 266 855828521	
		1	267	855828525	+DATA/PROD/PARAMETEREII E/spfile 267 855828525	
		ĩ	267	855828525	+DATA/PROD/spfilePROD ora 267 855828525	
		-	207	055020525	1 DATA 1100/301100.010.207.033020323	
	Select all					
	_					
Γ	Clone to:					
	oronie to.				· · · · · · · · · · · · · · · · · · ·	
	/home/grid/tm	ıp		Browse	Cancel	ASM Clone
L						



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文件被成功 Clone.

#### Sample 7

#### SYSTEM 表空间讹误导致 ASM 数据库无法打开

1) 模拟重现场景

建立 prmuser 用户及表

SQL> sqlplus / as sysdba;

SQL> create user prmuser identified by oracle;

SQL> grant dba to prmuser;

SQL> exit;

SQL> sqlplus prmuser/oracle@PROD

SQL> create table test\_null\_tbl(empno number, name varchar2(30), blb blob, chk varchar2(5)) tablespace USERS SQL> insert into test\_null\_tbl values(1, 'TEST1', to\_blob('110010000110011'), NULL); SQL> insert into test\_null\_tbl values(2, 'TEST2', to\_blob('110010000110011'), NULL); SQL> insert into test\_null\_tbl values(3, 'TEST3', to\_blob('110010000110011'), NULL); SQL> commit;

数据破坏可如 Sample 3 中案例。

#### 2)

Login with grid and start PRM Tools -> Recovery Wizard 使用 Dictionary Mode (ASM) 选择相应 disk 并 ASM Analyse

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#### 这里默认即可

ParnassusDa	ata Recovery Wizard
Endian:	Little Endian
DB Character Set:	From dictionary
DB National Character Set:	From dictionary
Database Name:	
Block Size:	8192
Offset:	0

# 选择需要恢复的数据文件及 system 文件

	ParliassusData Recovery Wizard	<b>.</b>	
	Data File	Block Size Offset Selected?	
	+DATA/PROD/DATAFILE/SYSAUX.260.855827043	8192 0	
	+DATA/PROD/DATAFILE/SYSTEM.259.855827027	8192 0 🗹	
	+DATA/PROD/DATAFILE/UNDOTBS1.261.855827057	8192 0	
	+DATA/PROD/DATAFILE/UNDOTBS2.263.855827079	8192 0	
	+DATA/PROD/DATAFILE/USERS.264.855827083	8192 0 🖌	
		•	
		<b>T</b>	
( Land file	Select all	Mars files	
Load file		More files Load	
Cancel Help		< Back	

#### 可以找到相应文件:



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EMPNO	NAME	BLB	CHK
1	TEST1	BLOB	
2	TEST2	BLOB	
3	TEST3	BLOB	

## Sample 8

#### 在无 SYSTEM 表空间下的 ASM 文件恢复:



### 1. 模拟重现场景

破坏数据可参照 Sample 4 & Sample 5,在关闭数据库后进入 asmcmd,删除 system 表空间文件即可。

#### 2. 恢复文件步骤

Login with grid and start PRM Tools -> Recovery Wizard 使用 Non-dictionary Mode (ASM)

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ParnassusDa	ata kecovery wizaro
Endian:	Little Endian
DB Character Set:	AL32UTF8
DB National Character Set:	UTF8
Database Name:	
Block Size:	8192
Offset:	0

选择正确的字符设置。

选择相应 disk 并 ASM Analyse

	ParnassusData Recovery Wizard				
	Data File	Block Size	Offset	Selected?	
	+DATA/PROD/DATAFILE/PDTEST.268.863273095	8192	0		
	+DATA/PROD/DATAFILE/SYSAUX.260.855827043	8192	0		
	+DATA/PROD/DATAFILE/SYSTEM.259.855827027	8192	0		
	+DATA/PROD/DATAFILE/UNDOTBS1.261.855827057	8192	0		
	+DATA/PROD/DATAFILE/UNDOTBS2.263.855827079	8192	0		
	+DATA/PROD/DATAFILE/USERS.264.855827083	8192	0	<u>v</u>	
Load file	Select all	More	files	Sca	
				<u> </u>	
				-	
Cancel Help				< Back	

选择需要恢复的表所在的数据文件并 Scan:

ParnassusData Recovery Mana Tools Help	ge	r - www.	parnassu	sdata.co	m Pro	fessional O	racle Dat
Database Data Files		obj18217	:				
T Database	•	Col no 3	Geen count	Max size	PCT N	String Nice	NUMBER Ni
		1	3	2	0	0	3
▼ = DB 20141110143837		2	3	5	0	3	0
		3	3	44	0	0	0
🔠 obj18211		4	3	1	66	1	0
🔠 obj18215							
🔠 obj18216							
📲 obj18217		Sample d	ata analysis	:			
🔠 obj18218						7	
		col1 co	2 col3				
		1 TE	ST1 00540	001010C0	000000	10000000100	00001623F
		2 TE	ST2 00540	001010C0	000000	10000000100	00001623F
		3 TE	ST3 00540	001010C0	000000	10000000100	00001623F
	0					J	
		Try to ana	lyze UNKNC	OWN colum	n type:		
		Columns	Date	Numb	er	String(VARCH	AR2 CHAR)
		3	00540001	LO1 0054	000101	0700000000	000000#
×.		3	00540001	LO1 0054	000101	0700000000	0000000#
		3	00540001	LO1 0054	000101	0700000000	#0000000#

之后的操作和非 ASM 的恢复操作相同 (可以做 Unload 也可选择 DataBridge)。

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# 其他问题

未解决的问题

问题号	问题描述	解决方案	日期
1	ASM copy & Recovery		8-Nov-2014

已解决的问题

问题号	问题描述	解决方案	解决日期

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# 更多资源

技术资源: <u>http://www.parnassusdata.com/resources/</u>

技术支持: <u>service@parnassusdata.com</u>

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# 最后



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