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Кафедра информатики и прикладной математики

**Системы управления базами данных**

Лабораторная работа 3



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## Задание

Настроить процедуру периодического резервного копирования базы данных, сконфигурированной в ходе выполнения лабораторной работы №2, показать на примере, что восстановится получается.

## Скрипты

Скрипт создания тестовой таблицы в бд

```
--- create table ---  
CREATE TABLE test (  
    id NUMBER(1) NOT NULL,  
    text VARCHAR(20) NOT NULL  
);  
  
--- fill table ---  
insert into test (id, text) values (1, 'sht');  
insert into test (id, text) values(2, 'yas man')
```

Конфиг крона

```
oracle@db146 $ crontab -l  
0 * * * * oracle /u01/fbi56/backups/create_backups.sh
```

run\_db\_backups.sh - shell скрипт, который запускается по крону.

```
#!/bin/bash  
  
cd /u01/fbi56/backups  
rman @/u01/fbi56/backups/create_backups.rman
```

create\_backups.rman - исполняемый rman файл для репликации

```
CONNECT TARGET;  
BACKUP DATABASE PLUS ARCHIVELOG;  
EXIT;
```

recover\_database.rman - исполняемый rman файл для восстановления бд

```
CONNECT TARGET;  
RESTORE DATABASE;  
EXIT;
```

## Проверяем, что всё работает

```
#
# 1. Делаем бекап. Можно не делать, потому что крон сам создает.
#

oracle@db146 backups $ rman @/u01/fbi56/backups/create_backups.rman
Recovery Manager: Release 11.2.0.3.0 - Production on Mon Nov 27 00:17:19 2017

RMAN> CONNECT TARGET;
connected to target database: ILLDISK (DBID=880712856)

RMAN> BACKUP DATABASE PLUS ARCHIVELOG;
Starting backup at 27-NOV-17
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=1 STAMP=961112576
input archived log thread=1 sequence=10 RECID=2 STAMP=961112676
input archived log thread=1 sequence=11 RECID=3 STAMP=961114725
channel ORA_DISK_1: starting piece 1 at 27-NOV-17
channel ORA_DISK_1: finished piece 1 at 27-NOV-17
piece handle=/u01/app/oracle/product/11.2.0/dbhome_1/dbs/0oskisj5_1_1
tag=TAG20171127T001845 comment=NONE
channel ORA_DISK_1: backup set complete, elapsed time: 00:00:01
Finished backup at 27-NOV-17

RMAN> EXIT;

#
# 2. Проверяем данные и удаляем одну запись.
#

oracle@db146 $ sqlplus sys as sysdba
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 * from test;
   ID TEXT
-----
    1 sht
    2 yas man
```

**SQL> delete from test; # SHT MAN, DATA LOSS, GOTTA RECOVER !!!!**

2 rows deleted.

#

# 3. Восстанавливаемся с бекапа

#

**SQL> SHUTDOWN**

Database closed.

Database dismounted.

ORACLE instance shut down.

**SQL> STARTUP MOUNT**

ORACLE instance started.

Total System Global Area 480182272 bytes

Fixed Size 2227176 bytes

Variable Size 360711192 bytes

Database Buffers 109051904 bytes

Redo Buffers 8192000 bytes

Database mounted.

**SQL> ^D**

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@db146 backups \$ rman @/u01/fbi56/backups/recover\_database.rman**

Recovery Manager: Release 11.2.0.3.0 - Production on Mon Nov 27 00:41:40 2017

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**RMAN> CONNECT TARGET;**

**2> RESTORE DATABASE;**

**3> EXIT;**

connected to target database: ILLDISK (DBID=880712856, not open)

Starting recover at 27-NOV-17

using target database control file instead of recovery catalog

allocated channel: ORA\_DISK\_1

channel ORA\_DISK\_1: SID=266 device type=DISK

starting media recovery

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

Finished recover at 27-NOV-17

Recovery Manager complete.

**oracle@db146 \$ sqlplus sys as sysdba**

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> RECOVER DATABASE USING BACKUP CONTROLFILE UNTIL CANCEL;**

ORA-00279: change 378326 generated at 11/27/2017 01:03:11 needed for thread 1

ORA-00289: suggestion :

/u01/app/oracle/product/11.2.0/dbhome\_1/dbs/arch1\_2\_961117215.dbf

ORA-00280: change 378326 for thread 1 is in sequence #2

Specify log: {<RET>=suggested | filename | AUTO | CANCEL}

> CANCEL;

**SQL> ALTER DATABASE OPEN RESETLOGS;**

Database altered.

**SQL> SELECT \* FROM TEST;**

ID TEXT

-----  
1 sht

2 yas man

**SQL> ^D # Fuf, everything is ok**

## Полезности, не использованные в лабе.

```
--- cold backup ---
RMAN> shutdown immediate
RMAN> startup mount
RMAN> backup database;
RMAN> sql ?alter database open?;

--- incremental hot backup ---
BACKUP
  INCREMENTAL LEVEL 1 CUMULATIVE
  TABLESPACE users;
```