Upravljanje Oracle bazama podataka – Lab #11

Backup i oporavak

1. Napravite online backup baze i arhivskih logova.

```
C:\>rman target /

Recovery Manager: Release 11.2.0.1.0 – Production on Sri Lip 1
22:44:19 2016

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reserved.

connected to target database: TZUL (DBID=2377316905)

RMAN> backup database plus archivelog delete input;

Starting backup at 17.05.12
current log archived
using target database control file instead of recovery catalog
allocated channel: ORA_DISK_1
channel ORA_DISK_1: sid=37 devtype=DISK
channel ORA_DISK_1: starting archive log backupset
channel ORA_DISK_1: specifying archive log(s) in backup set
…
name=C:\APP\UPBAPOD\ARCHIVE\ARC0000000779_0907257769.0001 RECID=718
STAMP=909589615
archived log file name=C:\APP\UPBAPOD\ARCHIVE\ARC0000000780_0907257769.0001
RECID=719 STAMP=909589619
archived log file name=C:\APP\UPBAPOD\ARCHIVE\ARC0000000781_0907257769.0001
RECID=720 STAMP=909589621
archived log file name=C:\APP\UPBAPOD\ARCHIVE\ARC0000000782_0907257769.0001
RECID=721 STAMP=909745977
archived log file name=C:\APP\UPBAPOD\ARCHIVE\ARC0000000783_0907257769.0001
RECID=722 STAMP=909745979
archived log file name=C:\APP\UPBAPOD\ARCHIVE\ARC0000000784_0907257769.0001
RECID=723 STAMP=909745982
archived log file name=C:\APP\UPBAPOD\ARCHIVE\ARC0000000785_0907257769.0001
RECID=724 STAMP=909745985
archived log file name=C:\APP\UPBAPOD\ARCHIVE\ARC0000000786_0907257769.0001
RECID=725 STAMP=909745988
archived log file name=C:\APP\UPBAPOD\ARCHIVE\ARC0000000787_0907257769.0001
RECID=726 STAMP=909745990
archived log file name=C:\APP\UPBAPOD\ARCHIVE\ARC0000000788_0907257769.0001
RECID=727 STAMP=909823335
archived log file name=C:\APP\UPBAPOD\ARCHIVE\ARC0000000789_0907257769.0001
RECID=728 STAMP=909826035
archived log file
…
input archived log thread=1 sequence=818 RECID=757 STAMP=909830671
input archived log thread=1 sequence=819 RECID=758 STAMP=909830673
input archived log thread=1 sequence=820 RECID=759 STAMP=909830677
input archived log thread=1 sequence=821 RECID=760 STAMP=909830680
input archived log thread=1 sequence=822 RECID=761 STAMP=909830682
input archived log thread=1 sequence=823 RECID=762 STAMP=909830685
input archived log thread=1 sequence=824 RECID=763 STAMP=909830689
input archived log thread=1 sequence=825 RECID=764 STAMP=909830893
input archived log thread=1 sequence=826 RECID=765 STAMP=909830896
input archived log thread=1 sequence=827 RECID=766 STAMP=909830899
input archived log thread=1 sequence=828 RECID=767 STAMP=909830903
input archived log thread=1 sequence=829 RECID=768 STAMP=909830906
input archived log thread=1 sequence=830 RECID=769 STAMP=909830908
input archived log thread=1 sequence=831 RECID=770 STAMP=909830911
```

```
input archived log thread=1 sequence=832 RECID=771 STAMP=909830915
input archived log thread=1 sequence=833 RECID=772 STAMP=909830918
input archived log thread=1 sequence=834 RECID=773 STAMP=909830921
input archived log thread=1 sequence=835 RECID=774 STAMP=909830924
input archived log thread=1 sequence=836 RECID=775 STAMP=909830927
input archived log thread=1 sequence=837 RECID=776 STAMP=909830930
input archived log thread=1 sequence=838 RECID=777 STAMP=909830934
input archived log thread=1 sequence=839 RECID=778 STAMP=909830936
input archived log thread=1 sequence=840 RECID=779 STAMP=909830939
input archived log thread=1 sequence=841 RECID=780 STAMP=909830942
input archived log thread=1 sequence=842 RECID=781 STAMP=909830945
…
name=C:\APP\UPBAPOD\ARCHIVE\ARC0000000810_0907257769.0001 RECID=749
STAMP=909830645
archived log file name=C:\APP\UPBAPOD\ARCHIVE\ARC0000000811_0907257769.0001
RECID=750 STAMP=909830650
archived log file name=C:\APP\UPBAPOD\ARCHIVE\ARC0000000812_0907257769.0001
RECID=751 STAMP=909830653
archived log file name=C:\APP\UPBAPOD\ARCHIVE\ARC0000000813_0907257769.0001
RECID=752 STAMP=909830656
archived log file name=C:\APP\UPBAPOD\ARCHIVE\ARC0000000814_0907257769.0001
RECID=753 STAMP=909830658
archived log file name=C:\APP\UPBAPOD\ARCHIVE\ARC0000000815_0907257769.0001
RECID=754 STAMP=909830662
archived log file name=C:\APP\UPBAPOD\ARCHIVE\ARC0000000816_0907257769.0001
RECID=755 STAMP=909830665
archived log file name=C:\APP\UPBAPOD\ARCHIVE\ARC0000000817_0907257769.0001
RECID=756 STAMP=909830669
archived log file name=C:\APP\UPBAPOD\ARCHIVE\ARC0000000818_0907257769.0001
RECID=757 STAMP=909830671
archived log file name=C:\APP\UPBAPOD\ARCHIVE\ARC0000000819_0907257769.0001
RECID=758 STAMP=909830673
archived log file name=C:\APP\UPBAPOD\ARCHIVE\ARC0000000820_0907257769.0001
RECID=759 STAMP=909830677
archived log file name=C:\APP\UPBAPOD\ARCHIVE\ARC0000000821_0907257769.0001
RECID=760 STAMP=909830680
archived log file name=C:\APP\UPBAPOD\ARCHIVE\ARC0000000822_0907257769.0001
RECID=761 STAMP=909830682
archived log file name=C:\APP\UPBAPOD\ARCHIVE\ARC0000000823_0907257769.0001
RECID=762 STAMP=909830685
archived log file name=C:\APP\UPBAPOD\ARCHIVE\ARC0000000824_0907257769.0001
RECID=763 STAMP=909830689
archived log file name=C:\APP\UPBAPOD\ARCHIVE\ARC0000000825_0907257769.0001
RECID=764 STAMP=909830893
archived log file name=C:\APP\UPBAPOD\ARCHIVE\ARC0000000826_0907257769.0001
RECID=765 STAMP=909830896
archived log file name=C:\APP\UPBAPOD\ARCHIVE\ARC0000000827_0907257769.0001
RECID=766 STAMP=909830899
archived log file name=C:\APP\UPBAPOD\ARCHIVE\ARC0000000828_0907257769.0001
RECID=767 STAMP=909830903
archived log file name=C:\APP\UPBAPOD\ARCHIVE\ARC0000000829_0907257769.0001
RECID=768 STAMP=909830906
archived log file name=C:\APP\UPBAPOD\ARCHIVE\ARC0000000830_0907257769.0001
RECID=769 STAMP=909830908
archived log file name=C:\APP\UPBAPOD\ARCHIVE\ARC0000000831_0907257769.0001
RECID=770 STAMP=909830911
archived log file name=C:\APP\UPBAPOD\ARCHIVE\ARC0000000832_0907257769.0001
RECID=771 STAMP=909830915
archived log file
…
Finished backup at 01.06.16

Starting backup at 01.06.16
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=00003
name=C:\APP\UPBAPOD\ORADATA\TZUL\DATAFILES\UNDO\UNDOTBS01.DBF
```

```
input datafile file number=00001
name=C:\APP\UPBAPOD\ORADATA\TZUL\DATAFILES\SYSTEM01.DBF
input datafile file number=00004
name=C:\APP\UPBAPOD\ORADATA\TZUL\DATAFILES\DATA01.DBF
input datafile file number=00006
name=C:\APP\UPBAPOD\ORADATA\TZUL\DATAFILES\DATA02.DBF
input datafile file number=00005
name=C:\APP\UPBAPOD\ORADATA\TZUL\DATAFILES\IDX01.DBF
input datafile file number=00002
name=C:\APP\UPBAPOD\ORADATA\TZUL\DATAFILES\SYSAUX01.DBF
channel ORA_DISK_1: starting piece 1 at 01.06.16
channel ORA_DISK_1: finished piece 1 at 01.06.16
piece handle=C:\APP\TZUL\PRODUCT\11.2.0\DBHOME_1\DATABASE\0GR736MA_1_1
tag=TAG20160601T222058 comment=NONE
channel ORA_DISK_1: backup set complete, elapsed time: 00:00:45
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 01.06.16
channel ORA_DISK_1: finished piece 1 at 01.06.16
piece handle=C:\APP\TZUL\PRODUCT\11.2.0\DBHOME_1\DATABASE\0HR736NN_1_1
tag=TAG20160601T222058 comment=NONE
channel ORA_DISK_1: backup set complete, elapsed time: 00:00:01
Finished backup at 01.06.16

Starting backup at 01.06.16
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=855 RECID=794 STAMP=913414906
channel ORA_DISK_1: starting piece 1 at 01.06.16
channel ORA_DISK_1: finished piece 1 at 01.06.16
piece handle=C:\APP\TZUL\PRODUCT\11.2.0\DBHOME_1\DATABASE\0IR736NR_1_1
tag=TAG20160601T222146 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=C:\APP\UPBAPOD\ARCHIVE\ARC0000000855_0907257769.0001
RECID=794 STAMP=913414906
Finished backup at 01.06.16

RMAN>
```

2. Pozivanjem V$ARCHIVED_LOG i V$BACKUP_REDOLOGS saznajte povijesne podatke o
   arhivskim logovima i informaciju o backup-u arhivskih logova. Jesu li backup-irani svi
   arhivski logovi? Na kojoj lokaciji se nalaze datoteke backup-a.

3. Napravite izmjenu nad podatcima u tablici proizvoda prema predlošku ispod. Gdje se sve
   nalaze pohranjene napravljene izmjene?

```
INSERT INTO LOLEK.PRODUCT
    (PRODUCT_ID, DESCRIPTION, RETAIL_PRICE, WHOLESALE_PRICE)
 VALUES
    (10, 'Proizvod 10', 1000, 900.00);
COMMIT;
```

4. Napravite shutdown baze i promjenite naziv obje datoteke tablespace-a DATA u kojem je
   smještena tablica sa izmjenjenim podacima.

5. Restore datafile-a iz backup-a

   1) Podignite bazu. Pažljivo pročitajte poruku koja se javlja prilikom podizanja baze!

   2) Provjerite u kojem modu je baza podignuta (SELECT status FROM v$instance)?

3) Korištenjem RMAN alata napravite restore datafile-ova iz backup-a i nakon toga njihov oporavak (recovery). Prije oporavka datafile-ova pomoću sljedećeg upita provjerite vrijednosti SCN u zaglavlju datafile-ova.

```
SELECT name, checkpoint_change#, TO_CHAR(checkpoint_time,
'DD.MM.YYYY HH24:MI:SS') FROM v$datafile_header;
```

Pokušajte podignuti bazu sa ALTER DATABASE OPEN nakon restore-a datafile-ova (a prije njihova oporavka).

```
C:\>sqlplus /nolog

SQL*Plus: Release 11.2.0.1.0 Production on Sri Lip 1 23:09:48 2016

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SQL> connect /as sysdba
Connected.
SQL> startup;
ORACLE instance started.

Total System Global Area  644468736 bytes
Fixed Size                  1376520 bytes
Variable Size             318770936 bytes
Database Buffers          318767104 bytes
Redo Buffers                5554176 bytes
Database mounted.
ORA-01157: cannot identify/lock data file 4 – see DBWR trace file
ORA-01110: data file 4: 'C:\APP\UPBAPOD\ORADATA\TZUL\DATAFILES\DATA01.DBF'

SQL> exit
Disconnected from Oracle Database 11g Release 11.2.0.1.0 – Production

C:\>rman target /

Recovery Manager: Release 11.2.0.1.0 – Production on Sri Lip 1 23:11:38 2016

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connected to target database: TZUL (DBID=2377316905, not open)

RMAN> restore datafile 4;

Starting restore at 01.06.16
using target database control file instead of recovery catalog
allocated channel: ORA_DISK_1
channel ORA_DISK_1: SID=63 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 00004 to
C:\APP\UPBAPOD\ORADATA\TZUL\DATAFILES\DATA01.DBF
channel ORA_DISK_1: reading from backup piece
C:\APP\TZUL\PRODUCT\11.2.0\DBHOME_1\DATABASE\0GR736MA_1_1
channel ORA_DISK_1: piece
Handle=C:\APP\TZUL\PRODUCT\11.2.0\DBHOME_1\DATABASE\0G
R736MA_1_1 tag=TAG20160601T222058
channel ORA_DISK_1: restored backup piece 1
channel ORA_DISK_1: restore complete, elapsed time: 00:00:15
Finished restore at 01.06.16

RMAN> alter database open;

RMAN-00571: ===========================================================
RMAN-00569: =============== ERROR MESSAGE STACK FOLLOWS ===============
RMAN-00571: ===========================================================
```

```
RMAN-03002: failure of alter db command at 06/01/2016 23:12:40
ORA-01113: file 4 needs media recovery
ORA-01110: data file 4: 'C:\APP\UPBAPOD\ORADATA\TZUL\DATAFILES\DATA01.DBF'

RMAN> recover datafile 4;

Starting recover at 01.06.16
using channel ORA_DISK_1

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

Finished recover at 01.06.16

RMAN> alter database open;

RMAN-00571: ===========================================================
RMAN-00569: =============== ERROR MESSAGE STACK FOLLOWS ===============
RMAN-00571: ===========================================================
RMAN-03002: failure of alter db command at 06/01/2016 23:14:13
ORA-01157: cannot identify/lock data file 6 – see DBWR trace file
ORA-01110: data file 6: 'C:\APP\UPBAPOD\ORADATA\TZUL\DATAFILES\DATA02.DBF'

RMAN> restore datafile 6;

Starting restore at 01.06.16
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 00006 to
C:\APP\UPBAPOD\ORADATA\TZUL\DATA
FILES\DATA02.DBF
channel ORA_DISK_1: reading from backup piece
C:\APP\TZUL\PRODUCT\11.2.0\DBHOME_
1\DATABASE\0GR736MA_1_1
channel ORA_DISK_1: piece
handle=C:\APP\TZUL\PRODUCT\11.2.0\DBHOME_1\DATABASE\0G
R736MA_1_1 tag=TAG20160601T222058
channel ORA_DISK_1: restored backup piece 1
channel ORA_DISK_1: restore complete, elapsed time: 00:00:15
Finished restore at 01.06.16

RMAN> recover datafile 6;

Starting recover at 01.06.16
using channel ORA_DISK_1

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

Finished recover at 01.06.16

RMAN> alter database open;

database opened
```

4) Nalaze li se podatci koje ste insertali pod 3. u tablici? Ako se nalaze, objasnite
   kako jer isti su dodani nakon što je napravljen backup a datafile-ovi su izbrisani.

- KRAJ -