

Oracle 10.2 DataGuard Switchover

1 Einleitung

Die ist eine Demonstration eines DataGuard Switchovers.

1.1 Vorbereitungen

- remote_login_passwordfile=exclusive
- spfile
- enable force logging
- enable archivelogging

1.2 Aufbau der Standby-Instanz & Dataguard Archive Transport

- environment file
- create pfile from spfile;
- Anpassen von parametern
- lock_name_space wenn standby auf selbem host

Auf Primary:

```
SQL> alter database create standby controlfile as '/tmp/control01.ctl';
SQL> alter system set log_archive_dest_2= 'SERVICE=MDAUX';
SQL> alter system set log_archive_dest_state_2 = 'DEFER';
```

Kopieren von control01.ctl auf Standby

Auf Standby:

```
SQL> startup nomount
SQL> alter database mount standby database;
```

Auf Primary:

```
SQL> alter system set log_archive_dest_state_2 = 'ENABLE';
SQL> alter system switch logfile;
```

Im Logfile:

```
ALTER SYSTEM SET log_archive_dest_state_2='ENABLE' SCOPE=BOTH;
Thu Feb  9 18:56:53 2006
Thread 1 advanced to log sequence 11
  Current log# 2 seq# 11 mem# 0: /oracle/MDTEST/origlogA/redo_g2m1.log
Thu Feb  9 18:56:53 2006
ARC1: Evaluating archive   log 1 thread 1 sequence 10
ARC1: Beginning to archive log 1 thread 1 sequence 10
Creating archive destination LOG_ARCHIVE_DEST_2: 'MDAUX'
Thu Feb  9 18:56:53 2006
ARC0: Begin FAL archive (thread 1 sequence 5 destination MDAUX)
Creating archive destination LOG_ARCHIVE_DEST_2: 'MDAUX'
Thu Feb  9 18:56:53 2006
Creating archive destination LOG_ARCHIVE_DEST_1: '/oracle/MDTEST/oraarch/1_10.dbf'
ARC1: Completed archiving  log 1 thread 1 sequence 10
Thu Feb  9 18:56:53 2006
ARC0: Complete FAL archive (thread 1 sequence 5 destination MDAUX)
Thu Feb  9 18:56:53 2006
ARC1: Begin FAL archive (thread 1 sequence 6 destination MDAUX)
Thu Feb  9 18:56:53 2006
ARC0: Begin FAL archive (thread 1 sequence 7 destination MDAUX)
Thu Feb  9 18:56:53 2006
Creating archive destination LOG_ARCHIVE_DEST_2: 'MDAUX'
Thu Feb  9 18:56:53 2006
Creating archive destination LOG_ARCHIVE_DEST_2: 'MDAUX'
Thu Feb  9 18:56:55 2006
ARC1: Complete FAL archive (thread 1 sequence 6 destination MDAUX)
Thu Feb  9 18:56:55 2006
ARC0: Complete FAL archive (thread 1 sequence 7 destination MDAUX)
```

3) Kopieren der Datafiles

Primary:

```
SQL> alter tablespace SYSTEM begin backup;
SQL> alter tablespace UNDO begin backup;
SQL> alter tablespace TS_DATA begin backup;
SQL> alter tablespace TS_INDEX begin backup;
SQL> alter tablespace TS_CTAS begin backup;

!
cp /oracle/MDTEST/oradata/data/* /oracle/MDAUX/oradata/data/
cp /oracle/MDTEST/oradata/data2/* /oracle/MDAUX/oradata/data2/

SQL> alter tablespace SYSTEM end backup;
SQL> alter tablespace UNDO end backup;
SQL> alter tablespace TS_DATA end backup;
SQL> alter tablespace TS_INDEX end backup;
SQL> alter tablespace TS_CTAS end backup;
```

Während dem Kopieren wurde etwas Redo erzeugt.

1.3 Erzeugen der Standby-Redo-Logs auf Standby-Seite

```
SQL> ALTER DATABASE ADD STANDBY LOGFILE ('/oracle/MDAUX/origlogA/standby_g1m1.log') size 10485760
reuse;
SQL> ALTER DATABASE ADD STANDBY LOGFILE ('/oracle/MDAUX/origlogA/standby_g2m1.log') size 10485760
reuse;
SQL> ALTER DATABASE ADD STANDBY LOGFILE ('/oracle/MDAUX/origlogA/standby_g3m1.log') size 10485760
reuse;
```

1.4 Umschalten in LogWriter Async Modus auf Primary:

```
SQL> alter system set log_archive_dest_state_2 = 'DEFER';

SQL> alter system set log_archive_dest_2= 'SERVICE=MDAUX LGWR ASYNC=10240';

SQL> alter system set log_archive_dest_state_2 = 'ENABLE';
```

Dann wird wieder etwas Redo Last erzeugt:

```
SQL> insert into test select * from test;
```

Standby:

```
1* select * from v$log
```

GROUP#	THREAD#	SEQUENCE#	BYTES	MEMBERS	ARC	STATUS	FIRST_CHANGE#	FIRST_TI
1	1	20	10485760	1	YES	CLEARING	155136	09.02.06
2	1	21	10485760	1	YES	CLEARING_CURRENT	155168	09.02.06
3	1	19	10485760	1	YES	CLEARING	155109	09.02.06

Alert Log Standby:

```
Creating archive destination LOG_ARCHIVE_DEST_1: '/data/oracle/Ora9IR2/dbs/arch1_20.dbf'
Thu Feb 9 19:12:01 2006
RFS: Successfully opened standby logfile 4: '/oracle/MDAUX/origlogA/standby_g1m1.log'
Thu Feb 9 19:12:01 2006
ARC1: Completed archiving log 5 thread 1 sequence 20
ARC1: Evaluating archive log 4 thread 1 sequence 21
ARC1: Beginning to archive log 4 thread 1 sequence 21
Creating archive destination LOG_ARCHIVE_DEST_1: '/data/oracle/Ora9IR2/dbs/arch1_21.dbf'
Thu Feb 9 19:12:17 2006
RFS: Successfully opened standby logfile 5: '/oracle/MDAUX/origlogA/standby_g2m1.log'
Thu Feb 9 19:12:17 2006
ARC1: Completed archiving log 4 thread 1 sequence 21
```

1.5 automatisches Recovern auf standby:

```
SQL> alter database recover managed standby database parallel 4 disconnect from session;
```

Alert Log auf standby:

```
alter database recover managed standby database parallel 4 disconnect from session
Attempt to start background Managed Standby Recovery process
MRP0 started with pid=15
MRP0: Background Managed Standby Recovery process started
  attempting to start a parallel recovery with 4 processes
  parallel recovery started with 4 processes
Media Recovery Log /oracle/MDAUX/oraarch/1_6.dbf
Media Recovery Log /oracle/MDAUX/oraarch/1_7.dbf
Media Recovery Log /data/oracle/Ora9IR2/dbs/arch1_8.dbf
Thu Feb  9 19:18:18 2006
Completed: alter database recover managed standby database p
Thu Feb  9 19:18:18 2006
Media Recovery Log /oracle/MDAUX/oraarch/1_9.dbf
Media Recovery Log /oracle/MDAUX/oraarch/1_10.dbf
Media Recovery Log /oracle/MDAUX/oraarch/1_11.dbf
Media Recovery Log /oracle/MDAUX/oraarch/1_12.dbf
Media Recovery Log /oracle/MDAUX/oraarch/1_13.dbf
Media Recovery Log /oracle/MDAUX/oraarch/1_14.dbf
Media Recovery Log /oracle/MDAUX/oraarch/1_15.dbf
Media Recovery Log /oracle/MDAUX/oraarch/1_16.dbf
Media Recovery Log /oracle/MDAUX/oraarch/1_17.dbf
Media Recovery Log /oracle/MDAUX/oraarch/1_18.dbf
Media Recovery Log /data/oracle/Ora9IR2/dbs/arch1_19.dbf
Media Recovery Log /data/oracle/Ora9IR2/dbs/arch1_20.dbf
Media Recovery Log /data/oracle/Ora9IR2/dbs/arch1_21.dbf
Media Recovery Log /data/oracle/Ora9IR2/dbs/arch1_22.dbf
Media Recovery Log /data/oracle/Ora9IR2/dbs/arch1_23.dbf
Media Recovery Log /data/oracle/Ora9IR2/dbs/arch1_24.dbf
```

1.6 Switchover

Primary:

```
SQL> select switchover_status from v$database;

SWITCHOVER_STATUS
-----
SESSIONS ACTIVE

SQL> alter system set aq_tm_processes = 0;
SQL> alter system set job_queue_processes = 0;
SQL> shutdown immediate
SQL> startup

select switchover_status from v$database;Database opened.
SQL>

SWITCHOVER_STATUS
-----
TO STANDBY
```

1.7 Primary to Standby

```
SQL> alter database commit to switchover to physical standby;
```

Jetzt sollten keine Sessions aktiv sein:

```
SQL> select switchover_status from v$database;

SWITCHOVER_STATUS
-----
SESSIONS ACTIVE
```

Alert Log Primary:

```
ALTER DATABASE COMMIT TO SWITCHOVER TO PHYSICAL STANDBY
LGWR: Performing log switch to complete LGWR archival of current logfile
...
Thread 1 closed at log sequence 31
Successful close of redo thread 1
Fri Feb 10 09:40:53 2006
```

```

ARCH: noswitch archival of thread 1, sequence 31
ARCH: End-Of-Redo archival of thread 1 sequence 31
ARCH: Evaluating archive log 1 thread 1 sequence 31
...
Archivelog for thread 1 sequence 31 required for standby recovery
MRP0 started with pid=8
MRP0: Background Managed Standby Recovery process started
Media Recovery Log /oracle/MDTEST/oraarch/1_31.dbf
Identified end-of-REDO for thread 1 sequence 31
Identified end-of-REDO for thread 1 sequence 31
Media Recovery End-Of-Redo indicator encountered
Media Recovery Applied until change 172784
MRP0: Media Recovery Complete: End-Of-REDO
Resetting standby activation ID 17235437 (0x106fded)
MRP0: Background Media Recovery process shutdown
Fri Feb 10 09:41:01 2006
Switchover: Complete - Database shutdown required
Completed: alter database commit to switchover to physical st
    
```

Alert Log Standby:

```

Media Recovery Log /data/oracle/Ora9IR2/dbs/arch1_29.dbf
Media Recovery Log /oracle/MDAUX/oraarch/1_30.dbf
Media Recovery Log /oracle/MDAUX/oraarch/1_31.dbf
Identified end-of-REDO for thread 1 sequence 31
Identified end-of-REDO for thread 1 sequence 31
Media Recovery End-Of-Redo indicator encountered
Media Recovery Applied until change 172784
MRP0: Media Recovery Complete: End-Of-REDO
Resetting standby activation ID 17235437 (0x106fded)
MRP0: Background Media Recovery process shutdown
    
```

1.8 Primary kann gestoppt werden:

```
SQL> shutdown immediate;
```

1.9 auf der vorherigen Standby:

```

SQL> select switchover_status from v$database;

SWITCHOVER_STATUS
-----
SESSIONS ACTIVE
    
```

Auch hier ist vorher temporär aq_tm_processes und job_queue_processes auf 0 zu setzen:

```

SQL> alter system set aq_tm_processes = 0;

System altered.

SQL> alter system set job_queue_processes = 0;

System altered.

SQL> select switchover_status from v$database;

SWITCHOVER_STATUS
-----
TO PRIMARY

SQL> alter database commit to switchover to primary ;

Database altered.
    
```

Alert Log:

```

alter database commit to switchover to primary
Fri Feb 10 09:52:40 2006
ALTER DATABASE COMMIT TO SWITCHOVER TO PRIMARY
RESETLOGS after incomplete recovery UNTIL CHANGE 172784
Resetting resetlogs activation ID 0 (0x0)
Switchover: Complete - Database shutdown required
Completed: alter database commit to switchover to primary
    
```

1.10 Restart von neuer Primary

```
SQL> shutdown immediate
SQL> startup
SQL> alter system set job_queue_processes = 10;
SQL> alter system set aq_tm_processes = 5;
SQL> alter tablespace TEMP add tempfile '/oracle/MDAUX/oradata/temp/temp01.dbf' size 512M;
```

Die neue Primary ist jetzt verwendbar

1.11 (optional: Failback zu alter Primary)

Shutdown neue Primary:

```
SQL> shutdown immediate;
```

Alte Primary:

```
SQL> startup nomount;
SQL> alter database mount standby database;
```

```
SQL> select switchover_status from v$database;
```

```
SWITCHOVER_STATUS
-----
TO PRIMARY
```

```
SQL> alter database commit to switchover to primary ;
```

Alert Log:

```
ALTER DATABASE COMMIT TO SWITCHOVER TO PRIMARY
RESETLOGS after incomplete recovery UNTIL CHANGE 172784
Resetting resetlogs activation ID 0 (0x0)
Online log 3 of thread 1 was previously cleared
Switchover: Complete - Database shutdown required
Completed: alter database commit to switchover to primary
```

```
SQL> shutdown immediate;
SQL> alter system set job_queue_processes = 10;
SQL> alter system set aq_tm_processes = 5;
SQL> alter tablespace TEMP add tempfile '/oracle/MDTEST/oradata/temp/temp01.dbf' size 512M
reuse;
```

Alte Primary ist jetzt wieder online.