

## Add Failed Exadata ASM Disks back into ASM

### Identify the Failed Grid Disk

```
# dcli -g cell_group -l root "cellcli -e list griddisk attributes
name,asmmodestatus" | grep -v 'ONLINE'
```

```
tuxcel06: DATA_CD_08_tuxcel06          UNKNOWN      <<<<
```

```
SQL> SELECT * FROM V$ASM_DISK WHERE LABEL LIKE '%DATA_CD_08_TUXCEL06%' ORDER
BY GROUP_NUMBER,DISK_NUMBER;
```

GROUP_NUMBER	DISK_NUMBER	MOUNT_STATUS	HEADER_STATUS	MODE_ST	TOTAL_MB
FREE_MB	HOT_USED_MB	COLD_USED_MB	NAME	LABEL	PATH
0	1	CLOSED	MEMBER	ONLINE	0 0 0 0
DATA_CD_08_PUXCEL06 o/172.16.0.10/DATA_CD_08_puxcel06					

```
GROUP_NUMBER = 0
DISK_NUMBER = 1
MOUNT_STATUS = CLOSED      <<<<
HEADER_STATUS = MEMBER     <<<<
MODE_STATUS=ONLINE
PATH=o/172.16.0.10/DATA_CD_08_puxcel06
LABEL=DATA_CD_08_PUXCEL06
```

### ASM Alert log errors

```
Fri Sep 30 05:02:37 2011
WARNING: Disk DATA_CD_08_PUXCEL06 in mode 0x7f is now being offlined
Fri Sep 30 05:02:37 2011
kfdp_queryTimeout(DATA)
kfdp_queryTimeout(DATA)
NOTE: cache closing disk 7 of grp 1: DATA_CD_08_TUXCEL06
```

This shows problem with Grid Disk "DATA\_CD\_08\_tuxcel06". It seems the disk was dropped due to the DISK\_REPAIR\_TIMER (default 3.6 hours) expiring. Disk needs to be added back to the DATA Diskgroup.

### Add disk back

```
SQL> ALTER diskgroup DATA ADD failgroup TUXCEL06 disk
'o/172.16.0.10/DATA_CD_08_tuxcel06' name DATA_CD_08_TUXCEL06 rebalance
nowait;
ALTER diskgroup DATA ADD failgroup TUXCEL06 disk
'o/172.16.0.10/DATA_CD_08_tuxcel06' name DATA_CD_08_TUXCEL06 rebalance
nowait;
```

```
*  
ERROR at line 1:  
ORA-15032: NOT ALL alterations performed  
ORA-15033: disk 'o/172.16.0.10/DATA_CD_08_puxcel06' belongs TO diskgroup  
"DATA"
```

A mount\_status of CLOSED means ASM can see the disk but it is not using it. A header\_status of CANDIDATE means the disk is not part of a disk group but can be added to one. MEMBER indicates diskgroup membership.

So the disk has a group\_number=0 but is still a diskgroup member, as indicated by HEADER\_STATUS. The group number will be assigned when the disk is mounted. If a disk is removed from a diskgroup, it becomes "FORMER" instead of "MEMBER".

The status will be "FORMER" if the disk was explicitly deleted with the "drop disk" command.

The status will be "CANDIDATE" if the disk header was missing.

Since the failed disk was not accessible this field couldn't be updated hence the "MEMBER" value remains.

All disk partner information would have been updated to indicate the disk is no longer in the diskgroup.

#### Re-add with 'FORCE' option

```
SQL> ALTER diskgroup DATA ADD failgroup PUXCEL06 disk  
'o/172.16.0.10/DATA_CD_08_puxcel06' name DATA_CD_08_PUXCEL06 FORCE rebalance  
nowait;
```

##### Note #####

Exadata has an AUTO Management Feature which will try to add Failed ASM Disks back to the Diskgroup so in Most cases you will not even notice that a Disk was dropped as it would have been added back (as long as DISK\_REPAIR\_TIMER hasn't lapsed)!

..You will see messages like below in the ASM Alert log »>

NOTE: Exadata Auto Management: OS PID: 32721 Initiating Operation ID: 29 Operation: DROP and ADD ASM disk: ADD RECO\_CD\_11\_PUXCEL04 in Diskgroup RECO SQL : /\* Exadata Auto Mgmt: ADD ASM Disk in given FAILGROUP \*/ alter diskgroup RECO add failgroup PUXCEL04 disk 'o/172.16.0.8/RECO\_CD\_11\_puxcel04' name RECO\_CD\_11\_PUXCEL04 force rebalance nowait

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