

HOWTO: Cleanup a PVMISSING disk

Contributed by Michael Felt

While wondering around the web I found a blog with comparisons between Solaris 10 and AIX 6. One of them is this [blog](#) with several AIX articles. One (scroll down a bit if you follow the link) was on how to trick the ODM into letting you remove a MISSING disk. Anyone who has followed an AIX administration course (well the advanced one) knows that there is a command to do all this for you! Even if editing ODM is fun for some of us (RAWR!).

Below, my extended guide for removing a MISSINGPV from the other disks VGDA and AIX ODM.

Introduction

How a disk becomes PVMISSING is irrelevant. These things happen. Getting the system repaired is relevant! So, the simpler way! to correct volume group VGDA and AIX ODM.

The single command we will be using to remove the disk is:

```
ldeletepv -v VGID -p PVID
```

But, before we do, there are a number of steps we should follow as a matter of "best practice".

CASE: While the volume group is offline, maintenance is performed on the disks. One disk is/was damaged beyond repair, or replaced during the process. Now back at AIX the volumes are to be reactivated.

```
root@aix530:[/]lsvg -p vgExport
```

0516-010 : Volume group must be varied on; use varyonvg command.

```
root@aix530:[/]varyonvg vgExport
```

```
PV Status:   hdisk1 00c39b8d69c45344   PACTIVE
            hdisk2 00c39b8d043427b6   PVMISSING
```

The disk hdisk2 is PVMISSING. We assume hdisk2 with PVID 00c39b8d043427b6 is physically destroyed. All the data is lost; however, the AIX ODM and the VGDA on all the other disks in the volume group do not know this yet.

First document what is lost. We need to know which logical volumes are (were) on the missing disk. Normally we could use `lspv -l hdiskX`; (new: undocumented variation: `lspv -l PVID`) however, with the disk missing, this version of the command will not work. Instead, we use the VGID (volume group identifier).

1. Query the VGDA of the working disk to get the VGID and PVID of all disks in the volume group

```
root@aix530:[/]lqueryvg -p hdisk1 -vPt
```

```
Physical:   00c39b8d69c45344      2  0
           00c39b8d043427b6      1  0
VGid:      00c39b8d00004c000000011169c45a4b
```

2. Get a list of all the logical volumes on the missing disk

```
root@aix530:[/]lspv -l -v 00c39b8d00004c000000011169c45a4b hdisk2
```

```
hdisk2:
```

| LV NAME | LPs | PPs | DISTRIBUTION | MOUNT POINT |
|---------|-----|-----|------------------------|-------------|
| lvTest | 512 | 512 | 109..108..108..108..79 | /scratch |
| loglv00 | 1 | 1 | 00..00..00..00..01 | N/A |

(Note: lspv -l 00c39b8d043427b6 should give us the same output!)

3. Verify all filesystems are unmounted.

```
root@aix530:[/]lsvg -l vgExport
```

```
vgExport:
```

| LV NAME | TYPE | LPs | PPs | PVs | LV STATE | MOUNT POINT |
|----------|--------|-----|-----|-----|--------------|-------------|
| lvExport | jfs2 | 416 | 416 | 1 | closed/syncd | /export |
| lvTest | jfs | 512 | 512 | 1 | closed/syncd | /scratch |
| loglv00 | jfslog | 1 | 1 | 1 | closed/syncd | N/A |

With this info I know that any data in /scratch is suspect, and should be restored from a backup.

4. Remove the logical volumes from the volume group before deleting the VGDA from the other disks.

```
root@aix530:[/]rmfs /scratch
```

rmfs: 0506-936 Cannot read superblock on /dev/lvTest.

rmfs: 0506-936 Cannot read superblock on /scratch.

rmfs: Unable to clear superblock on /scratchrmlv: Logical volume lvTest is removed.

root@aix530:[/]rmlv loglv00

Warning, all data contained on logical volume loglv00 will be destroyed.

rmlv: Do you wish to continue? y(es) n(o)? y

rmlv: Logical volume loglv00 is removed.

root@aix530:[/]lsvg -p vgExport

vgExport:

| PV_NAME | PV STATE | TOTAL PPs | FREE PPs | FREE DISTRIBUTION |
|---------|----------|-----------|----------|--------------------|
| hdisk1 | active | 511 | 95 | 00..00..00..00..95 |
| hdisk2 | missing | 542 | 29 | 51..18..51..51..51 |

root@aix530:[/]lsvg -l vgExport

vgExport:

| LV NAME | TYPE | LPs | PPs | PVs | LV STATE | MOUNT POINT |
|----------|------|-----|-----|-----|--------------|-------------|
| lvExport | jfs2 | 416 | 416 | 1 | closed/syncd | /export |

5. The volume group has been prepared - all damaged logical volume definitions have been removed. All that is remaining for cleanup is to remove the definition of the damaged disk from the VGDA of the remaining disk(s).

root@aix530:[/]ldeletepv -g 00c39b8d00004c000000011169c45a4b -p 00c39b8d043427b6

Note: there is no output for the above command when all proceeds accordingly.

Now the regular AIX commands to verify VGDA and ODM are in order.

root@aix530:[/]lsvg -p vgExport

vgExport:

| PV_NAME | PV STATE | TOTAL PPs | FREE PPs | FREE DISTRIBUTION |
|---------|----------|-----------|----------|--------------------|
| hdisk1 | active | 511 | 95 | 00..00..00..00..95 |

root@aix530:[/]mount /export

root@aix530:[/]lsvg -l vgExport

vgExport:

| LV NAME | TYPE | LPs | PPs | PVs | LV STATE | MOUNT POINT |
|----------|------|-----|-----|-----|------------|-------------|
| lvExport | jfs2 | 416 | 416 | 1 | open/syncd | /export |

6. Various steps that I will only list here:

- a. add a new disk to the volume group (extendvg)
- b. remake the deleted logical partitions (mklv)
- c. format, as needed, the log logical volumes (logform)
- d. create the filesystems (crfs, or use smit)
- e. restore the data from a backup (restore, tar, cpio, etc.)

Summary This procedure is much less error prone than using ODM commands. All the commands demonstrated here have been available in AIX for disk management since at least 1995 (when AIX 4 first came out). They may have been in AIX 3 as well, taking it back to 1991 or earlier.

Important commands to review

lspv -l -v VGID hdiskX

lqueryvg

ldeletepv