

[HPADM] Summary MirrorDisk/UX 11.00

Source: <http://unix.derkeiler.com/Mailing-Lists/HP-UX-Admin/2003-11/0036.html>

From: Thomas Northup (*thomaslnorthup_at_yahoo.com*)

Date: 11/10/03

Date: Mon, 10 Nov 2003 07:00:54 -0800 (PST)

To: hpux-admin@dutchworks.nl

This list has been great as usual. Thanks for all your help.

I did leave out some lvnboot commands. I ended up using a script that Jim Langston sent me and it worked great.

Thanks,

Tom

Here was the original question...

Admins,

I have already installed MirrorDisk/UX 11.00 on my HP-UX 11.00 system and now I want to create the mirrors.

I have outlined the steps that I think I need to take below. Have I missed anything? Is there anything in the steps that are not necessary?

Thanks

Tom

```
# ioscan -fnC disk
```

```
Class I H/W Path Driver S/W State H/W Type Description
```

```
=====
```

```
disk 0 0/0/1/1.2.0 sdisk CLAIMED DEVICE HP 73.4GMAN3735MC
```

```
          /dev/dsk/c1t2d0 /dev/rdisk/c1t2d0
```

```
disk 1 0/0/2/0.2.0 sdisk CLAIMED DEVICE HP 73.4GATLAS10K3_73_SCA
```

```
          /dev/dsk/c2t2d0 /dev/rdisk/c2t2d0
```

Note: c1t2d0 is the boot disk and c2t2d0 is the mirrored disk.

1) Initialize the disk and make it bootable

```
pvcreate -B /dev/rdisk/c2t2d0
```

Note: the -B parameter tells pvcreate that this will be a bootable disk.

2) Add the physical volume to the volume group

```
vgextend /dev/vg00 /dev/dsk/c2t2d0
```

3) Use mkboot to place the boot utilities in the boot area and add the AUTO file.

```
mkboot /dev/dsk/c2t2d0
```

```
mkboot -a "hpux -lq" /dev/rdisk/c2t2d0
```

4) Use mkboot to update the AUTO file on the primary boot disk.

```
mkboot -a "hpux -lq" /dev/rdisk/c1t2d0
```

5) Mirror the stand, root and swap logical volumes

```
lvextend -m 1 /dev/vg00/lvol1
lvextend -m 1 /dev/vg00/lvol2
lvextend -m 1 /dev/vg00/lvol3
```

Note: LVM will resynchronize the new mirror copies.

Repeat the lvextend for all other logical volumes on the boot mirror.

```
lvextend -m 1 /dev/vg00/lvol4
lvextend -m 1 /dev/vg00/lvol5
lvextend -m 1 /dev/vg00/lvol6
lvextend -m 1 /dev/vg00/lvol7
lvextend -m 1 /dev/vg00/lvol8
```

6) Modify your alternate boot path to point to the mirror copy of the boot disk.

Note: Use the Hardware path for your new boot disk.

```
setboot -a 0/0/2/0.2.0
```

Jim Langston

Here is a script that I use. All you need to do is ftp it to your server, chmod 700 on the file then run the command with the cxtxdx name

(i.e. mirrorboot.ksh c2t2d0)

If you have already added that disk name to a volume group, remove it as this script does everything for you. I've used it upteen number of times and it works great!

See script below

```
---cut---
```

```
#.....
```

```
# Check to see if a parameter was passed
```

```
#.....
```

```
if test $# -ne 1
```

```
then
```

```
    echo "A Parameter needs to be passed"
```

```
    return 1
```

```
fi
```

```
#.....
```

```
# Since a parameter was passed, verify it was good, if not make it incremental
```

```
#.....
```

```

# Initialize disk
pvcreate -f -B /dev/rdisk/$1

# Add this disk to the current root volume group.
vgextend /dev/vg00 /dev/dsk/$1

# Make the new disk a boot disk.
mkboot /dev/rdisk/$1

# Copy the correct AUTO file into the new LIF area.
mkboot -a "hpux -lq (;0)/vmunix" /dev/rdisk/$1

# Mirror the boot, root and primary swap logical volumes to the new
# bootable disk. Ensure that all devices in vg00, such as /usr, /swap,
# etc., are mirrored.
lvextend -m 1 /dev/vg00/lvol1 /dev/dsk/$1
lvextend -m 1 /dev/vg00/lvol2 /dev/dsk/$1
lvextend -m 1 /dev/vg00/lvol3 /dev/dsk/$1
lvextend -m 1 /dev/vg00/lvol4 /dev/dsk/$1
lvextend -m 1 /dev/vg00/lvol5 /dev/dsk/$1
lvextend -m 1 /dev/vg00/lvol6 /dev/dsk/$1
lvextend -m 1 /dev/vg00/lvol7 /dev/dsk/$1
lvextend -m 1 /dev/vg00/lvol8 /dev/dsk/$1

# NOTE The boot logical volume (/dev/vg00/lvol1 by default) must be done first to
# ensure that it occupies the first contiguous set of extents on the new disk.
# Update the boot information contained in the BDRA for the mirror
# copies of boot, root and primary swap.

/usr/sbin/lvlnboot -b /dev/vg00/lvol1
/usr/sbin/lvlnboot -v -r /dev/vg00/lvol3
/usr/sbin/lvlnboot -s /dev/vg00/lvol2

# Check if the BDRA is correct.
/usr/sbin/lvlnboot -R /dev/vg00

# Verify that the mirrors were properly created.
lvlnboot -v

# The output of this command is shown in a display like the following:#
# Boot Definitions for Volume Group /dev/vg00:
# Physical Volumes belonging in Root Volume Group:
# /dev/dsk/c4t5d0 (10/0.5.0) Boot Disk
# /dev/dsk/c4t6d0 (10/0.6.0) Boot Disk
# Boot: lvol1 on: /dev/dsk/c4t5d0
# /dev/dsk/c4t6d0
# Root: lvol3 on: /dev/dsk/c4t5d0
# /dev/dsk/c4t6d0
# Swap: lvol2 on: /dev/dsk/c4t5d0
# /dev/dsk/c4t6d0
# Dump: lvol2 on: /dev/dsk/c4t6d0, 0

```

---cut---

Bob Vance

A couple additional things that I do:

at step 3:

NOTE that 'mkboot' ONLY copies the DEFAULT set of boot LIF files.

I also include the following command to copy ALL the LIF files, in case any other utilities (like ODE) were installed on the original boot disk:

```
for f in `lifs /dev/rdisk/c1t2d0` ;
do lifcp /dev/rdisk/c1t2d0:$f /dev/rdisk/c2t2d0:$f ;
done
```

NOTE the \$f at the end of BOTH device: names !!!

step 3.5 :>) (before the actual mirroring)

Set MWC ****OFF**** on the swap lvols:

First, do primary system swap lvol:

```
reboot --- interrupt boot process
hpux -lm -lq #from the ISL prompt
vgchange -a y vg00
lvchange -M n -c n /dev/vg00/lvol2
```

Once the system is back up, you may notice, while using bdf,
that / is not the

```
/dev/vg00/lvol1
```

filesystem, but is labeled as /dev/root.

To correct this, do a:

```
rm /etc/mnttab
```

and then do a:

```
mount -a # make sure that there are no entries in /etc/fstab
# that you do not want mounted at this point.
```

The other lvols can be done in single-user mode

```
reboot --- interrupt boot process
hpux -is -lq #from the ISL prompt
lvchange -M n -c n /dev/vg00/lvoln # on other swap lvols
init 3
```

at step 4:

Verify that the correct string has been installed on BOTH disks:

```
lifcp /dev/dsk/c1t2d0:AUTO - | head -1
lifcp /dev/dsk/c2t2d0:AUTO - | head -1
```

step 4.5:

Consider using PVG (it's sorta required if you ever want to use distributed allocation and mirroring --- not an issue, though, unless you are striping and mirroring over 4 drives. The idea, though, is useful to keep in mind, especially for "external" VGs where you may have 4 or more drives being used):

```
create /etc/lvmpvg (e.g., use vi editor)
zeus ## cat /etc/lvmpvg | sed 's/^/ /'
  VG /dev/vg00
  PVG vg00_a
  /dev/dsk/c1t2d0
  PVG vg00_b
  /dev/dsk/c2t2d0
```

Then, change the mirroring policy to PVG-strict:

```
lvchange -s g /dev/vg00/lvol1
lvchange -s g /dev/vg00/lvol2
...
```

step 7:

Now, update the boot information contained in the BDRA (Boot Data Reserved Area) of the boot disks in the root volume group with the locations of the mirror copies of root and primary swap.

```
lvlnboot -R #recovers any BDRAs
lvlnboot -r /dev/vg00/lvol3 #specifies the root LV
lvlnboot -b /dev/vg00/lvol1 #specifies the boot LV
lvlnboot -s /dev/vg00/lvol2 #specifies the swap LV
```

Also, you can use -v option to have LVM report its activities.

Angelo Collazo

I would use SAM for this. Hope this helps.

Aoratos

Here is a list of commands I have used successfully several times. The list is from a "cookbook" given me by HP field personnel.

```
#pvcreate -B /dev/rdisk/c2t2d0
#mkboot /dev/rdisk/c2t2d0
#mkboot -a "hpux -lq (;0)/stand/vmunix" /dev/rdisk/c2t2d0
#mkboot -b /usr/sbin/diag/lif/updatediaglif (NOTE: updatediaglif2 for
64
bit) -p ISL -p AUTO -p HPUX -p LABEL /dev/rdisk/c2t2d0
#vgextend /dev/vg00 /dev/dsk/c2t2d0
#lvextend -m 1 /dev/vg00/lvol1 /dev/dsk/c2t2d0 (mirror /stand)
#lvextend -m 1 /dev/vg00/lvol2 /dev/dsk/c2t2d0 (mirror swap)
#lvextend -m 1 /dev/vg00/lvol3 /dev/dsk/c2t2d0 (mirror /)
#lvlnboot -b /dev/vg00/lvol1
#lvlnboot -r /dev/vg00/lvol3
#lvlnboot -s /dev/vg00/lvol2
#lvlnboot -d /dev/vg00/lvol2
#lvlnboot -R /dev/vg00
```

HP-UX-Admin: [HPADM] Summary MirrorDisk/UX 11.00

```
#lvextend -m 1 /dev/vg00/lvol4 /dev/dsk/c2t2d0 (mirror /home)
#lvextend -m 1 /dev/vg00/lvol5 /dev/dsk/c2t2d0 (mirror /opt)
#lvextend -m 1 /dev/vg00/lvol6 /dev/dsk/c2t2d0 (mirror /tmp)
#lvextend -m 1 /dev/vg00/lvol7 /dev/dsk/c2t2d0 (mirror /usr)
#lvextend -m 1 /dev/vg00/lvol8 /dev/dsk/c2t2d0 (mirror /var)
```

Now, edit the /stand/bootconf file and add a line for the new disk
1 /dev/dsk/c2t2d0

I don't believe that your "mkboot -a" on the primary disk is necessary,
but I am not sure on that.

Don't forget to manually test and verify that you can boot from the
secondary disk.

Rick Starr

```
pvcreate -B /dev/rdisk/c2t2d0
```

```
mkboot -l /dev/rdisk/ c2t2d0
```

```
mkboot -a "hpux -lq (;0)/stand/vmunix" /dev/rdisk/ c2t2d0
```

```
# (NO SPace between disk section ;0) and /stand/vmunix)
```

```
lifls /dev/rdisk/c1t2d0
```

This list utilities installed on current boot disk

You'll want to preserve each of these utilites in the next steps

```
cd /usr/sbin/diag/lif
```

```
mkboot -b updatediaglif2 -p ISL -p AUTO -p HPUX -p LABEL -p PAD /dev/rdisk/c2t2d0
```

```
#lifcp /dev/rdisk/cxtxdx:FILE /dev/rdisk/cytydy:FILE
```

```
#This has to be done for each utility, some utilities like
```

```
#ode have multiple parts for example just copying ode
```

```
#will not allow boot from isl without syslib.
```

```
#Manually run setboot -a command to set alternate boot path
```

```
vgextend vg00 /dev/dsk/$disk

#mirror logical volumes

for x in 1 2 3 4 5 6 7 8

do

lvmextend -m 1 /dev/vg00/lvol"$x" /dev/dsk/c2t2d0

done
```

Wolf-Dietrich Schmook

you seem to omit step 7:

```
lvmboot -b /dev/vg00/lvol1 # /stand
lvmboot -s /dev/vg00/lvol2 # primary swap
lvmboot -r /dev/vg00/lvol3 # /
lvmboot -d /dev/vg00/lvol2 # primary swap used for dump
```

Tom Myers

There are a couple more things to do, specifically the lvmboot updates.

This is our process (obviously culled from a script ;-):

```
1) pvcreate -fB /dev/rdisk/c2t2d0
2) mkboot /dev/rdisk/c2t2d0
3) mkboot -a "hpux -lq (;0)/stand/vmunix" /dev/rdisk/c2t2d0
4) mkboot -a "hpux -lq (;0)/stand/vmunix" /dev/rdisk/c1t2d0
5) vgextend /dev/vg00 /dev/dsk/c2t2d0
6) for Volume in `ls /dev/vg00/lvol*`
   do
       echo ">>Mirroring $Volume<<"
       lvmextend -m 1 $Volume /dev/dsk/c2t2d0
   done
7) echo "Defining the root logical volume"
   lvmboot -r /dev/vg00/lvol3
8) echo "Defining swap logical volume"
   lvmboot -s /dev/vg00/lvol2
9) echo "Defining dump logical volume"
   lvmboot -d /dev/vg00/lvol2
10) echo "Defining the boot logical volume"
    lvmboot -b /dev/vg00/lvol1
11) echo "Recovering any BDRA info"
    lvmboot -R
12) echo "Configuring alternate bootpath"
    setboot -a 0/0/2/0.2.0
```

Erik Platzbecker
looks 'perfect' to me ...; except for device names and hardware
paths
 this is 'identical' to my own recipe

Thomas Leber

Copy all of the stuff from the LIF area to the mirror as well:

```
for f in `lifs /dev/rdisk/c1t2d0` ;  
do lifcp /dev/rdisk/c1t2d0:$f /dev/rdisk/c2t2d0:$f ;  
done
```

Craig Johnson

I think you are missing some lvlboot commands at the end, but I could be wrong. It's been awhile since I did this.

Do you Yahoo!?
Protect your identity with Yahoo! Mail AddressGuard

--

```
    ---> Please post QUESTIONS and SUMMARIES only!! <---  
    To subscribe/unsubscribe to this list, contact majordomo@dutchworks.nl  
Name: hpux-admin@dutchworks.nl    Owner: owner-hpux-admin@dutchworks.nl
```

```
Archives: ftp.dutchworks.nl:/pub/digests/hpux-admin    (FTP, browse only)  
          http://www.dutchworks.nl/htbin/hpsysadmin    (Web, browse & search)
```