

# Veritas reminders

Based on VXVM v3.0.4 on Solaris 2.6 and Solaris 8

## Installation

1. `pkgadd VRTSvxvm`

You can also install VRTSvmdoc (PDF and PostScript docs) VRTSvmman, VRTSvmsa, VRTSvmdev (optional developers' package)

VRTSvxvm contains kernel drivers `vxdump`, `vxio`, `vxspec`

and installs stuff into `/usr/lib/vxvm`, `/etc/vx`, `/sbin/vxconfigd`, `/usr/sbin/vx*`, `/etc/rc2.d` & `/etc/rcS.d`  
it modifies `/etc/devlink.tab`, `/etc/system`, and copies `libthread.so` and `libc.so` to `/etc/vx/slib`

2. run `vxinstall` and follow the prompts (licences, encapsulation, disk initialisation etc.)

after `vxinstall`, `'vxdisk list'` and `vxprint` should show some output

Licences are installed in `/etc/vx/elm`

3. (optional) add `/opt/VRTSvxvm/man` to your MANPATH and `/etc/vx/bin` to your PATH

## To encapsulate the root (swap,var..) disk :

N.B. the root disk must have 2 slices free

run `vxdiskadm` and follow instructions

afterwards, there are more forceloads in `/etc/system` (`scsi`, `pci`, `sd..`), and also at the end of `/etc/system`:

```
rootdev:/pseudo/vxio@0:0
set vxio:vol_rootdev_is_volume=1
```

and `/etc/vfstab` is modified to contain vx devices ( the old copy of `vfstab` is renamed to `vfstab.prevm`)

`vxprint` will now show new volumes created for any filesystems you had on your root disk (`swapvol`, `usr`, `home..`)

## To mirror the root disk :

To do this, you must add a new disk (which must have slice 0 free) to the `rootdg` disk group. You may have done this during `vxinstall`; if not, you can do this using

```
vxdisksetup -i c0t1d0s2
vxdg adddisk disk1=c0t1d0s2
```

Now mirror root disk:

```
/etc/vx/bin/vxrootmir disk1
```

And mirror the other volumes onto the new disk:

```
vxassist mirror swapvol disk1
vxassist mirror var disk1
vxassist mirror usr disk1
```

...etc

## To create a new filesystem/volume

```
vxassist make robin2 100m [ disk1 disk2 ]
mkfs /dev/vx/rdisk/robin2 204800
( 100 MB = 204800 sectors of 512 bytes)
mount /dev/vx/dsk/robin2 /mnt
```

## To remove filesystem/volume

```
umount /mnt
vxassist remove volume robin2
or vxvol stop robin2
vxedit -rf rm robin
```

## See largest size of a new volume :

```
# vxassist maxsize
Maximum volume size: 21950464 (10718Mb)
```

## See largest size a volume can be grown by :

```
# vxassist maxgrow usr
Volume usr can be extended by 21950464 to: 28242970 (13790Mb+1050 sectors)
```

## Grow a filesystem/volume:

```
vxassist growto robin2 200m
or
vxassist growby robin2 50m
Then you have to run mkfs to grow the filesystem:
mkfs /dev/vx/rdisk/robin2 512000
(512000 = 250mb)
```

## Create a disk group:

```
vxdg init testdg test01=c0t3d4
```

## Remove a disk from a disk group

```
vxdg -g testdg rmdisk test01
```

## Delete ("deport") a disk group:

```
vxdg deport testdg
```

## Add a hot spare disk to a disk group:

```
vxdg adddisk disk03=c0t1d0s2
vxedit set spare=on disk03
```

## Remove a mirror:

```
vxassist remove mirror robin2 [ !plex-name ]
or (better) vxplex -o rm dis plex-name
```

It's easier to use vxresize:  
/etc/vx/bin/vxresize robin2 250m

**Dissociate plex from volume:** vxplex dis *plex-name*  
**remove volume:** vxedit rm *vol-name*

**Dissociate sub-disk from plex:** vxsd dis *subdisk-name*  
**Remove subdisk/plex:** vxedit rm *name*

**Show free disk space** (i.e. free 'chunks', space not allocated to sub-disks)

```
u60 5.8 # vxdg free
GROUP          DISK          DEVICE          TAG          OFFSET      LENGTH      FLAGS
rootdg         disk0         c0t0d0s2       c0t0d0       1857239    5779554    -
rootdg         disk0         c0t0d0s2       c0t0d0       20221805   15658302   -
```

**Show disks:**

```
# vxdisk list
DEVICE        TYPE        DISK          GROUP        STATUS
c0t0d0s2     sliced     disk0         rootdg       online
c0t1d0s2     sliced     -             -            error        <-- this disk not initialised, not
part of Vol.Mgr
```

**View a summary:**

```
# vxprint -S
Disk group: rootdg          (Plexfree and SDFREE show plexes/sub-disks not allocated to a
volume)
VOLUMES  PLEXES  SUBDISKS  PLEXFREE  SDFREE  DISKS
6         6        7         0         0        1
```

**See exact layout of sub-disks on the disk**

```
# vxprint -st
Disk group: rootdg
SD NAME      PLEX      DISK          DISKOFFS  LENGTH  [COL/]OFF  DEVICE      MODE
SV NAME      PLEX      VOLNAME       NVOLLAYR  LENGTH  [COL/]OFF  AM/NM       MODE
sd disk0-02  rootvol-01 disk0         0          262371  1          c0t0d0     ENA
sd disk0-01  swapvol-01 disk0         262371     262372  0          c0t0d0     ENA
sd disk0-05  var-01    disk0         524743     819544  0          c0t0d0     ENA
sd disk0-06  robin2-01 disk0         1344287    512952  0          c0t0d0     ENA
sd disk0-04  usr-01    disk0         7636793    6292506 0          c0t0d0     ENA
sd disk0-03  home-01   disk0         13929299   6292506 0          c0t0d0     ENA
sd disk0-B0  rootvol-01 disk0         35880107  1        0          c0t0d0     ENA
```

**vxprint options:**

```
-G      show a list of all disk groups
-p      plexes
-v      volumes
-s      sub-disks
-d      hard disks (only initialised disks)
-e 'expr' -select specific info, e.g:
```

e.g. find all volumes/plexes which have a subdisk smaller than 100MB

```
vxprint -e 'v_plex.pl_sd.sd_len < 100M'
```

or find which plex/vol uses a particular sub-disk:

```
# vxprint -e ' pl_sd="disk0-03" '
TY NAME      ASSOC      KSTATE      LENGTH      PLOFFS      STATE      TUTILO      PUTILO
pl home-01   home       ENABLED     6292506    -           ACTIVE     -           -
sd disk0-03  home-01    ENABLED     6292506    0           -         -           -
```

or find which volumes use a particular hard disk:

```
# vxprint -e ' pl_sd.sd_disk="disk0" '
TY NAME      ASSOC      KSTATE      LENGTH      PLOFFS      STATE      TUTILO      PUTILO
pl home-01   home       ENABLED     6292506    -           ACTIVE     -           -
sd disk0-03  home-01    ENABLED     6292506    0           -         -           -

pl rootvol-01 rootvol    ENABLED     262372     -           ACTIVE     -           -
sd disk0-B0  rootvol-01 ENABLED     1          0           -         -           Block0
sd disk0-02  rootvol-01 ENABLED     262371     1           -         -           -
```

**Recreating sub-disks** (in this case, vxassist remove mirror testvol had removed the wrong side of the mirror)  
re-create the sub-disk

```
vxmake sd disk0-06 disk0,20221805,8390008 (sizes from your saved vxprint -st info!)
re-create the plex
vxmake plex testvol-02 sd=disk0-06
re-create the volume
vxmake -Ufsgen vol testvol2 plex=testvol-02 (after this, vxprint shows STATE=EMPTY)
initialise the volume
vxvol init clean testvol2 testvol-02 (sets KSTATE=DISABLED; STATE=CLEAN)
start the volume
vxrecover -s testvol2 (sets STATE=ACTIVE)
```

### **VX snapshots**

for doing consistent online backups.

**NB** to do snapshots, you must have spare disk space on a separate disk (as if you were going to mirror the volume)

```
vxassist snapstart robin2
vxassist snapshot robin2 vsnap01 (vsnap01 is new temporary volume name)
(optional) fsck /dev/vx/rdisk/vsnap01
ufsdump 0f /dev/rmt/0 /dev/vx/rdisk/vsnap01
```

### **Uninstalling VXVM**

unmount filesystems, transfer them to non-vxvm disks (e.g. using ufsdump)

```
vxassist remove vol vol-name
vxdg rmdisk disk-name
vxdctl stop
vxiod -f set 0 (this stops the 10 or so kernel vxiod threads)
```