

# [Linux] LVM

- 1

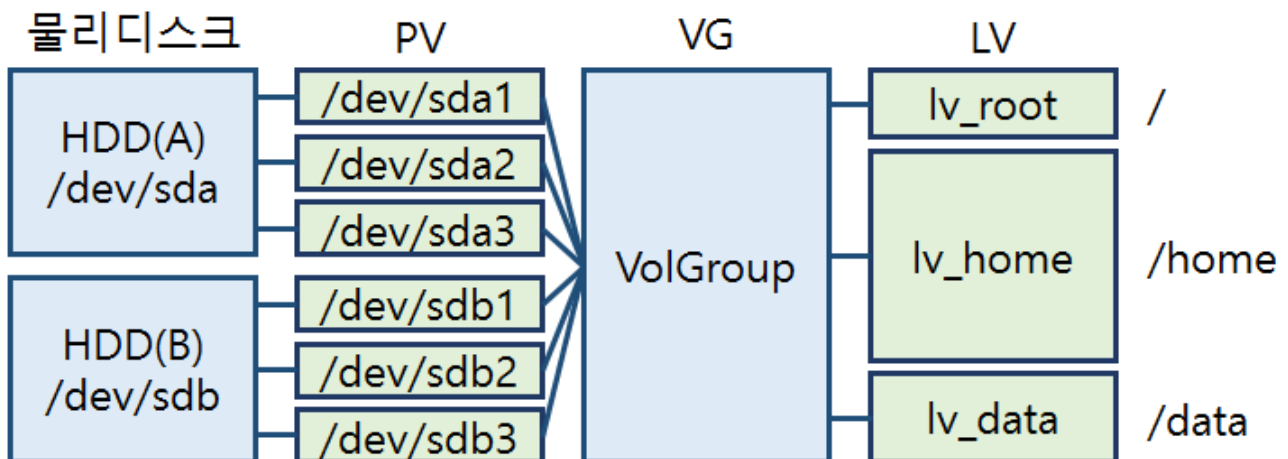
## 1. LVM ?

HDD

1.

LVM

)



## 2. LVM

### 1) LVM

LVM

### 2) PV(Physical Volume) :

/dev/sda1, /dev/sdb1, /dev/sdc1

LVM

LVM

PV

(PV PE(Physical Extent) )

- PE( Physical Extent) :

PV 4MB

### 3) VG ( Volume Group) :

Physical Volume (PE가 ?)

PV PV VG

LV

### 4) LV (Logical Volume) :

Volume Group 가

## 3. LVM

/home LVM

/home 가

# df -Th

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/sda2	xfs	30G	1.3G	29G	5%	/
/dev/sda1	xfs	1014M	140M	875M	14%	/boot
/dev/sda3	ext4	68G	55M	65G	1%	/home

### 1) LVM

-  
# rpm -qa |grep lvm

```
-  
# yum install lvm2
```

```
-  
# systemctl enable lvm2-monitor
```

2)

```
LVM .( fdisk -l /dev/sda )
```

```
          LVM          LVM          .  
          /dev/sda3 (/home)          LVM
```

```
-  
# fdisk -l /dev/sda
```

Device	Boot	Start	End	Blocks	Id	System
/dev/sda1	*	2048	2099199	1048576	83	Linux
/dev/sda2		2099200	65013759	31457280	83	Linux
/dev/sda3		65013760	209715199	72350720	8e	Linux

```
-  
# fdisk /dev/sda  
Command (m for help): **p**  
Disk /dev/sda: 107.4 GB, 107374182400 bytes, 209715200 sectors  
Units = sectors of 1 * 512 = 512 bytes  
Sector size (logical/physical): 512 bytes / 4096 bytes  
I/O size (minimum/optimal): 4096 bytes / 4096 bytes  
Disk label type: dos  
Disk identifier: 0x000c8e42
```

Device	Boot	Start	End	Blocks	Id	System
/dev/sda1	*	2048	2099199	1048576	83	Linux
/dev/sda2		2099200	65013759	31457280	83	Linux
/dev/sda3		65013760	209715199	72350720	83	Linux

```
Command (m for help): **t**
Partition number (1-3, default 3): **3**
Hex code (type L to list all codes): **8e**
Changed type of partition 'Linux' to 'Linux LVM'
```

```
Command (m for help): **p**
```

```
Disk /dev/sda: 107.4 GB, 107374182400 bytes, 209715200 sectors
Units = sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 4096 bytes
I/O size (minimum/optimal): 4096 bytes / 4096 bytes
Disk label type: dos
Disk identifier: 0x000c8e42
```

Device	Boot	Start	End	Blocks	Id	System
/dev/sda1	*	2048	2099199	1048576	83	Linux
/dev/sda2		2099200	65013759	31457280	83	Linux
/dev/sda3		65013760	209715199	72350720	8e	Linux LVM

```
Command (m for help): **w**
```

3) **(PV)**

LVM

PE(Physical Extent) : PV LVM2  
4MB

**3-1) PV (pvcreate)**

```
# pvcreate /dev/sda3
WARNING: ext4 signature detected on /dev/sda3 at offset 1080.
Wipe it? [y/n]: y Wiping ext4 signature on /dev/sda3. Physical
volume "/dev/sda3" successfully created.
```

```
# pvcreate /dev/sda3
WARNING: ext4
signature detected on /dev/sda3 at offset 1080.
Wipe it? [y/n]: y
Wiping ext4 signature on /dev/sda3.
Physical volume "/dev/sda3" successfully created.
```

```

pvcreate /dev/sda3
WARNING: ext4 signature detected on /dev/sda3 at offset 1080.
Wipe it? [y/n]: y
Wiping ext4 signature on /dev/sda3.
Physical volume "/dev/sda3" successfully created.

```

### 3-2) PV

```

# pvs
PV VG Fmt Attr PSize  PFree
/dev/sda3  lvm2 --- <69.00g <69.00g

# pvscan PV /dev/sda3
lvm2 [<69.00 GiB]Total: 1 [<69.00 GiB] / in use: 0 [0 ] / in
no VG: 1 [<69.00 GiB]

# pvdisplay
VG NamePV Size          <69.00 GiB
Allocatable          NO
PE Size              0
Total PE             0
Free PE              0
Allocated
PE                  0
PV UUID              dFUFjg-ETp6-aCkV-UHpw-HpP7-e40T-7L00p3

```

### 3-3) (VG)

```

# (VG) /dev/VG_NAME
- VG

# vgcreate [ ] [ ]

vgcreate vg-home /dev/sda3Volume group "vg-home" successfully
created

- VG

# vgs
VG #PV #LV #SN Attr VSize VFreevg-home 1 0 0 wz--n-
<69.00g <69.00g

```

```
# vgscan
Reading volume groups from cache. Found volume group "vg-home"
using metadata type lvm2
```

```
# vgsdisplay
--- Volume group ---
VG Name          vg-home
System
IDFormat         lvm2
Metadata Areas   1
Metadata Sequence No 1
VG Access        read/write
VG Status        resizable
MAX LV           0
Cur LV          00
pen LV           0
Max PV           0
Cur PV          1
Act PV           1
VG Size          <69.00 GiB
PE Size          4.00 MiB
Total PE         17663
Alloc PE / Size  0 / 0
Free PE / Size   17663 / <69.00 GiB
VG UUID          MESw3F-j0gs-yz0o-bwR9-34nn-u0dP-qH0HEC
```

4)

```
#                               (Logical Volumes)
- LV

# lvcreate -n data1v L 70GB testvg --> testvg 70G data1v

# lvcreate -n lv-home -l +100%FREE vg-home --> lv-
home
# lvcreate

lvcreate -n lv-home -l +100%FREE vg-home Logical volume "lv-
home" created.

- LV          (lvs, lvdisplay, lvscan)

# lvs
```

```
LV   VG   Attr   LSize   Pool Origin Data% Meta% Move Log
Cpy%Sync Convert
lv-home vg-home -wi-ao---- <69.00g
```

```
# lvscan
```

```
ACTIVE          '/dev/vg-home/lv-home' [<69.00 GiB] inherit
```

```
# lvdiskdisplay
```

```
--- Logical volume ---
```

```
LV Path          /dev/vg-home/lv-home
```

```
LV Name          lv-home
```

```
VG Name          vg-home
```

```
LV UUID          AY0b7g-L0pN-DrTm-Lhgb-vqU5-T2W1-0cFe4W
```

```
LV Write Access  read/write
```

```
LV Creation host, time localhost.localdomain, 2022-05-11
16:20:59 +0900
```

```
LV Status        available
```

```
# open           0
```

```
LV Size          <69.00 GiB
```

```
Current LE       17663
```

```
Segments         1
```

```
Allocation       inheritRead ahead sectors    auto
```

```
- currently set to 8192
```

```
Block device     253:0
```

5)

5-1) **LV**

```
# lvdiskdisplay          LV Path  ext4
```

```
/home
```

```
**
```

```
# mkfs.ext4 /dev/vg-home/lv-home
```

```
**mke2fs 1.42.9 (28-Dec-2013)Discarding
```

```
device blocks: done
```

```
Filesystem label=OS
```

```
type: LinuxBlock
```

```
size=4096 (log=2)Fragment size=4096 (log=2)Stride=0 blocks,
Stripe width=0 blocks4521984 inodes, 18086912 blocks904345
blocks (5.00%) reserved for the super userFirst data
block=0Maximum filesystem blocks=2166358016552 block
groups32768 blocks per group, 32768 fragments per group8192
```

```
inodes per groupSuperblock backups stored on blocks:
32768, 98304, 163840, 229376, 294912, 819200, 884736, 1605632,
2654208,      4096000, 7962624, 11239424 Allocating group
tables: done
Writing inode tables: done
Creating journal (32768 blocks): doneWriting superblocks and
filesystem accounting information: done
```

```
**# mount -t ext4 /dev/vg-home/lv-home /home**
```

```
**# df -Th
```

```
**Filesystem
```

```
Type      Size Used Avail Use% Mounted on/dev/sda2
xfs       30G 1.3G  29G   5% /devtmpfs          devtmpfs 484M   0
484M  0%
/devtmpfs          tmpfs   493M   0 493M   0%
/dev/shmtmpfs     tmpfs   493M  13M 480M   3%
/runtmpfs        tmpfs   493M   0 493M   0%
/sys/fs/cgroup/dev/sda1 xfs    1014M 140M 875M  14%
/boottmpfs       tmpfs   99M   0 99M   0% /run/user/0*
/dev/mapper/vg--home-lv--home ext4    68G  53M 65G   1% /home*
```

```
5-2)
```

```
/etc/fstab
```

```
# /etc/fstab
```

```
/dev/vg-home/lv-home /home ext4 defaults 1 2
```