

LVM

Abstraktionsschicht, um Partitionen flexibel über mehrere physische Devices zu bilden. Fasst eine oder mehrere Disks zu einem Logical Volume zusammen. Mehrere Physical Volumes (Platten) bilden eine Volume Group. In der Volume Group werden Logical Volumes gebildet. In den LV werden die Dateisysteme angelegt.

Dateisystem

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Logical Volume (LV)

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Volume Group (VG)

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Physical Volume (PV, HDD1 -- HDD2)

pvdisplay zeigt alle LVM Volumes und die darin zusammengefassten physischen Devices

```

root@tarapiroe /mnt # pvdisplay
--- Physical volume ---
PV Name           /dev/md3
VG Name           data1
PV Size           <2,66 TiB / not usable 2,31 MiB
Allocatable       yes
PE Size           4,00 MiB
Total PE          696964
Free PE           364164
Allocated PE      332800
PV UUID           JGWU94-FLRS-zV60-ZAzg-gRvE-ifmR-qLIIdMs

--- Physical volume ---
PV Name           /dev/nbd0p5
VG Name           ffs-vg
PV Size           19,52 GiB / not usable 2,00 MiB
Allocatable       yes (but full)
PE Size           4,00 MiB
Total PE          4997
Free PE           0
Allocated PE      4997
PV UUID           jqhYf1-VhUf-ApgM-vPtW-a1D3-EFkZ-etDGgz

```

vgdisplay zeigt die Volume Groups

```

root@tarapiroe /mnt # pvdisplay

```

```
--- Physical volume ---
PV Name           /dev/md3
VG Name           data1
PV Size           <2,66 TiB / not usable 2,31 MiB
Allocatable       yes
PE Size           4,00 MiB
Total PE          696964
Free PE           364164
Allocated PE      332800
PV UUID           JGWU94-FLRS-zV60-ZAzg-gRvE-ifmR-qLIIdMs

--- Physical volume ---
PV Name           /dev/nbd0p5
VG Name           ffes-vg
PV Size           19,52 GiB / not usable 2,00 MiB
Allocatable       yes (but full)
PE Size           4,00 MiB
Total PE          4997
Free PE           0
Allocated PE      4997
PV UUID           jqhYf1-VhUf-ApgM-vPtW-aLD3-EFkZ-etDGgz
```

lvdisplay zeigt die logical volumes

```
root@tarapiroe /mnt # lvdisplay
--- Logical volume ---
LV Path           /dev/data1/VMs
LV Name           VMs
VG Name           data1
LV UUID           ccDAJ2-sN1H-lRYL-fQFf-q11k-FtSB-7nSSQ0
LV Write Access   read/write
LV Creation host, time ,
LV Status         available
# open            1
LV Size           300,00 GiB
Current LE        76800
Segments          1
Allocation        inherit
Read ahead sectors auto
- currently set to 256
Block device      253:0

--- Logical volume ---
LV Path           /dev/data1/Backup
LV Name           Backup
VG Name           data1
LV UUID           2aABCv-Dwp0-W9Wu-0SpK-Xrwy-fHVF-pDEpge
LV Write Access   read/write
LV Creation host, time ,
LV Status         available
# open            1
```

```

LV Size          1000,00 GiB
Current LE       256000
Segments        1
Allocation       inherit
Read ahead sectors auto
- currently set to 256
Block device     253:1

--- Logical volume ---
LV Path          /dev/ffes-vg/root
LV Name          root
VG Name          ffes-vg
LV UUID          A9CTeG-Da3f-CtnJ-Hgkd-Yp6r-NpJ0-yaiwlT
LV Write Access  read/write
LV Creation host, time ffes, 2017-11-22 10:33:21 +0100
LV Status        available
# open           0
LV Size          <17,52 GiB
Current LE       4485
Segments        1
Allocation       inherit
Read ahead sectors auto
- currently set to 256
Block device     253:2

--- Logical volume ---
LV Path          /dev/ffes-vg/swap_1
LV Name          swap_1
VG Name          ffes-vg
LV UUID          tTYpH9-jJsi-0HsE-twF2-3Ut0-NZQB-UWepLj
LV Write Access  read/write
LV Creation host, time ffes, 2017-11-22 10:33:21 +0100
LV Status        available
# open           0
LV Size          2,00 GiB
Current LE       512
Segments        1
Allocation       inherit
Read ahead sectors auto
- currently set to 256
Block device     253:3

```

lvcreate legt neue Volumes in einer Volume Group an:

```
root@tokoeka ~ # lvcreate --name data2 --size 1.9T pve
```

lvextend und lvreduce vergrößern und verkleinern die Volumes. lvscan zeigt alle Volumes in Kurzfassung:

```
root@tokoeka ~ # lvscan
ACTIVE          '/dev/pve/swap' [8.00 GiB] inherit
```

```
ACTIVE          '/dev/pve/root' [100.00 GiB] inherit
ACTIVE          '/dev/pve/data' [100.00 GiB] inherit
ACTIVE          '/dev/pve/vm-100-disk-0' [32.00 GiB] inherit
ACTIVE          '/dev/pve/vm-100-disk-1' [500.00 GiB] inherit
ACTIVE          '/dev/pve/backup' [1.00 TiB] inherit
ACTIVE          '/dev/pve/data2' [1.90 TiB] inherit
```

Allerding haben sie noch kein Filesystem, das legt man mit `mkfs.ext4` an.

```
root@tokoeka ~ # mkfs.ext4 /dev/pve/vm-100-disk-1
mke2fs 1.43.4 (31-Jan-2017)
Creating filesystem with 131072000 4k blocks and 32768000 inodes
Filesystem UUID: 3c17dd79-ea84-47b8-82ec-7e94b3f394c8
Superblock backups stored on blocks:
    32768, 98304, 163840, 229376, 294912, 819200, 884736, 1605632,
2654208,
    4096000, 7962624, 11239424, 20480000, 23887872, 71663616, 78675968,
102400000

Allocating group tables: done
Writing inode tables: done
Creating journal (262144 blocks): done
Writing superblocks and filesystem accounting information: done
```

xxx

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