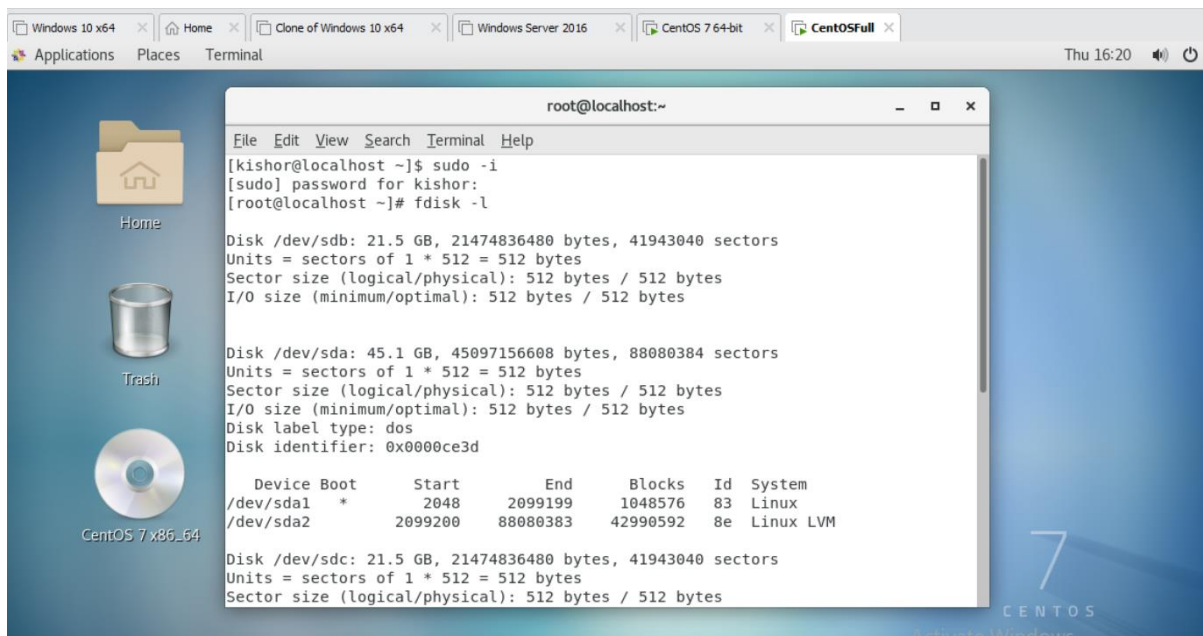DAY - 5

LOGICAL VOLUME MANAGER LINUX Lab :-

First add 3 hardware in CentOSFull by using network configuration using limux setting:-


```
[root@localhost ~]# fdisk /dev/sdb
Welcome to fdisk (util-linux 2.23.2).

Changes will remain in memory only, until you decide to write them.
Be careful before using the write command.

Device does not contain a recognized partition table
Building a new DOS disklabel with disk identifier 0xcd929416.

Command (m for help): n
Partition type:
   p   primary (0 primary, 0 extended, 4 free)
   e   extended
Select (default p):
Using default response p
Partition number (1-4, default 1):
First sector (2048-41943039, default 2048):
Using default value 2048
Last sector, +sectors or +size{K,M,G} (2048-41943039, default 41943039):
Using default value 41943039
Partition 1 of type Linux and of size 20 GiB is set
```
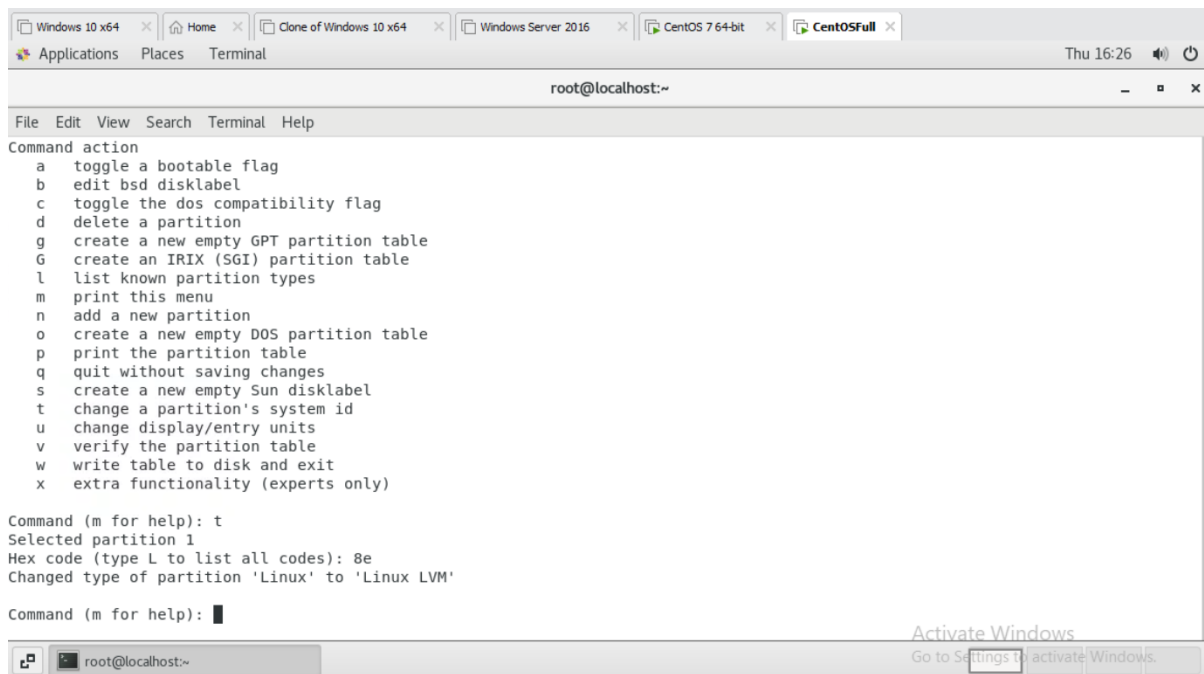
```
Command (m for help): p

Disk /dev/sdb: 21.5 GB, 21474836480 bytes, 41943040 sectors
Units = sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disk label type: dos
Disk identifier: 0xcd929416

   Device Boot      Start         End      Blocks   Id  System
/dev/sdb1            2048    41943039    20970496   83  Linux

Command (m for help):
```

```
Command action
   a   toggle a bootable flag
   b   edit bsd disklabel
   c   toggle the dos compatibility flag
   d   delete a partition
   g   create a new empty GPT partition table
   G   create an IRIX (SGI) partition table
   l   list known partition types
   m   print this menu
   n   add a new partition
   o   create a new empty DOS partition table
   p   print the partition table
   q   quit without saving changes
   s   create a new empty Sun disklabel
   t   change a partition's system id
   u   change display/entry units
   v   verify the partition table
   w   write table to disk and exit
   x   extra functionality (experts only)

Command (m for help): t
Selected partition 1
Hex code (type L to list all codes): 8e
Changed type of partition 'Linux' to 'Linux LVM'

Command (m for help):
```

root@localhost:~

```
Command (m for help): p

Disk /dev/sdb: 21.5 GB, 21474836480 bytes, 41943040 sectors
Units = sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disk label type: dos
Disk identifier: 0xcd929416

   Device Boot      Start         End      Blocks   Id  System
/dev/sdb1            2048    41943039    20970496   8e  Linux LVM

Command (m for help): w
The partition table has been altered!

Calling ioctl() to re-read partition table.
Syncing disks.
[root@localhost ~]#
```

```
[root@localhost ~]# fdisk -l

Disk /dev/sdb: 21.5 GB, 21474836480 bytes, 41943040 sectors
Units = sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disk label type: dos
Disk identifier: 0xcd929416

   Device Boot      Start         End      Blocks   Id  System
/dev/sdb1            2048    41943039    20970496   8e  Linux LVM

Disk /dev/sda: 45.1 GB, 45097156608 bytes, 88080384 sectors
Units = sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disk label type: dos
Disk identifier: 0x0000ce3d

   Device Boot      Start         End      Blocks   Id  System
/dev/sda1   *        2048     2099199     1048576   83  Linux
/dev/sda2         2099200    88080383    42990592   8e  Linux LVM

Disk /dev/sdc: 21.5 GB, 21474836480 bytes, 41943040 sectors
Units = sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
```

```
/dev/sda2         2099200    88080383    42990592   8e  Linux LVM

Disk /dev/sdc: 21.5 GB, 21474836480 bytes, 41943040 sectors
Units = sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes


Disk /dev/sdd: 21.5 GB, 21474836480 bytes, 41943040 sectors
Units = sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes


Disk /dev/mapper/centos-root: 41.6 GB, 41599107072 bytes, 81248256 sectors
Units = sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes


Disk /dev/mapper/centos-swap: 2415 MB, 2415919104 bytes, 4718592 sectors
Units = sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
```

```
bash: pvdsplay: command not found...
[root@localhost ~]# pvdisplay
  --- Physical volume ---
  PV Name               /dev/sda2
  VG Name               centos
  PV Size               <41.00 GiB / not usable 3.00 MiB
  Allocatable           yes
  PE Size               4.00 MiB
  Total PE              10495
  Free PE               1
  Allocated PE          10494
  PV UUID               z7KhOj-enU0-dfIS-yz7C-OctV-TRFn-6Ld6y6

  "/dev/sdb1" is a new physical volume of "<20.00 GiB"
  --- NEW Physical volume ---
  PV Name               /dev/sdb1
  VG Name
  PV Size               <20.00 GiB
  Allocatable           NO
  PE Size               0
  Total PE              0
  Free PE               0
  Allocated PE          0
  PV UUID               3eUneN-HoBH-S8Qt-90do-WNYq-1qCe-7eE8Sp
```

File Edit View Search Terminal Help

```
[root@localhost ~]# vgcreate allspace /dev/sdb1
  Volume group "allspace" successfully created
[root@localhost ~]# vgdisplay
  --- Volume group ---
  VG Name               allspace
  System ID
  Format                lvm2
  Metadata Areas        1
  Metadata Sequence No  1
  VG Access             read/write
  VG Status             resizable
  MAX LV                0
  Cur LV                0
  Open LV               0
  Max PV                0
  Cur PV                1
  Act PV                1
  VG Size               <20.00 GiB
  PE Size               4.00 MiB
  Total PE              5119
  Alloc PE / Size       0 / 0
  Free  PE / Size       5119 / <20.00 GiB
  VG UUID               yQLfra-VZgH-7CWU-Zcwo-VpPj-o6fO-D6S1jc

  --- Volume group ---
  VG Name               centos
```

root@localhost:~

File Edit View Search Terminal Help

```
[root@localhost ~]# lvcreate -n part1 -L +3G allspace
  Logical volume "part1" created.
[root@localhost ~]# lvcreate -n part2 -L +2G allspace
  Logical volume "part2" created.
[root@localhost ~]# lvdisplay
  --- Logical volume ---
  LV Path                /dev/allspace/part1
  LV Name                part1
  VG Name                allspace
  LV UUID                icRzyH-s6Qb-xwiC-Fpgw-UOWA-vRHW-9ujVOu
  LV Write Access        read/write
  LV Creation host, time localhost.localdomain, 2024-04-25 16:36:19 +0530
  LV Status              available
  # open                 0
  LV Size                3.00 GiB
  Current LE             768
  Segments               1
  Allocation             inherit
  Read ahead sectors     auto
  - currently set to     8192
  Block device           253:2

  --- Logical volume ---
  LV Path                /dev/allspace/part2
  LV Name                part2
  VG Name                allspace
  LV UUID                GpIvjM-j1LS-1685-NTf3-6bkB-zPeQ-3K9CTK
```

Windows 10 x64 × ⌂ Home × Clone of Windows 10 x64 × Windows Server 2016 × CentOS 7 64-bit × CentOSFull ×

Applications Places Terminal   Thu 16:38 🔊 ⏻

root@localhost:~   _ □ ✕

File Edit View Search Terminal Help

```
  LV Size                2.25 GiB
  Current LE             576
  Segments               1
  Allocation             inherit
  Read ahead sectors     auto
  - currently set to     8192
  Block device           253:1

  --- Logical volume ---
  LV Path                /dev/centos/root
  LV Name                root
  VG Name                centos
  LV UUID                5zJFji-pq3H-dF8y-ceHa-rBTx-bRL5-FzzEWU
  LV Write Access        read/write
  LV Creation host, time localhost, 2024-04-22 17:53:39 +0530
  LV Status              available
  # open                 1
  LV Size                38.74 GiB
  Current LE             9918
  Segments               1
  Allocation             inherit
  Read ahead sectors     auto
  - currently set to     8192
  Block device           253:0
```

```
                                 [...]

[root@localhost ~]# mkdir /softwares /document
[root@localhost ~]# mkfs.xfs /dev/allspace/part1
meta-data=/dev/allspace/part1    isize=512    agcount=4, agsize=196608 blks
         =                       sectsz=512   attr=2, projid32bit=1
         =                       crc=1        finobt=0, sparse=0
data     =                       bsize=4096   blocks=786432, imaxpct=25
         =                       sunit=0      swidth=0 blks
naming   =version 2              bsize=4096   ascii-ci=0 ftype=1
log      =internal log           bsize=4096   blocks=2560, version=2
         =                       sectsz=512   sunit=0 blks, lazy-count=1
realtime =none                   extsz=4096   blocks=0, rtextents=0
[root@localhost ~]# mkfs.xfs /dev/allspace/part2
meta-data=/dev/allspace/part2    isize=512    agcount=4, agsize=131072 blks
         =                       sectsz=512   attr=2, projid32bit=1
         =                       crc=1        finobt=0, sparse=0
data     =                       bsize=4096   blocks=524288, imaxpct=25
         =                       sunit=0      swidth=0 blks
naming   =version 2              bsize=4096   ascii-ci=0 ftype=1
log      =internal log           bsize=4096   blocks=2560, version=2
         =                       sectsz=512   sunit=0 blks, lazy-count=1
realtime =none                   extsz=4096   blocks=0, rtextents=0
[root@localhost ~]#
```

```
[root@localhost ~]# mount /dev/allspace/part1/software/
mount: can't find /dev/allspace/part1/software/ in /etc/fstab
[root@localhost ~]# mount /dev/allspace/part1/softwares/
mount: can't find /dev/allspace/part1/softwares/ in /etc/fstab
[root@localhost ~]# mount /dev/allspace/part1 /softwares/
[root@localhost ~]# mount /dev/allspace/part2 /document/
[root@localhost ~]# blkid
/dev/sr1: UUID="2020-11-04-11-36-43-00" LABEL="CentOS 7 x86_64" TYPE="iso9660" PTTYPE="dos"
/dev/sdb1: UUID="3eUneN-HoBH-S8Qt-90do-WNYq-1qCe-7eE8Sp" TYPE="LVM2_member"
/dev/sda1: UUID="19e0289e-b6eb-4412-b6e4-30242a65ed0a" TYPE="xfs"
/dev/sda2: UUID="z7KhOj-enU0-dfIS-yz7C-OctV-TRFn-6Ld6y6" TYPE="LVM2_member"
/dev/mapper/centos-root: UUID="926f5833-ac46-478e-afbb-944dcb17292e" TYPE="xfs"
/dev/mapper/centos-swap: UUID="151eb8c8-2371-4523-b0e5-120867f4a704" TYPE="swap"
/dev/mapper/allspace-part1: UUID="be6b82b9-3cd7-4f60-be4d-266eaeeef3ac" TYPE="xfs"
/dev/mapper/allspace-part2: UUID="a3fe28fa-6029-4423-9cf1-c047b1fefa0d" TYPE="xfs"
[root@localhost ~]#
```

root@localhost:~

File Edit View Search Terminal Help

```
#
# /etc/fstab
# Created by anaconda on Mon Apr 22 08:23:41 2024
#
# Accessible filesystems, by reference, are maintained under '/dev/disk'
# See man pages fstab(5), findfs(8), mount(8) and/or blkid(8) for more info
#
/dev/mapper/centos-root /                       xfs     defaults        0 0
UUID=19e0289e-b6eb-4412-b6e4-30242a65ed0a /boot                   xfs     defaults        0 0
/dev/mapper/centos-swap swap                    swap    defaults        0 0
~
~
~
~
~
~
~
~
~
~
~
~
~
~
"/etc/fstab" 11L, 465C                                           1,0-1         All
```

root@localhost:~

```
[2]+  Stopped                 vim /etc/fstab
[root@localhost ~]#
[root@localhost ~]#
[root@localhost ~]# lvdisplay
  --- Logical volume ---
  LV Path                /dev/allspace/part1
  LV Name                part1
  VG Name                allspace
  LV UUID                icRzyH-s6Qb-xwiC-Fpgw-UOWA-vRHW-9ujVOu
  LV Write Access        read/write
  LV Creation host, time localhost.localdomain, 2024-04-25 16:36:19 +0530
  LV Status              available
  # open                 1
  LV Size                3.00 GiB
  Current LE             768
  Segments               1
  Allocation             inherit
  Read ahead sectors     auto
  - currently set to     8192
  Block device           253:2

  --- Logical volume ---
  LV Path                /dev/allspace/part2
  LV Name                part2
  VG Name                allspace
  LV UUID                GpIvjM-j1LS-1685-NTf3-6bkB-zPeQ-3K9CTK
```

```
  --- Logical volume ---
  LV Path                /dev/allspace/part2
  LV Name                part2
  VG Name                allspace
  LV UUID                GpIvjM-j1LS-1685-NTf3-6bkB-zPeQ-3K9CTK
  LV Write Access        read/write
  LV Creation host, time localhost.localdomain, 2024-04-25 16:37:15 +0530
  LV Status              available
  # open                 1
  LV Size                2.00 GiB
  Current LE             512
  Segments               1
  Allocation             inherit
  Read ahead sectors     auto
  - currently set to     8192
  Block device           253:3

  --- Logical volume ---
  LV Path                /dev/centos/swap
  LV Name                swap
  VG Name                centos
  LV UUID                NV7F1W-FkRr-x18N-XyXV-17cK-iU2N-qTCUJu
  LV Write Access        read/write
  LV Creation host, time localhost, 2024-04-22 17:53:39 +0530
  LV Status              available
  # open                 2
```

```
[root@localhost ~]# lvs
  LV     VG       Attr       LSize   Pool Origin Data%  Meta%  Move Log Cpy%Sync Convert
  part1  allspace -wi-ao----  3.00g
  part2  allspace -wi-ao----  2.00g
  root   centos   -wi-ao---- 38.74g
  swap   centos   -wi-ao----  2.25g
[root@localhost ~]# pvs
  PV         VG       Fmt  Attr PSize   PFree
  /dev/sda2  centos   lvm2 a--  <41.00g   4.00m
  /dev/sdb1  allspace lvm2 a--  <20.00g <15.00g
[root@localhost ~]# vgs
  VG       #PV #LV #SN Attr   VSize   VFree
  allspace   1   2   0 wz--n- <20.00g <15.00g
  centos     1   2   0 wz--n- <41.00g   4.00m
[root@localhost ~]#
```

```
[root@localhost ~]# lvextend -L +1G /dev/allspace/part1
  Size of logical volume allspace/part1 changed from 3.00 GiB (768 extents) to 4.00 GiB (1024 extents).
  Logical volume allspace/part1 successfully resized.
[root@localhost ~]# lvs
  LV     VG       Attr       LSize   Pool Origin Data%  Meta%  Move Log Cpy%Sync Convert
  part1  allspace -wi-ao----  4.00g
  part2  allspace -wi-ao----  2.00g
  root   centos   -wi-ao---- 38.74g
  swap   centos   -wi-ao----  2.25g
[root@localhost ~]# fdisk -l

Disk /dev/sdb: 21.5 GB, 21474836480 bytes, 41943040 sectors
Units = sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disk label type: dos
Disk identifier: 0xcd929416

   Device Boot      Start         End      Blocks   Id  System
/dev/sdb1            2048    41943039    20970496   8e  Linux LVM

Disk /dev/sda: 45.1 GB, 45097156608 bytes, 88080384 sectors
Units = sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disk label type: dos
Disk identifier: 0x0000ce3d
```

```
Disk /dev/mapper/centos-root: 41.6 GB, 41599107072 bytes, 81248256 sectors
Units = sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes


Disk /dev/mapper/centos-swap: 2415 MB, 2415919104 bytes, 4718592 sectors
Units = sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes


Disk /dev/mapper/allspace-part1: 4294 MB, 4294967296 bytes, 8388608 sectors
Units = sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes


Disk /dev/mapper/allspace-part2: 2147 MB, 2147483648 bytes, 4194304 sectors
Units = sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes

[root@localhost ~]# █
```

```
[root@localhost ~]# fdisk /dev/sdc
Welcome to fdisk (util-linux 2.23.2).

Changes will remain in memory only, until you decide to write them.
Be careful before using the write command.

Device does not contain a recognized partition table
Building a new DOS disklabel with disk identifier 0x783280cd.

Command (m for help): n
Partition type:
   p   primary (0 primary, 0 extended, 4 free)
   e   extended
Select (default p):
Using default response p
Partition number (1-4, default 1):
First sector (2048-41943039, default 2048):
Using default value 2048
Last sector, +sectors or +size{K,M,G} (2048-41943039, default 41943039):
Using default value 41943039
Partition 1 of type Linux and of size 20 GiB is set


Command (m for help): t
Selected partition 1
Hex code (type L to list all codes): 8e
Changed type of partition 'Linux' to 'Linux LVM'

Command (m for help): p

Disk /dev/sdc: 21.5 GB, 21474836480 bytes, 41943040 sectors
Units = sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disk label type: dos
Disk identifier: 0x783280cd

   Device Boot      Start         End      Blocks   Id  System
/dev/sdc1            2048    41943039    20970496   8e  Linux LVM

Command (m for help): w
The partition table has been altered!

Calling ioctl() to re-read partition table.
Syncing disks.

[root@localhost ~]# partprobe /dev/sdc
[root@localhost ~]#
[root@localhost ~]#
[root@localhost ~]# pvcreate /dev/sdc1
  Physical volume "/dev/sdc1" successfully created.
[root@localhost ~]# vgextend allspace /dev/sdc1
  Volume group "allspace" successfully extended
[root@localhost ~]# vgs
  VG        #PV #LV #SN Attr   VSize   VFree
  allspace    2   2   0 wz--n-  39.99g 33.99g
  centos      1   2   0 wz--n- <41.00g  4.00m
```