

Create LVM

Wednesday, January 14, 2026 11:39 AM

Logical Volume Verification (lsblk)

The lsblk command output confirms the configured disks, partitions, volume groups, and logical volumes, along with their associated mount points on the CentOS Stream 9 system.

The screenshot shows a terminal window titled "workstation.lab.example.com (ssh) [Running] - Oracle VirtualBox". The window contains the following text:

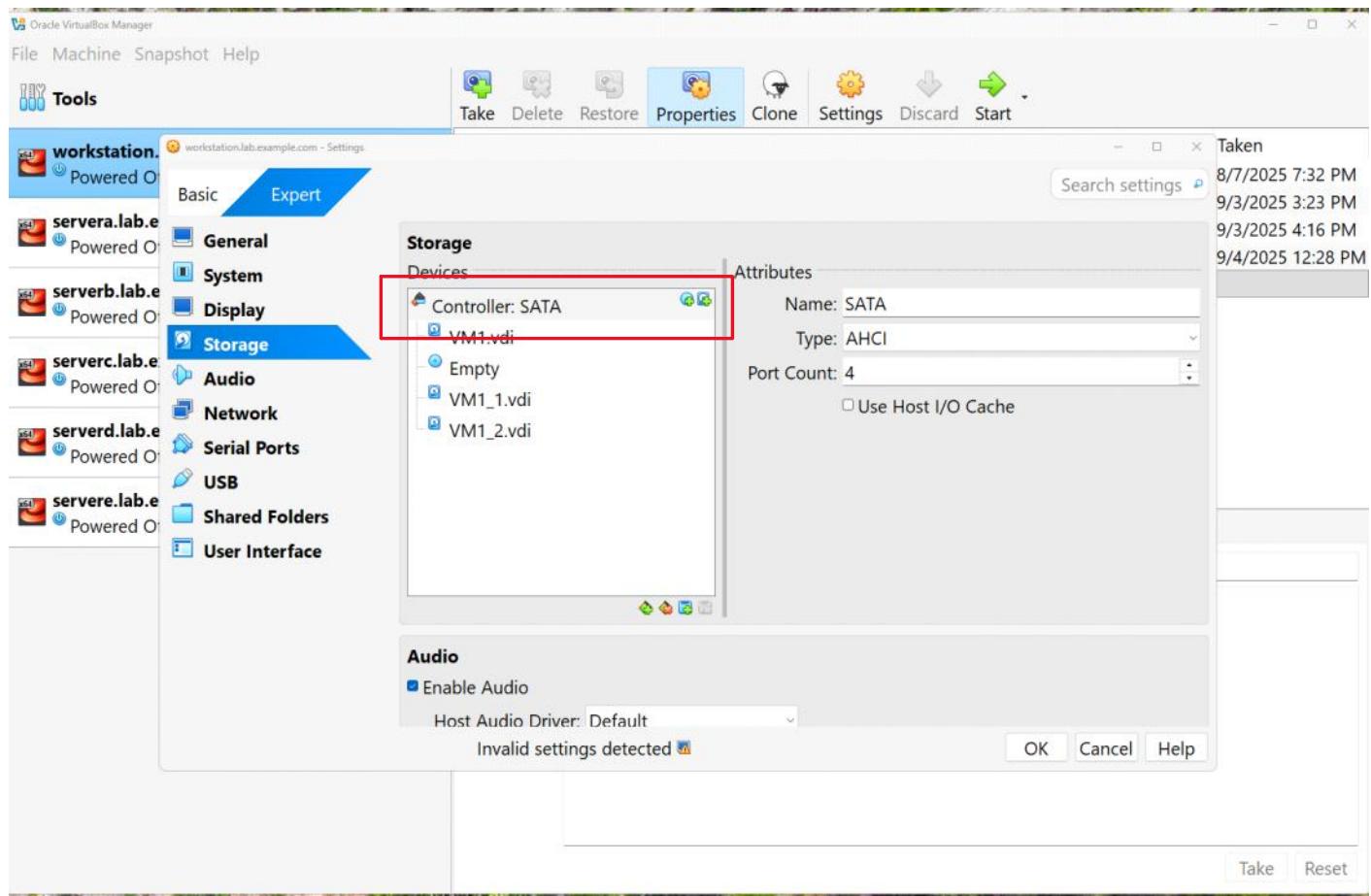
```
CentOS Stream 9
Kernel 5.14.0-565.el9.x86_64 on an x86_64

workstation login: root
Password:
Last login: Mon Jan 12 10:51:44 on tty1
[root@workstation ~]# lsblk
NAME      MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS
sda        8:0    0   80G  0 disk 
└─sda1     8:1    0   600M 0 part /boot/efi
└─sda2     8:2    0    1G  0 part /boot
└─sda3     8:3    0 78.4G 0 part
  └─cs_vbox-root 253:0  0   50G 0 lvm   /
  └─cs_vbox-swap 253:1  0   3.9G 0 lvm  [SWAP]
  └─cs_vbox-home 253:6  0 24.4G 0 lvm   /home
sdb        8:16   0   20G  0 disk 
└─sdb1     8:17   0 900M 0 part
  └─vg1-lv1   253:5  0 800M 0 lvm   /GOT
└─sdb2     8:18   0 504M 0 part
  └─vg2-lv2   253:4  0 500M 0 lvm
└─sdb3     8:19   0 204M 0 part
sdc        8:32   0   10G  0 disk 
└─sdc1     8:33   0 804M 0 part
  └─vg3-lv3   253:3  0 800M 0 lvm
└─sdc2     8:34   0   3G  0 part
  └─vg4-lv4   253:2  0 700M 0 lvm   /targaryen
└─sdc3     8:35   0 804M 0 part
  └─vgsummer-lvmsummer 253:7  0 400M 0 lvm   /opt/summertime
  └─vgsummer-SUMMERTIME 253:8  0 296M 0 lvm   /mnt/pool
sr0       11:0   1 1024M 0 rom
```

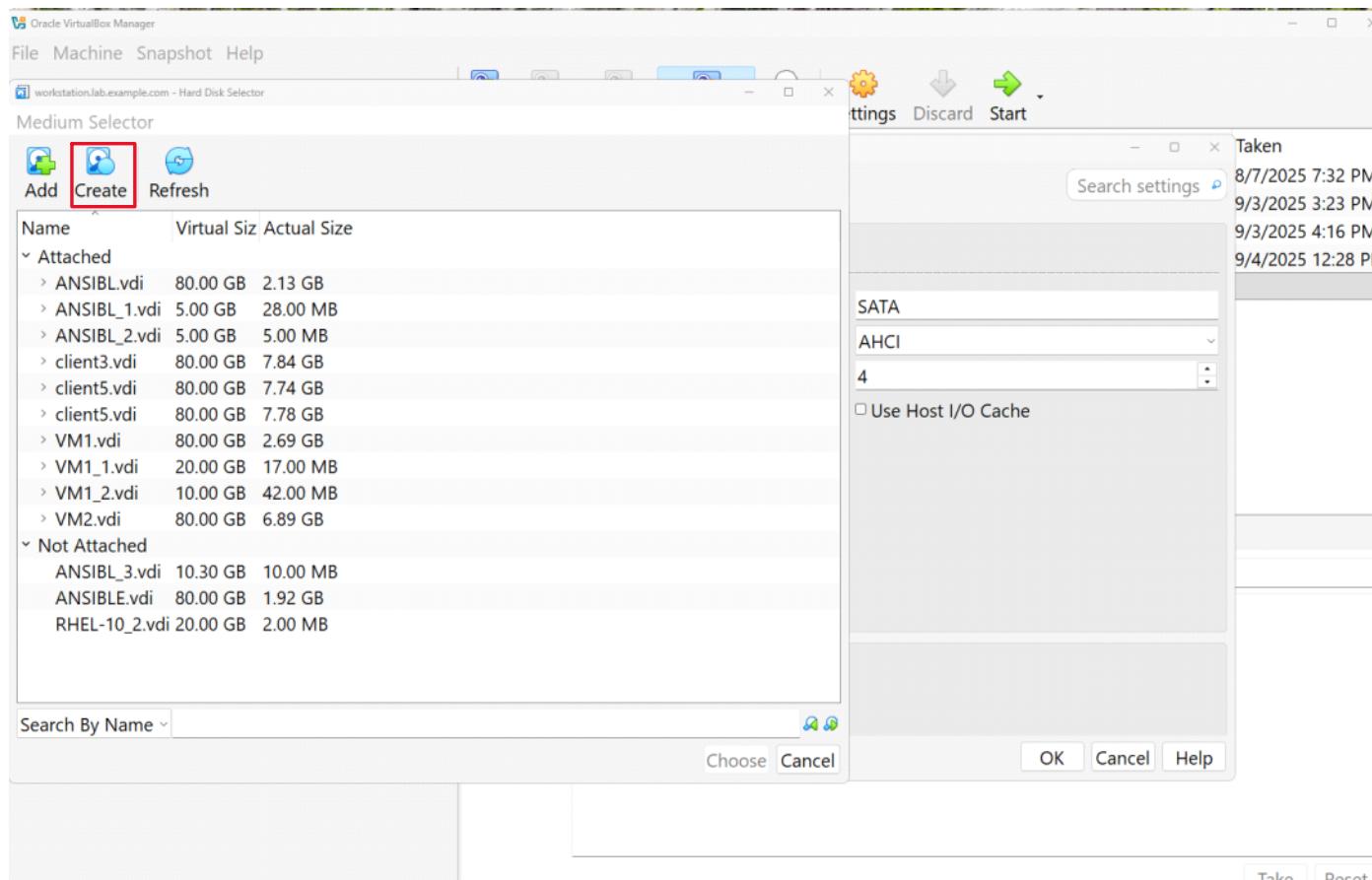
[root@workstation ~]# _

Virtual Disk Configuration (VirtualBox)

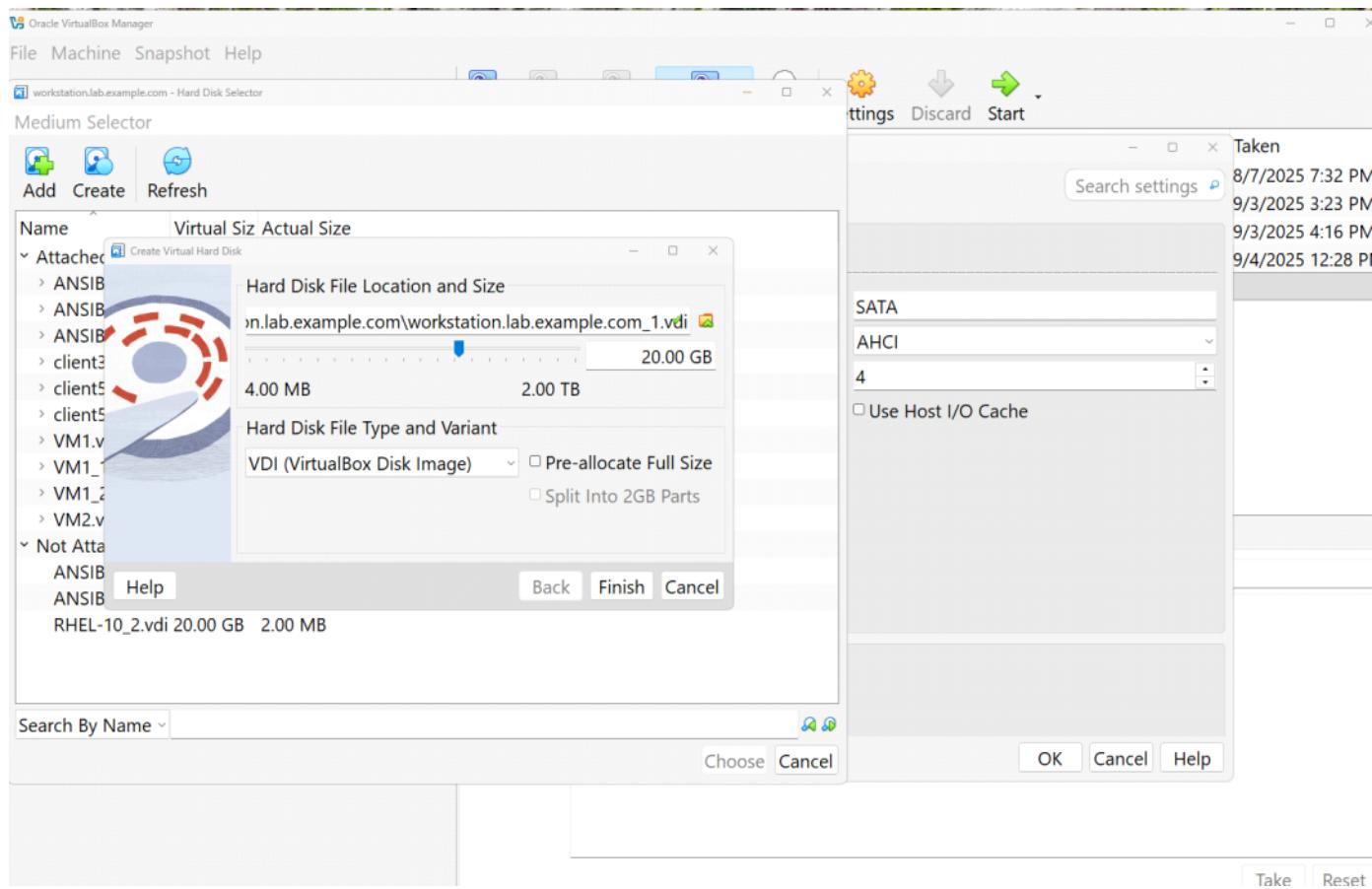
Multiple virtual disks are attached to the VM using a SATA controller to support logical volume management configuration.



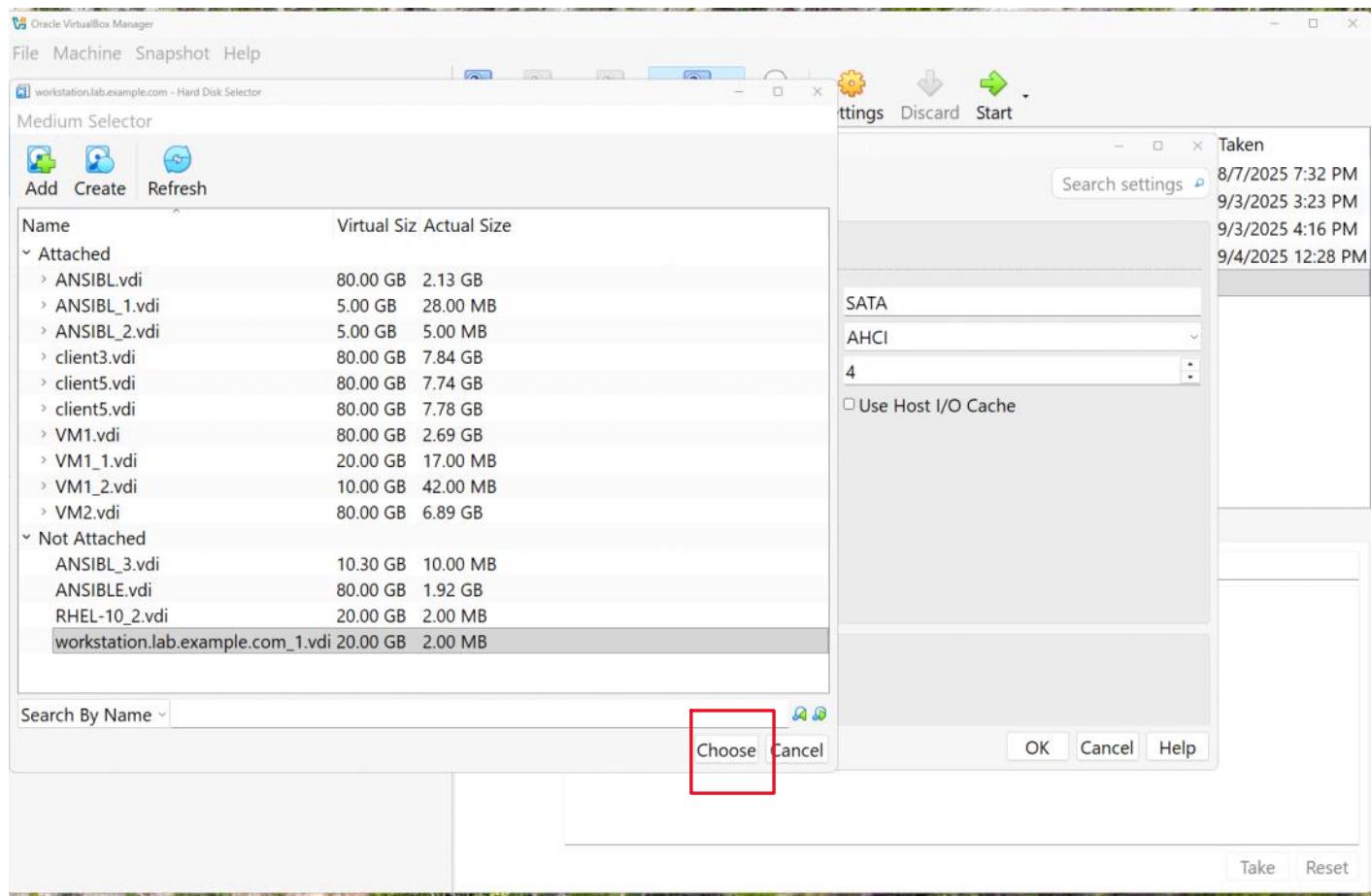
The **Create** button is used to add new virtual disks, which are attached to the virtual machine for LVM configuration.



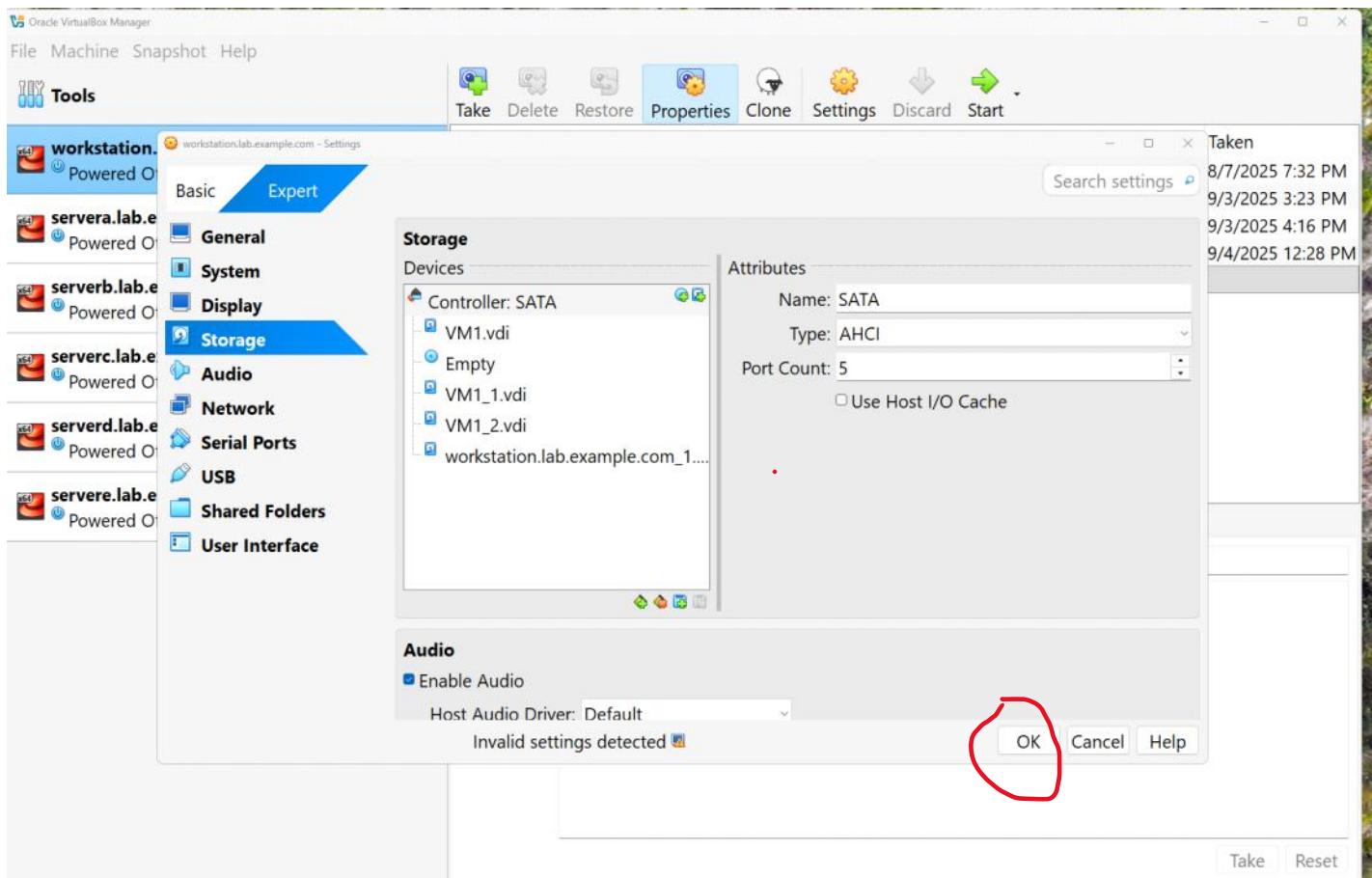
Created a new 20 GB virtual disk in VirtualBox
to use as dedicated storage for an LVM
configuration.



Selected the newly created 20 GB virtual disk and clicked **Choose** to attach it to the virtual machine for LVM use.



Confirmed the storage configuration by clicking **OK**, finalizing the attachment of the new disk to the virtual machine.



Verified the newly attached disk using lsblk,
confirming the system detects additional
storage devices available for LVM
configuration.

```
workstation.lab.example.com (ssh) [Running] - Oracle VirtualBox
File Machine View Input Devices Help

CentOS Stream 9
Kernel 5.14.0-565.e19.x86_64 on an x86_64

workstation login: root
Password:
Last login: Wed Jan 14 11:15:12 on tty1
[root@workstation ~]# lsblk
NAME           MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS
sda            8:0    0   80G  0 disk 
└─sda1          8:1    0   600M 0 part /boot/efi
└─sda2          8:2    0    1G  0 part /boot
└─sda3          8:3    0  78.4G 0 part
  ├─cs_vbox-root 253:0  0   50G 0 lvm  /
  ├─cs_vbox-swap 253:1  0   3.9G 0 lvm  [SWAP]
  └─cs_vbox-home 253:4  0  24.4G 0 lvm  /home
sdb            8:16   0   20G  0 disk 
└─sdb1          8:17   0  900M 0 part
  └─vg1-lv1     253:2  0  800M 0 lvm  /GOT
sdb2          8:18   0   504M 0 part
└─vg2-lv2     253:3  0  500M 0 lvm 
sdb3          8:19   0   204M 0 part
sdc            8:32   0   10G  0 disk 
└─sdc1          8:33   0  804M 0 part
  └─vg3-lv3     253:5  0  800M 0 lvm 
sdc2          8:34   0    3G  0 part
└─vg4-lv4     253:8  0  700M 0 lvm  /targaryen
sdc3          8:35   0  804M 0 part
  └─vgsummer-lvmsummer 253:6  0  400M 0 lvm  /opt/summertime
  └─vgsummer-SUMMERTIME 253:7  0  296M 0 lvm  /mnt/pool
sdd            8:48   0   20G  0 disk 
sr0           11:0   1  1024M 0 rom 

[root@workstation ~]# _
```

Right Ctrl

Initialized the new disk as a Physical Volume
using pvcreate and verified it with pvs,
confirming the 20 GB disk is ready for LVM use.

```

workstation.lab.example.com (ssh) [Running] - Oracle VirtualBox
File Machine View Input Devices Help
└─ sda1          8:1    0   600M  0 part /boot/efi
└─ sda2          8:2    0   1G   0 part /boot
└─ sda3          8:3    0  78.4G  0 part
  └─ cs_vbox-root 253:0  0   50G   0 lvm   /
  └─ cs_vbox-swap 253:1  0   3.9G  0 lvm   [SWAP]
  └─ cs_vbox-home 253:4  0  24.4G  0 lvm   /home
└─ sdb           8:16   0   20G   0 disk
└─ sdb1          8:17   0  900M  0 part
  └─ vg1-lv1     253:2  0  800M  0 lvm   /GOT
└─ sdb2          8:18   0  504M  0 part
  └─ vg2-lv2     253:3  0  500M  0 lvm
└─ sdb3          8:19   0  204M  0 part
└─ sdc           8:32   0   10G  0 disk
└─ sdc1          8:33   0  804M  0 part
  └─ vg3-lv3     253:5  0  800M  0 lvm
└─ sdc2          8:34   0   3G   0 part
  └─ vg-lv4      253:8  0  700M  0 lvm   /targaryen
└─ sdc3          8:35   0  804M  0 part
  └─ vgsummer-lvmsummer 253:6  0  400M  0 lvm   /opt/summertime
  └─ vgsummer-SUMMERTIME 253:7  0  296M  0 lvm   /mnt/pool
└─ sdd           8:48   0   20G   0 disk
sr0            11:0   1 1024M  0 rom
[root@workstation ~]# pvcreate /dev/sdd
  Physical volume "/dev/sdd" successfully created.
[root@workstation ~]# pvs
  PV        VG  Fmt Attr PSize  PFree
  /dev/sda3  cs_vbox lvm2 a--  78.41g    0
  /dev/sdb1   vg1   lvm2 a--  896.00m  96.00m
  /dev/sdb2   vg2   lvm2 a--  500.00m    0
  /dev/sdc1   vg3   lvm2 a--  800.00m    0
  /dev/sdc2   vg    lvm2 a--  <3.00g  2.31g
  /dev/sdc3  vgsummer lvm2 a--  800.00m 104.00m
  /dev/sdd      ---   lvm2 ---  20.00g  20.00g
[root@workstation ~]#

```

Created a new volume group named vg_simple
from the physical volume and verified its
available space using vgs.

```

workstation.lab.example.com (ssh) [Running] - Oracle VirtualBox
File Machine View Input Devices Help
[root@workstation ~]# vgcreate vg_simple /dev/sdd
  Volume group "vg_simple" successfully created
[root@workstation ~]# vgs
  VG #PV #LV #SN Attr   VSize   VFree
  cs_vbox   1   3   0 wz--n-  78.41g    0
  vg       1   1   0 wz--n-  <3.00g  2.31g
  vg1      1   1   0 wz--n-  896.00m  96.00m
  vg2      1   1   0 wz--n-  500.00m    0
  vg3      1   1   0 wz--n-  800.00m    0
  vg_simple 1   0   0 wz--n-  <20.00g <20.00g
  vgsummer 1   2   0 wz--n-  800.00m 104.00m
[root@workstation ~]#

```

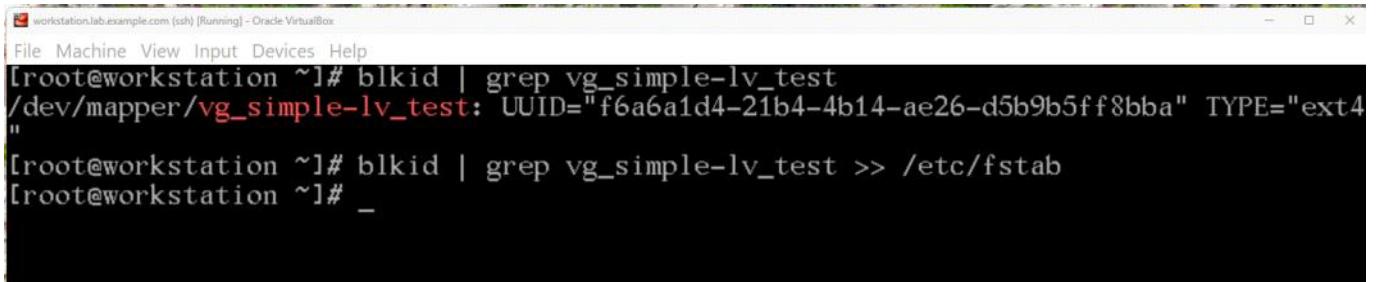
Created a 5 GB logical volume named lv_test
within the vg_simple volume group and verified
it using lvs.

```
workstation.lab.example.com [ssh] [Running] - Oracle VirtualBox
File Machine View Input Devices Help
[root@workstation ~]# lvcreate -L 5G -n lv_test vg_simple
Logical volume "lv_test" created.
[root@workstation ~]# lvs
  LV        VG      Attr       LSize   Pool Origin Data%  Meta%  Move Log Cpy%Sync
Convert
home      cs_vbox -wi-ao---- 24.43g
root      cs_vbox -wi-ao---- <50.05g
swap      cs_vbox -wi-ao---- <3.93g
lv4       vg       -wi-ao---- 700.00m
lv1       vg1      -wi-ao---- 800.00m
lv2       vg2      -wi-a----- 500.00m
lv3       vg3      -wi-a----- 800.00m
lv_test    vg_simple -wi-a----- 5.00g
SUMMERTIME vgsummer -wi-ao---- 296.00m
lvmsummer  vgsummer -wi-ao---- 400.00m
[root@workstation ~]#
```

Formatted the logical volume lv_test with the
ext4 filesystem, preparing it for mounting and
data storage.

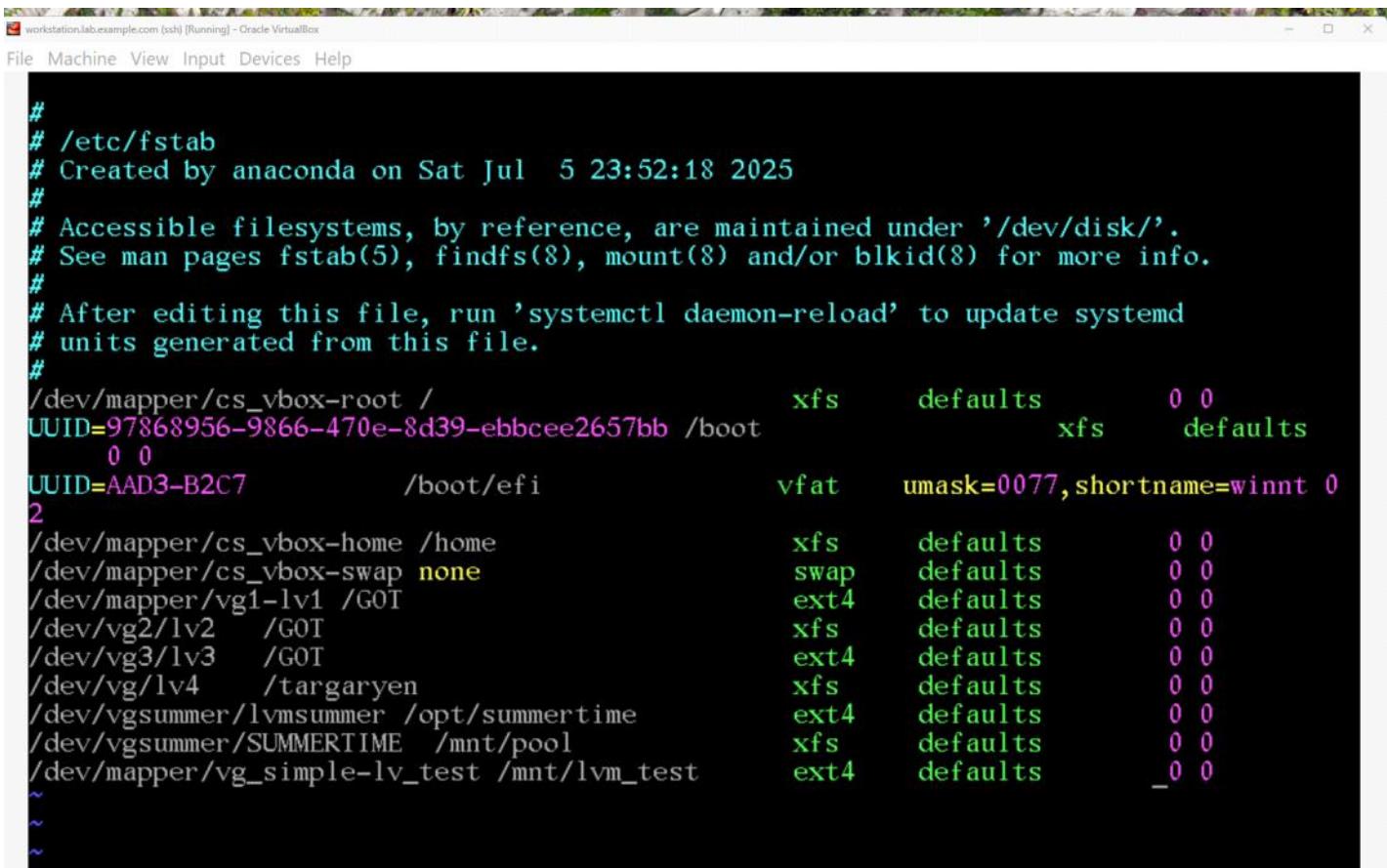
```
workstation.lab.example.com [ssh] [Running] - Oracle VirtualBox
File Machine View Input Devices Help
[root@workstation ~]# mkfs.ext4 /dev/vg_simple/lv_test
mke2fs 1.46.5 (30-Dec-2021)
Creating filesystem with 1310720 4k blocks and 327680 inodes
Filesystem UUID: f6a6a1d4-21b4-4b14-ae26-d5b9b5ff8bba
Superblock backups stored on blocks:
            32768, 98304, 163840, 229376, 294912, 819200, 884736
Allocating group tables: done
Writing inode tables: done
Creating journal (16384 blocks): done
Writing superblocks and filesystem accounting information: done
[root@workstation ~]# _
```

Retrieved the UUID of the logical volume and added it to /etc/fstab to enable persistent mounting across reboots.



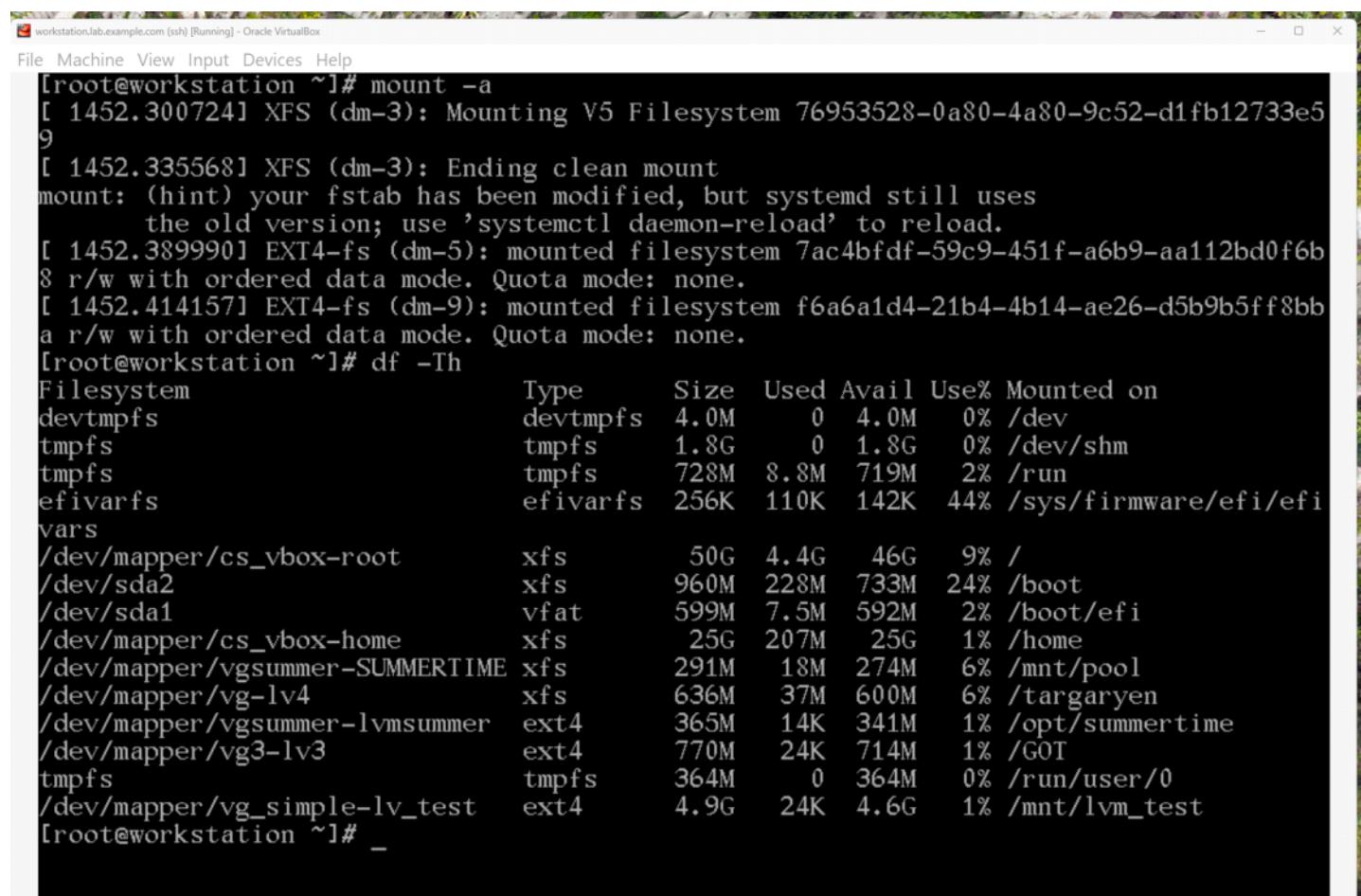
```
[root@workstation ~]# blkid | grep vg_simple-lv_test
/dev/mapper/vg_simple-lv_test: UUID="f6a6a1d4-21b4-4b14-ae26-d5b9b5ff8bba" TYPE="ext4"
"
[root@workstation ~]# blkid | grep vg_simple-lv_test >> /etc/fstab
[root@workstation ~]# _
```

Added the logical volume vg_simple-lv_test to /etc/fstab to ensure it mounts automatically at /mnt/lvm_test on system boot.



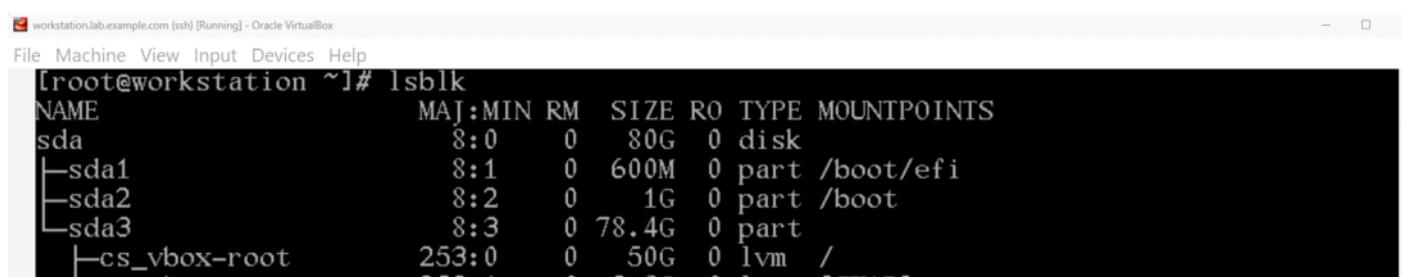
```
# /etc/fstab
# Created by anaconda on Sat Jul  5 23:52:18 2025
#
# Accessible filesystems, by reference, are maintained under '/dev/disk/'.
# See man pages fstab(5), findfs(8), mount(8) and/or blkid(8) for more info.
#
# After editing this file, run 'systemctl daemon-reload' to update systemd
# units generated from this file.
#
#/dev/mapper/cs_vbox-root /
UUID=97868956-9866-470e-8d39-ebbcee2657bb /boot      xfs      defaults      0 0
UUID=AAD3-B2C7          /boot/efi           vfat     umask=0077,shortname=winnt 0
2
/dev/mapper/cs_vbox-home /home            xfs      defaults      0 0
/dev/mapper/cs_vbox-swap none             swap     defaults      0 0
/dev/mapper/vg1-lv1 /GOT                 ext4     defaults      0 0
/dev/vg2/lv2   /GOT                 xfs      defaults      0 0
/dev/vg3/lv3   /GOT                 ext4     defaults      0 0
/dev/vg/lv4    /targaryen          xfs      defaults      0 0
/dev/vgsummer/lvmsummer /opt/summertime ext4     defaults      0 0
/dev/vgsummer/SUMMERTIME   /mnt/pool       xfs      defaults      0 0
/dev/mapper/vg_simple-lv_test /mnt/lvm_test  ext4     defaults      0 0
~
~
~
```

Ran mount -a to apply the /etc/fstab configuration and verified that the new logical volume is mounted successfully using df -Th.



```
[root@workstation ~]# mount -a
[ 1452.300724] XFS (dm-3): Mounting V5 Filesystem 76953528-0a80-4a80-9c52-d1fb12733e59
[ 1452.335568] XFS (dm-3): Ending clean mount
mount: (hint) your fstab has been modified, but systemd still uses
      the old version; use 'systemctl daemon-reload' to reload.
[ 1452.389901] EXT4-fs (dm-5): mounted filesystem 7ac4bfdf-59c9-451f-a6b9-aa112bd0f6b8 r/w with ordered data mode. Quota mode: none.
[ 1452.414157] EXT4-fs (dm-9): mounted filesystem f6a6a1d4-21b4-4b14-ae26-d5b9b5ff8bb9 r/w with ordered data mode. Quota mode: none.
[root@workstation ~]# df -Th
Filesystem           Type    Size  Used Avail Use% Mounted on
devtmpfs             devtmpfs 4.0M   0  4.0M  0% /dev
tmpfs                tmpfs    1.8G   0  1.8G  0% /dev/shm
tmpfs                tmpfs    728M  8.8M  719M  2% /run
efivarfs             efivarfs 256K  110K  142K  44% /sys/firmware/efi/efi
vars
/dev/mapper/cs_vbox-root  xfs     50G  4.4G  46G  9% /
/dev/sda2              xfs    960M 228M  733M 24% /boot
/dev/sda1              vfat    599M  7.5M  592M  2% /boot/efi
/dev/mapper/cs_vbox-home xfs     25G  207M  25G  1% /home
/dev/mapper/vgsummer-SUMMERTIME xfs    291M  18M  274M  6% /mnt/pool
/dev/mapper/vg-lv4          xfs    636M  37M  600M  6% /targaryen
/dev/mapper/vgsummer-lvmsummer ext4   365M  14K  341M  1% /opt/summertime
/dev/mapper/vg3-lv3          ext4   770M  24K  714M  1% /GOT
tmpfs                 tmpfs    364M   0  364M  0% /run/user/0
/dev/mapper/vg_simple-lv_test ext4   4.9G  24K  4.6G  1% /mnt/lvm_test
[root@workstation ~]# _
```

Verified the complete LVM setup with lsblk, confirming the logical volume vg_simple-lv_test is created from the new disk and mounted at /mnt/lvm_test.



```
[root@workstation ~]# lsblk
NAME        MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS
sda          8:0    0  80G  0 disk 
└─sda1       8:1    0 600M  0 part /boot/efi
└─sda2       8:2    0   1G  0 part /boot
└─sda3       8:3    0 78.4G  0 part
  ├─cs_vbox-root 253:0   0  50G  0 lvm  /
```

workstation.lab.example.com [ssh] [Running] - Oracle VirtualBox

File Machine View Input Devices Help

```
[root@workstation ~]# lsblk
NAME           MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS
sda            8:0    0   80G  0 disk 
├─sda1          8:1    0  600M  0 part /boot/efi
├─sda2          8:2    0   1G  0 part /boot
└─sda3          8:3    0 78.4G  0 part
  ├─cs_vbox-root 253:0  0   50G  0 lvm  /
  ├─cs_vbox-swap 253:1  0   3.9G 0 lvm  [SWAP]
  └─cs_vbox-home 253:4  0 24.4G 0 lvm  /home
sdb            8:16   0   20G  0 disk 
├─sdb1          8:17   0 900M  0 part
  └─vg1-lv1     253:2  0 800M  0 lvm  /GOT
├─sdb2          8:18   0 504M  0 part
  └─vg2-lv2     253:3  0 500M  0 lvm  /GOT
└─sdb3          8:19   0 204M  0 part
sdc            8:32   0   10G  0 disk 
├─sdc1          8:33   0 804M  0 part
  └─vg3-lv3     253:5  0 800M  0 lvm  /GOT
├─sdc2          8:34   0   3G  0 part
  └─vg-lv4      253:8  0 700M  0 lvm  /targaryen
└─sdc3          8:35   0 804M  0 part
  └─vgsummer-lvmsummer 253:6  0 400M  0 lvm  /opt/summertime
  └─vgsummer-SUMMERTIME 253:7  0 296M  0 lvm  /mnt/pool
sdd            8:48   0   20G  0 disk 
└─vg_simple-lv_test 253:9  0   5G  0 lvm  /mnt/lvm_test
sr0           11:0   1 1024M 0 rom 

[root@workstation ~]#
```