

Standard Partition:

⊗ Offline Method (Normal Partitioning):

In traditional partitioning, extending a partition is an offline activity, meaning the partition must be unmounted first.

Here's how it works step-by-step:

⊗ Normal Partition Extension (Offline):

1. Add a New Disk in VMware:

Go to VM Settings

Click Add → Select Hard Disk

Configure the disk (size, type, etc.)

Click Finish to add the disk

```
[root@suria:~]# lsblk | grep sdb
sdb      8:16    0  20G  0 disk
[root@suria ~]# fdisk -l /dev/sdb
Disk /dev/sdb: 20 GiB, 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
[root@suria ~]#
```

2. Access the disk using fdisk:

fdisk /dev/sdb

```
root@suria:~
```

Help:

DOS (MBR)

- a toggle a bootable flag
- b edit nested BSD disklabel
- c toggle the dos compatibility flag

Generic

- d delete a partition
- F list free unpartitioned space
- l list known partition types
- n add a new partition
- p print the partition table
- t change a partition type
- v verify the partition table
- i print information about a partition

Misc

- m print this menu
- u change display/entry units
- x extra functionality (experts only)

Script

- I load disk layout from sfdisk script file
- O dump disk layout to sfdisk script file

Save & Exit

- w write table to disk and exit
- q quit without saving changes

Create a new label

- g create a new empty GPT partition table
- G create a new empty SGI (IRIX) partition table
- o create a new empty DOS partition table
- s create a new empty Sun partition table

3. Create a new partition:

Inside fdisk, follow these prompts:

Press n (new partition)

Press p (primary)

Enter partition number (default is fine)

Press Enter for starting sector (default)

Enter size (e.g., +1G, +2G, etc.)

Press w (write and exit)

```
[root@suria:~]# fdisk /dev/sdb

Welcome to fdisk (util-linux 2.32.1).
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.
Created a new DOS disklabel with disk identifier 0xc8c32930.

Command (m for help): n
Partition type
  p   primary (0 primary, 0 extended, 4 free)
  e   extended (container for logical partitions)
Select (default p): p
Partition number (1-4, default 1): 1
First sector (2048-41943039, default 2048):
Last sector, +sectors or +size{K,M,G,T,P} (2048-41943039, default 41943039): +1G

Created a new partition 1 of type 'Linux' and of size 1 GiB.

Command (m for help): w
The partition table has been altered.
Calling ioctl() to re-read partition table.
Syncing disks.

[root@suria ~]# q
```

```
[root@suria:/]
[root@suria /]# fdisk /dev/sdb

Welcome to fdisk (util-linux 2.32.1).
Changes will remain in memory only, until you decide to write them.
Be careful before using the write command.

Command (m for help): n
Partition type
  p   primary (1 primary, 0 extended, 3 free)
  e   extended (container for logical partitions)
Select (default p): p
Partition number (2-4, default 2):
First sector (2099200-41943039, default 2099200):
Last sector, +sectors or +size{K,M,G,T,P} (2099200-41943039, default 41943039): +1G

Created a new partition 2 of type 'Linux' and of size 1 GiB.

Command (m for help): t
Partition number (1,2, default 2):
Hex code (type L to list all codes): 8e

Changed type of partition 'Linux' to 'Linux LVM'.

Command (m for help): w
The partition table has been altered.
Syncing disks.

[root@suria /]#
```

4. Inform the kernel about partition changes:

```
partprobe /dev/sdb
```

5. Format the new partition:

```
mkfs.xfs /dev/sdb1      (XFS filesystem)
```

```
mkfs.ext4 /dev/sdb2     (ext4 filesystem)
```

```
root@suria:~# lsblk | grep sdb
sdb              8:16    0   20G  0 disk
└─sdb1           8:17    0    1G  0 part
[root@suria ~]#
[root@suria ~]# partprobe /dev/sdb
[root@suria ~]#
[root@suria ~]# mkfs.xfs /dev/sdb1
meta-data=/dev/sdb1          isize=512    agcount=4, agsize=65536 blks
                           =         sectsz=512  attr=2, projid32bit=1
                           =         crc=1    finobt=1, sparse=1, rmapbt=0
                           =         reflink=1 bigtime=0 inobtcount=0
data     =         bsize=4096   blocks=262144, 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@suria ~]#
[root@suria ~]# blkid -o list | grep sdb
/dev/sdb1 xfs          (not mounted) 75394572-62fd-4509-a9c1-6e61f63655d1
[root@suria ~]#
```

6. Create a mount point directory:

```
mkdir /data
```

```
mkdir /data2
```

```
[root@suria:]# mkdir data
[root@suria:]# mount /dev/sdb1 /data
[root@suria:]#
[root@suria:]# df -h | grep sdb
/dev/sdb1           1014M   40M  975M   4% /data
[root@suria:]#
```

```
[root@suria:]#
[root@suria:]# partprobe /dev/sdb
[root@suria:]#
[root@suria:]# lsblk | grep sdb2
└─sdb2      8:18    0    1G  0 part
[root@suria:]#
[root@suria:]# mkfs.ext4 /dev/sdb2
mke2fs 1.45.6 (20-Mar-2020)
Creating filesystem with 262144 4k blocks and 65536 inodes
Filesystem UUID: b210e054-61ad-4e8f-9c38-4b50fa032977
Superblock backups stored on blocks:
      32768, 98304, 163840, 229376

Allocating group tables: done
Writing inode tables: done
Creating journal (8192 blocks): done
Writing superblocks and filesystem accounting information: done

[root@suria:]#
[root@suria:]# blkid -o list | grep sdb2
/dev/sdb2 ext4          (not mounted)  b210e054-61ad-4e8f-9c38-4b50fa032977
[root@suria:]#
[root@suria:]#
```

7. Mount the partition:

```
mount /dev/sdb1 /data
```

```
mount /dev/sdb2 /data2
```

8. Verify the partition is mounted:

```
df -h
```

lsblk

9. Add Entry to /etc/fstab (Persistent Mount):

blkid /dev/sdb1 /dev/sdb2

10. Open the fstab file for editing:

vi nano /etc/fstab

UUID=abcd-1234-efgh-5678 /data xfs defaults 0 0

UUID=ijkl-8989-mnop-3434 /data2 ext4 defaults 0 1

```
root@suria:/ [root@suria /]# vi /etc/fstab
[root@suria /]#
[root@suria /]# cat /etc/fstab | grep data1
75394572-62fd-4509-a9c1-6e61f63655d1    /data1    xfs      defaults        0 0
[root@suria /]#
```

```

root@suria:/#
[root@suria /]# mkdir data2
[root@suria /]# mount /dev/sdb2 /data2
[root@suria /]#
[root@suria /]# blkid -o list | grep sdb2
/dev/sdb2 ext4      /data2          b210e054-61ad-4e8f-9c38-4b50fa032977
[root@suria /]#
[root@suria /]# df -h | grep sdb2
/dev/sdb2           974M   24K  907M   1% /data2
[root@suria /]#
[root@suria /]# vi /etc/fstab
[root@suria /]#
[root@suria /]# cat /etc/fstab

#
# /etc/fstab
# Created by anaconda on Mon Apr 21 21:12:18 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/rhel-root   /           xfs    defaults        0 0
UUID=31e80e7f-9d38-4823-b2b0-498078c98d31 /boot
/dev/mapper/rhel-swap   none        swap   defaults        0 0
75394572-62fd-4509-a9c1-6e61f63655d1   /data1  xfs    defaults        0 0
/dev/sdb2              /data2    ext4    defaults        1 2
[root@suria /]# d
-bash: d: command not found
[root@suria /]#

```

Test the fstab entry:

mount -a

Note:

The command for unmounting a filesystem in Linux:

umount /data