EXP: 10

DATE: 22.09.2025

Creation of VHD on windows and restoring on different hosts

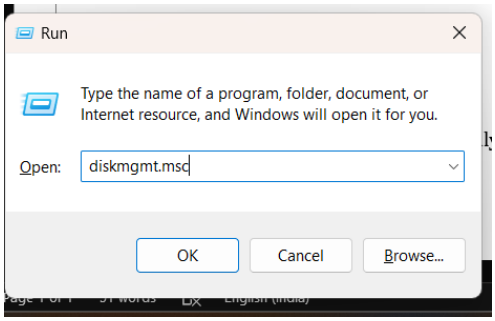
AIM:

To add additional storage to VM and to perform storage virtualization.

PROCEDURE:

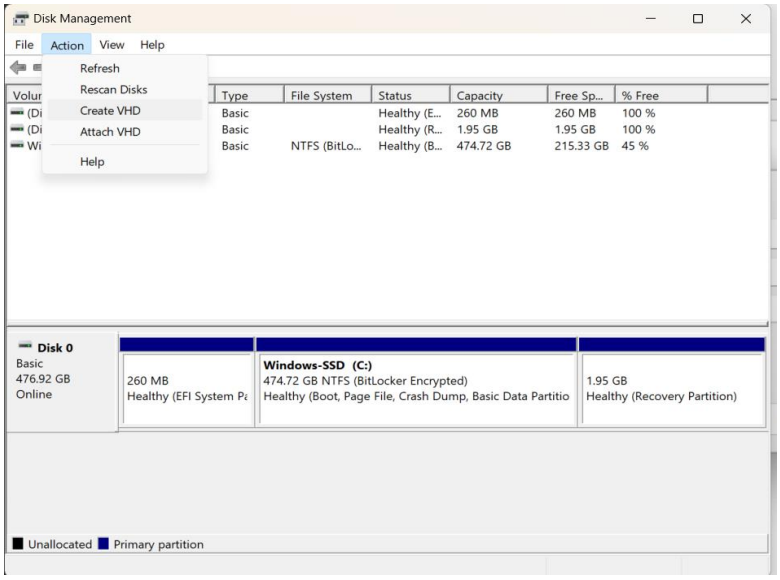
Step 1: Open Disk Management

Press Windows + R, type diskmgmt.msc



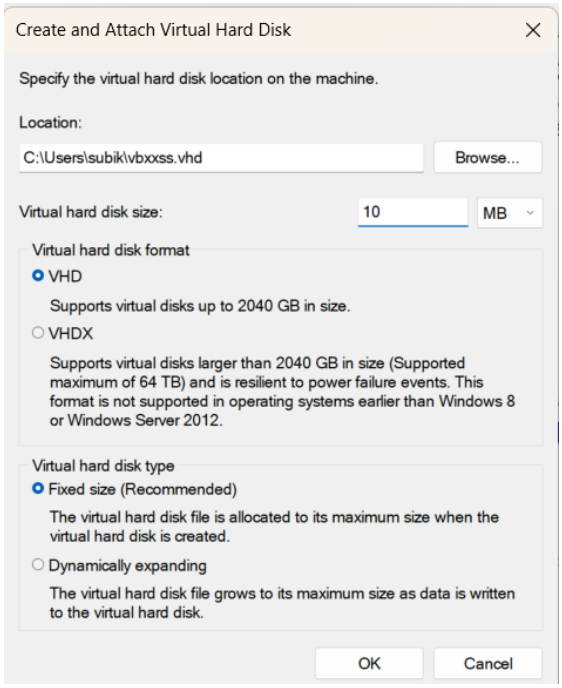
Step 2: Create VHD

In Disk Management, click **"Action"** in the menu bar and Select **"Create VHD"** from the dropdown menu

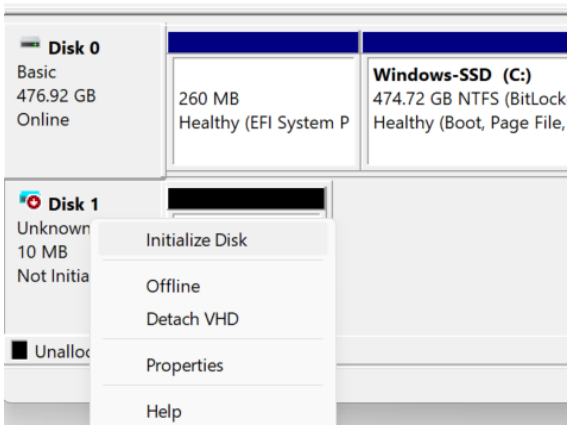


Step 3: Configure VHD Settings

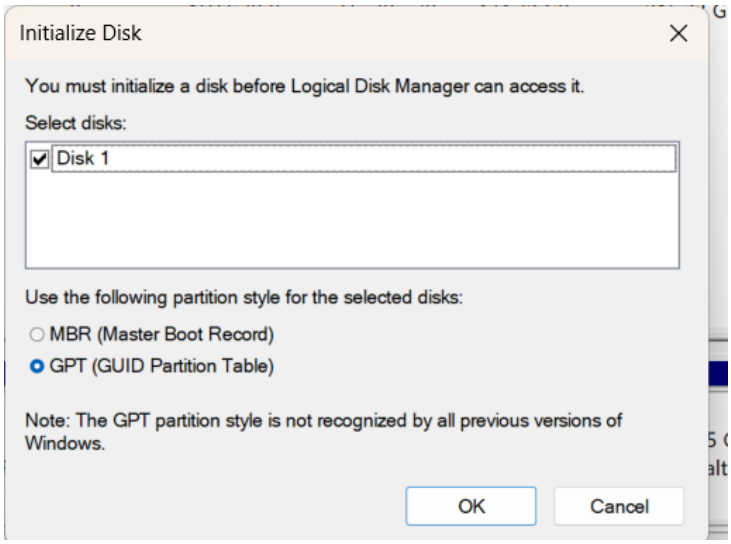
Location: Browse and specify where to save the VHD file



Step 4: Initialize the New VHD

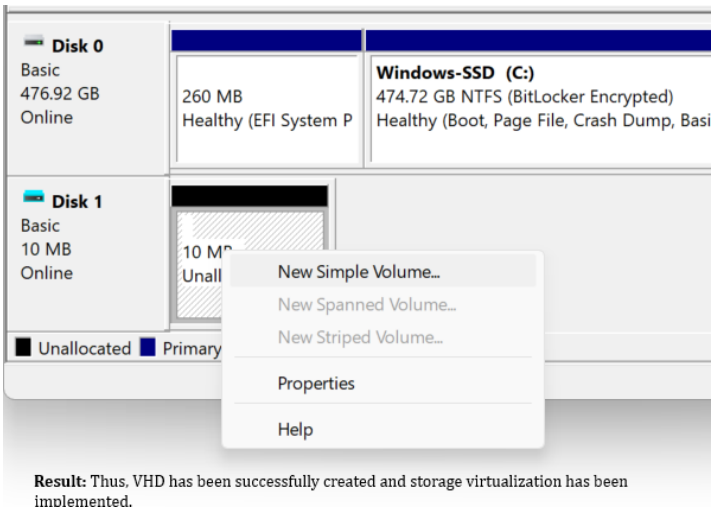


Choose partition style (GPT recommended for modern systems)



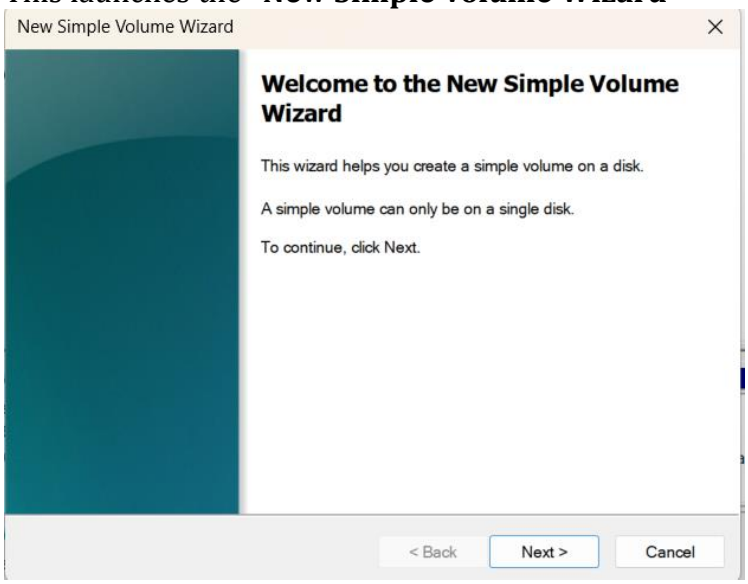
Step 5: Create Partition

Right-click the unallocated space on Disk 1
Select **"New Simple Volume..."**

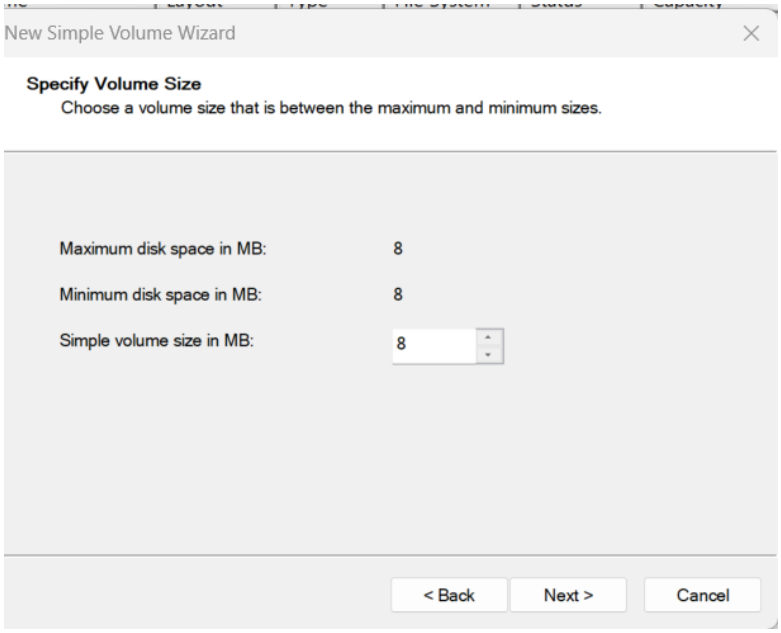


Result: Thus, VHD has been successfully created and storage virtualization has been implemented.

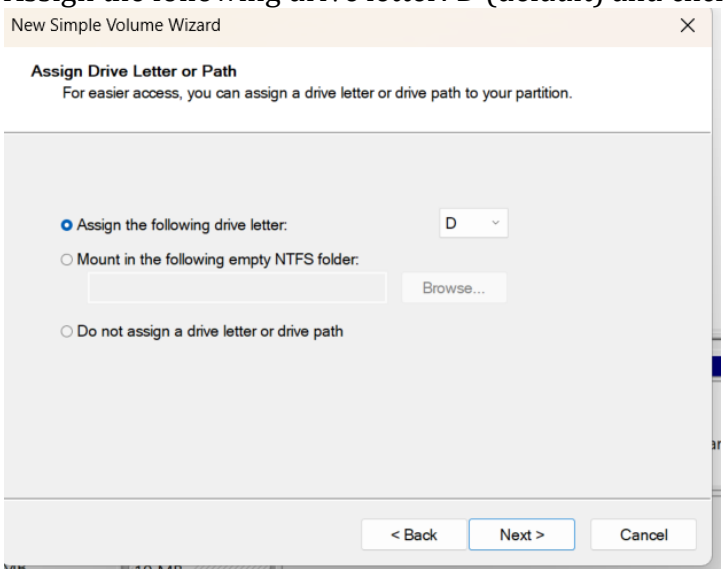
This launches the **"New Simple Volume Wizard"**



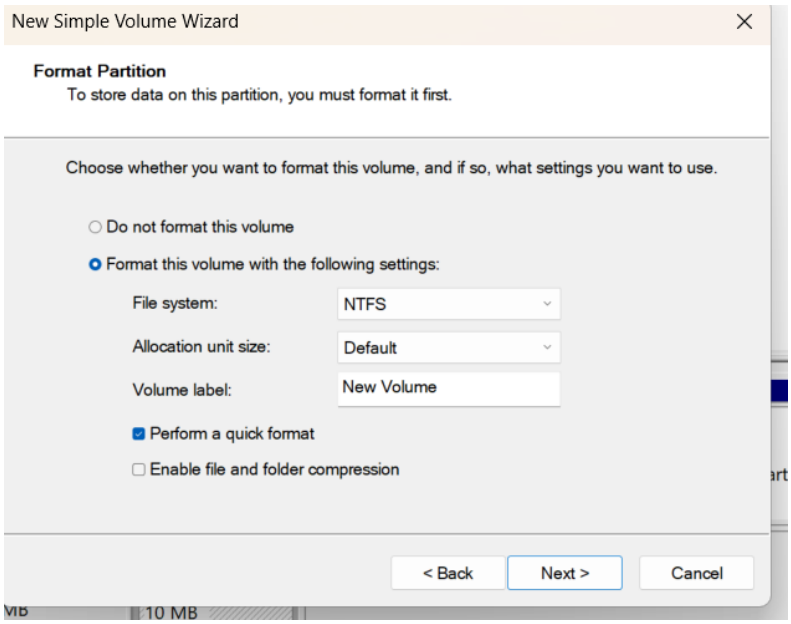
Step 6: Volume Wizard Configuration



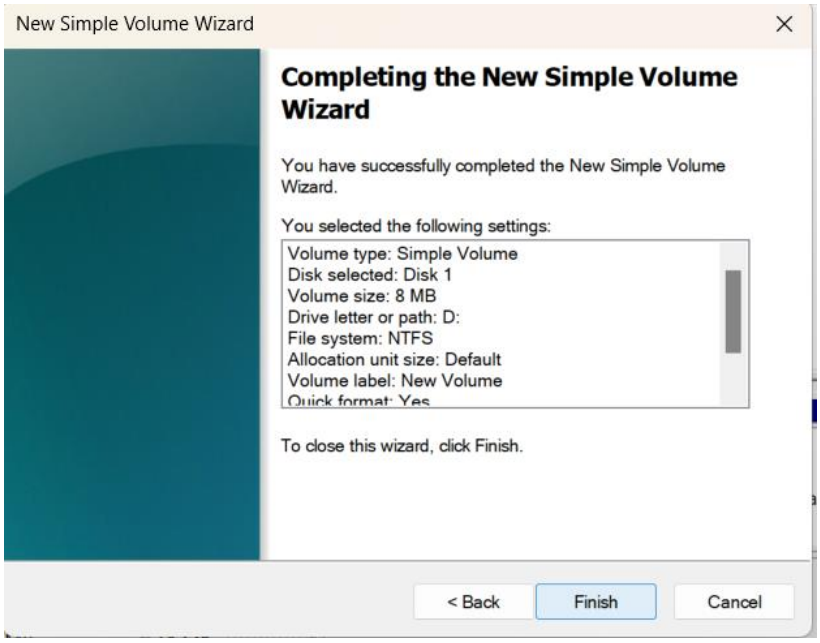
Assign the following drive letter: D (default) and click next



File system: NTFS (recommended for Windows),Allocation unit size: DefaultVolume label: New Volume,Perform a quick format: ✓ (checked for faster formatting),Enable file and folder compression: (unchecked)

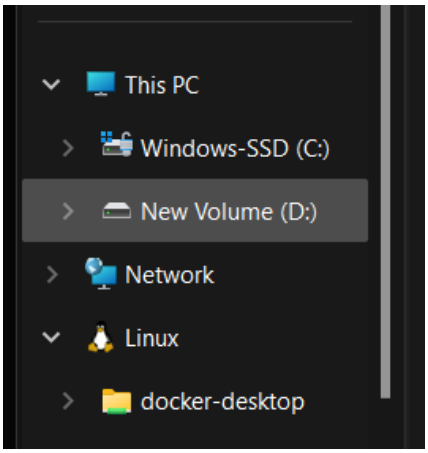


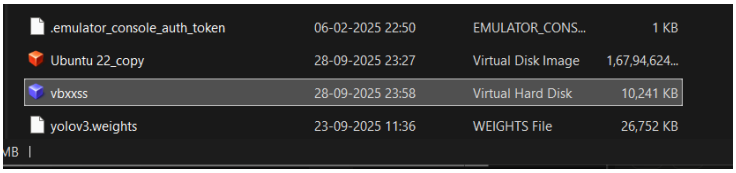
Click "Next" and finish

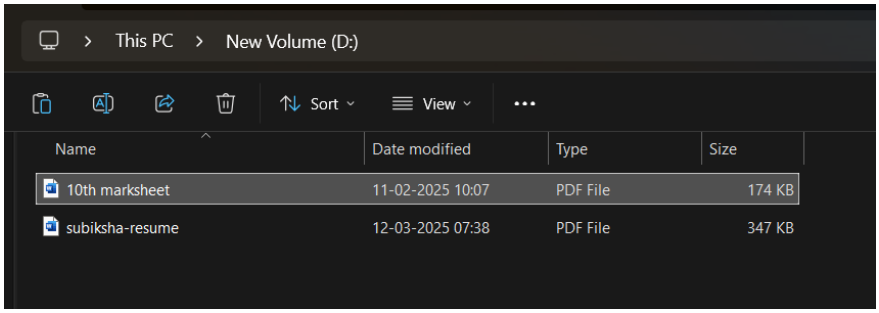


Step 7: VHD Successfully Created in the specified path, You can see the D drive created in the host machine.

Insert any files into the Drive D



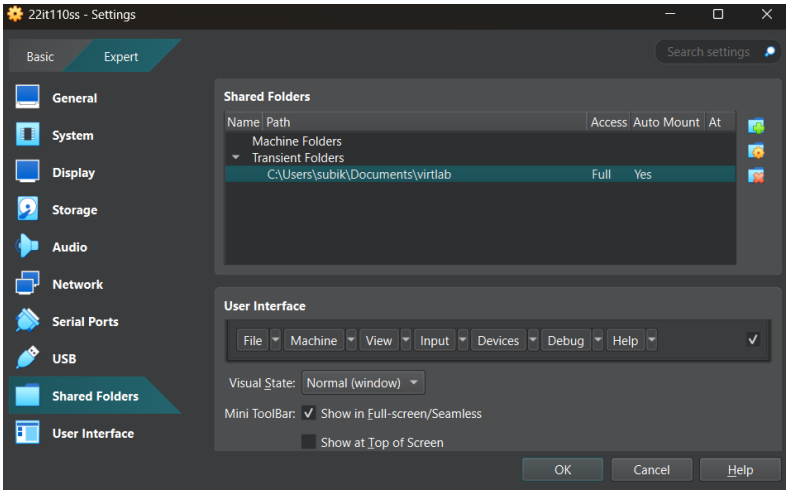




Step 8: Accessing VHD Content on Different Hosts

Linux Host - Loop Device Method

Step 1: Set Up VirtualBox Shared Folder with the vhd file



Step 2: List contents of /media directory to see available mount points

```
osboxes@osboxes:~$ ls -l /media
total 0
drwxrwx--- 1 root vboxsf 0 Sep 25 10:39 sf_virtlab
```

```
osboxes@osboxes:~$ sudo ls -l /media/sf_virtlab
total 10244
-rwxrwx--- 1 root vboxsf 10486272 Sep 28 13:49 vboxx.vhd
```

Step 3: Copy VHD from shared folder to local directory

```
osboxes@osboxes:~$ sudo cp /media/sf_virtlab/vboxx.vhd /home/osboxes/Desktop/
```

Step 4: Create Loop Device

```
osboxes@osboxes:~$ LOOPDEV=$(sudo losetup -f --show -P /home/osboxes/Desktop/vbo
xx.vhd)
osboxes@osboxes:~$ echo $LOOPDEV
/dev/loop15
```

Step 5: Examine VHD Structure

```
osboxes@osboxes:~$ sudo fdisk -l $LOOPDEV
The backup GPT table is not on the end of the device.
Disk /dev/loop15: 10 MiB, 10486272 bytes, 20481 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
Disklabel type: gpt
Disk identifier: F6E3B3B8-2E19-49D8-84F6-0FD9E7147935

Device        Start   End Sectors Size Type
/dev/loop15p1   128 16511   16384   8M Microsoft basic data
```

Step 6: Mount VHD Partition

Create mount point

```
osboxes@osboxes:~$ sudo mkdir -p /mnt/vhd
```

Mount NTFS partition

```
osboxes@osboxes:~$ sudo mount -t ntfs ${LOOPDEV}p1 /mnt/vhd
```

List contents

```
osboxes@osboxes:~$ ls -lh /mnt/vhd
total 524K
drwxrwxrwx 1 root root    0 Sep 28 13:46 '$RECYCLE.BIN'
-rwxrwxrwx 1 root root 174K Feb 10  2025 '10th marksheet.pdf'
-rwxrwxrwx 1 root root 347K Mar 11  2025  subiksha-resume.pdf
drwxrwxrwx 1 root root    0 Sep 28 13:45 'System Volume Information'
```

Step 7: Access and Copy Files

Copy files from mounted VHD to desktop and Sync to ensure data is written

```
osboxes@osboxes:~$ cp -r /mnt/vhd/* /home/osboxes/Desktop
osboxes@osboxes:~$ sync
```

Unmount VHD

```
osboxes@osboxes:~$ sudo umount /mnt/vhd
```

Detach loop device

```
osboxes@osboxes:~$ sudo losetup -d $LOOPDEV
```

Step 8: Final Verification shows the copied files are now available on the desktop, including the original vboxx.vhd file and the extracted PDF files.

```
osboxes@osboxes:~$ cd /home/osboxes/Desktop
osboxes@osboxes:~/Desktop$ ls -l
total 10776
drwxrwxr-x 3 osboxes osboxes     4096 Sep 28 14:01 '$RECYCLE.BIN'
-rwxrwxr-x 1 osboxes osboxes   178013 Sep 28 14:01 '10th marksheet.pdf'
-rwxrwxr-x 1 osboxes osboxes   354383 Sep 28 14:01  subiksha-resume.pdf
drwxrwxr-x 2 osboxes osboxes     4096 Sep 28 14:01 'System Volume Information'
-rwxr-x--- 1 root    root    10486272 Sep 28 13:56  vboxx.vhd
osboxes@osboxes:~/Desktop$ cd ..
osboxes@osboxes:~$
```

RESULT:

Thus, VHD has been successfully created, and storage virtualization has been implemented.