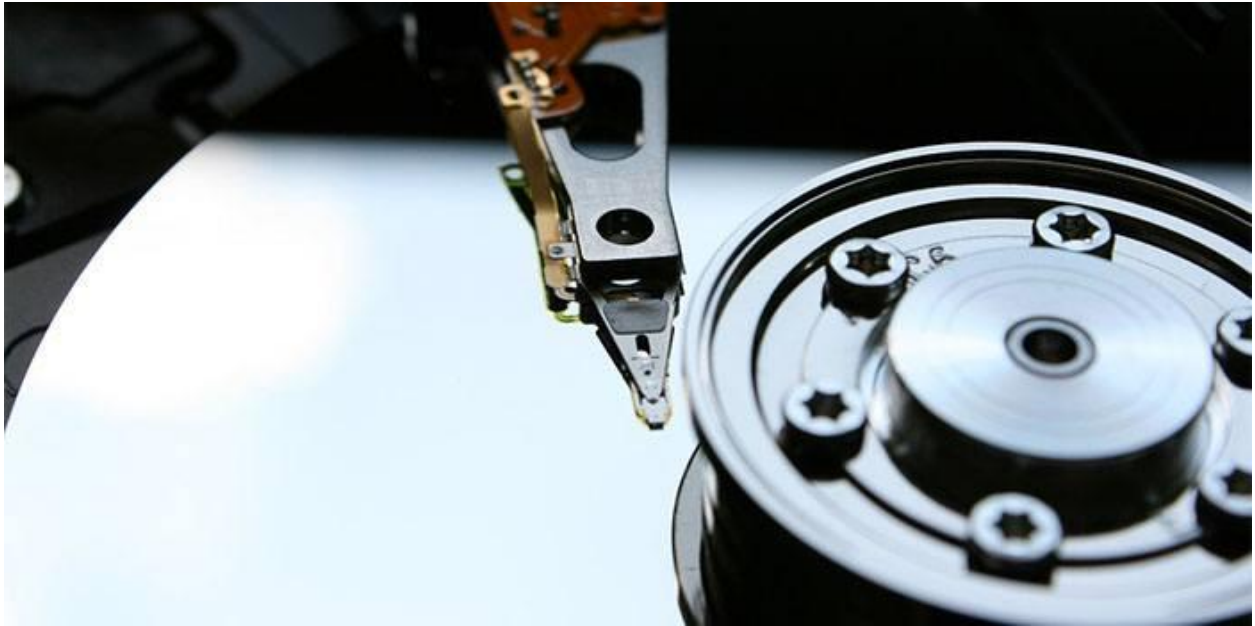


# Understanding the Difference Between a Disk, Drive, Volume, Partition, and Image

## Drive



A drive is a physical device that is used to store data. It is not really a formal term but a commonly used one.

While the strictest definition would be the physical device that stores data, the term is often used informally to refer to any storage device, from a disk to a volume.

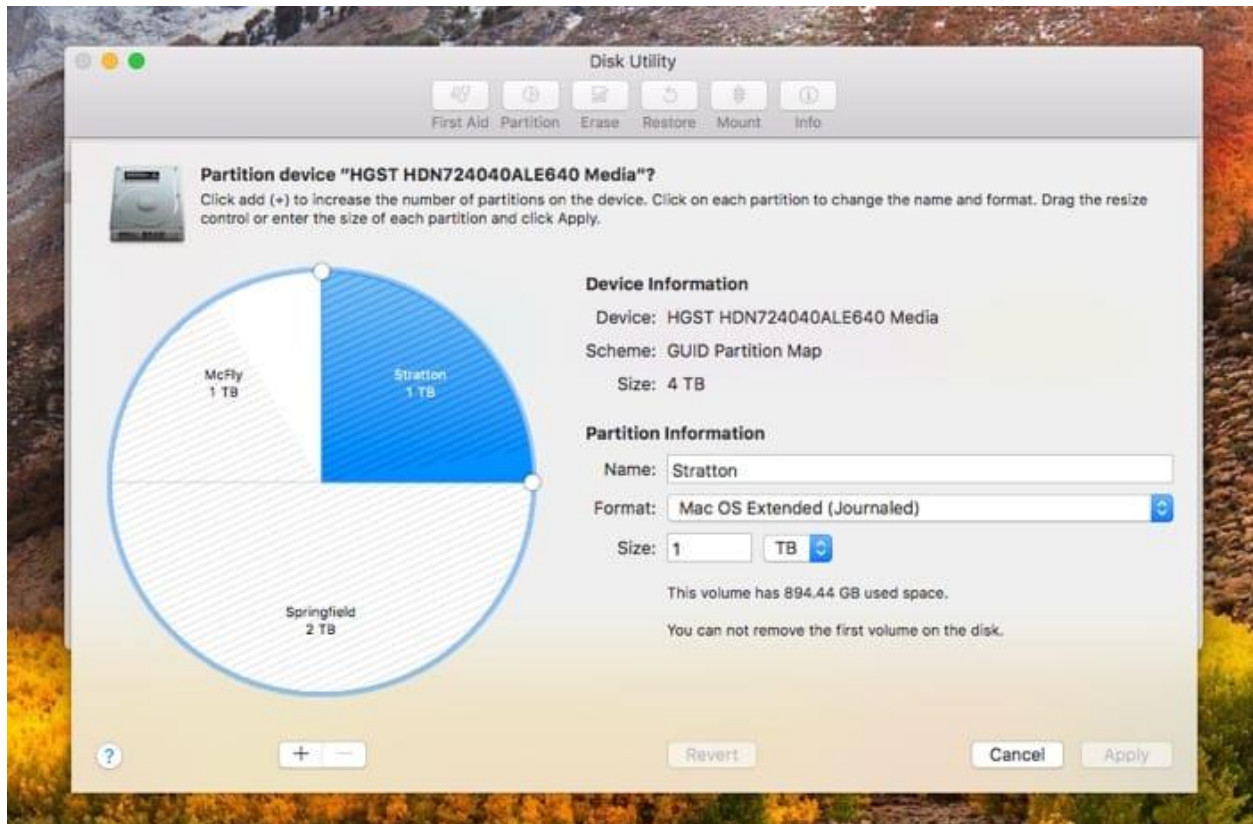
Technically, its meaning is restricted to describing a hardware device. **A drive is a physical object upon which a disk resides.**

## Disk

“Disk” is the word used by Unix systems to refer to physical storage devices.

**Disks contain volumes and can contain multiple volumes of different sizes.** A disk is like the parent container for all the logical divisions of storage that might come below it.

## Partition



A partition is very much like a volume.

It does not necessarily contain a file system, and it might not be formatted to store data. Instead, a partition is just a part of a disk with a specific size, which is set at the time of creation.

A partition can be resized, but it requires re-writing the disk's partition table and possibly erasing data.

## Volume



A volume is the part of the disk that you interact with as a user.

While partitions and volumes are coterminous, a volume has a name and file system in addition to a size.

When you mount a storage device and its icon appears in your file browser, you are seeing the volume.

Multiple volumes can be stored on a single disk, and operating systems keep track of what volumes are on what drives.

Docker volumes are directories and files that exist on the host file system outside of the Docker container.

These volumes are used to persist data and share data between Docker containers.

Docker supports the mounting of one or more data volumes from the host OS to the Docker container.

## **Image**



Images function like volumes, but they have no physical hardware related to them.

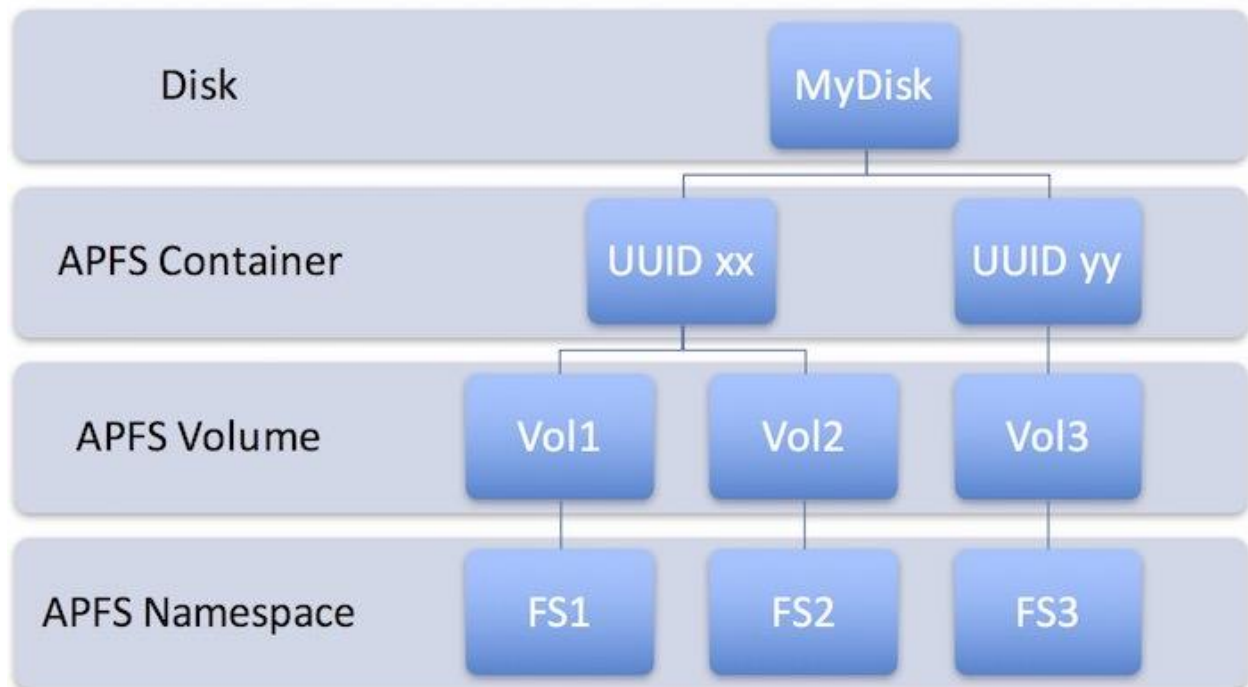
No disk

They are like a picture of a physical volume, containing every bit stored on the captured volume.

You can create an image of any volume, whether it is stored on a hard drive or a CD, and store it on any other device with sufficient free space.

## Containers

# APFS



**Containers are distinct from the other items on this list and function a little differently.**

Disks hold containers and containers hold volumes.

Remember we had a scenario where our Jenkins was failing because of log annotation and bloating.

To solve this problem, we cleared the volumes in the disk and this allowed docker and jenkins to be up.

The volumes within a given container are allowed to share the space allocated to the container, which has a set maximum size.

This means the volumes can be flexible, expanding to fit files or shrinking to allow other volumes to grow

## **Conclusion**

In short, disks contain volumes which contain data.

Disks are the physical manifestation of a drive.

Containers are used in place of partition tables in the APFS filesystem.

Images are “pictures” of the data on a volume, capturing the exact arrangement of bits on a drive.