

Why is the hard drive losing space? How to fix it?

Have you ever bought a 500gb hard drive but only received 250gb? What causes the hard drive to lose capacity? How to fix it?

When you buy a new hard drive or after a period of use, you suddenly realize that your hard drive does not match the capacity listed on the label. You buy a 1TB hard drive but the computer only shows more than 900Gb of memory, or a 500GB drive only has 450GB. So what is the cause of this situation? Is there any way to fix it?

Explaining hard drive space loss

Due to the reference system

There are many reasons for the loss of hard drive capacity, but most users often wonder that even when they buy a new hard drive, the computer's displayed capacity is a bit less than the one on the packaging. This comes from the discrepancy between the manufacturer's measurement system and the computer's measurement system.

For manufacturers, we often use decimal counters with a base multiple of 10. For the simplest example, if you buy a 1TB hard drive, it means we have 1,000,000,000,000 (trillion) bytes.

But for the Windows operating system, using the binary system, the convention is $1TB = 1024 GB = 1\,099\,511\,627\,776$ bytes. Going back to the example of a 1Tb hard drive as mentioned at the beginning, if we follow the binary system on Windows to get the exact number of hard drive capacity, we will take 1 trillion bytes and convert it to Gigabyte by dividing it by 1024 three times. And the number obtained is 931.3225746154785 GB equivalent to 940GB. If you are using a 1TB hard drive, open it and check, this is definitely the same number as your system.

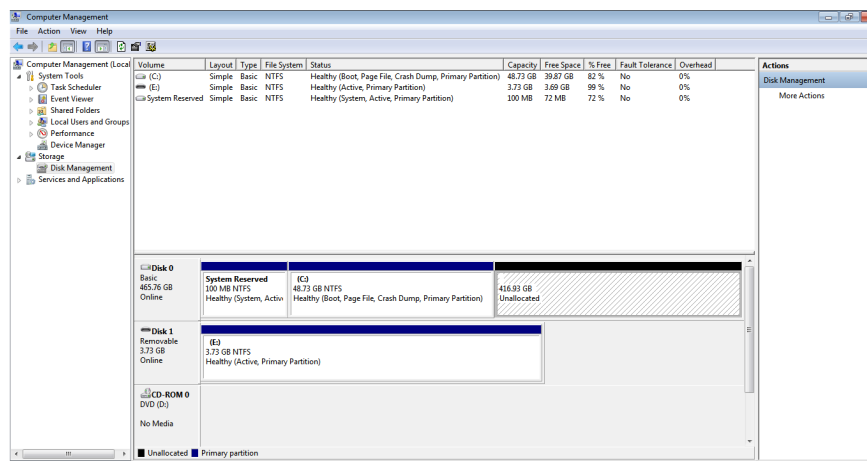
Đơn vị	Quy đổi 1TB theo tiêu chuẩn SI	Quy đổi 1TB theo hệ nhị phân
Byte (B)	10^{12}	2^{40}
Kilobyte (KB)	10^9	2^{30}
Megabyte (MB)	10^6	2^{20}
Gigabyte (GB)	10^3	2^{10}
Terabyte (TB)	1	1
Petabyte (PB)	10^{-3}	2^{-10}
Exabyte (EB)	10^{-6}	2^{-20}
Zetabyte (ZB)	10^{-9}	2^{-30}
Yottabyte (YB)	10^{-12}	2^{-40}

Due to technical error

In addition to the problem of the reference system, there are also many technical problems that arise that cause the hard drive to not recognize enough capacity. The first most common problem is that the hard drive has not

been partitioned correctly.

In Vietnam, users usually have the habit of creating 3 hard drive partitions C, D, E to install the operating system on drive C and store data on the remaining 2 partitions. During use, when there is a software conflict or when formatting, unfortunately one of the partitions is corrupted and has not been recreated, causing the hard drive capacity to lose a proportionate amount.



As you can see in the picture above, in addition to the system hard drive partition, drive C, the remaining 416Gb of the hard drive has not been initialized, so when using it, you can only see drive C with a capacity of 48Gb.

Now your operation is very simple, just right-click on that empty partition and recreate the hard drive.

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