

# kbps VS KBps

## Measure of file size: KBps

File size i.e. how big the file or how much space a file occupies in the hard disk measured in terms of KiloBytes (KB upper case "K" and upper case "B"). In computing terms the upper case "K" stands for 1024. 1024 is computed from  $2^{10}$ . 2 denote the number of characters in the binary system which is used to store data in the disc (ones and zeroes).

Other abbreviations like mega, giga and terra also use the base as 1024, 1KB (KiloByte) = 1024 Bytes (approximately 1000 Bytes)

1MB (MegaByte) = 1024 KB (approximately 1000 KiloBytes or 1 million Bytes)

1GB (GigaByte) = 1024 MB (approximately 1000 MegaBytes or 1 billion Bytes)

1TB (TerraByte) = 1024 GB (approximately 1000 GigaBytes or 1 trillion Bytes)

## Measure of data transfer speeds: kbps

Data transfer speed over the networks (including the internet) is calculated in terms of bits per second: kilobits (kb small case "k" and small case "b"). The higher the kbps i.e. more the bits transferred per second, more the speed, faster the network/connection. Here k stands for 1000 (10<sup>3</sup>)

1 kbps (kilo bits per second) = 1000 bits per second

1 Mbps (mega bits per second) = 1000 kilo bits per second.

1 Gbps (giga bits per second) = 1,000 mega bits per second.

## ISP bandwidth and download speeds

The most common confusion caused by the similarity of KBps and kbps is when it comes to internet bandwidth and download speeds. People often complain that their ISP promised 512kbps connectivity but they are seldom able to download any file at 512 KBps. They fail to notice the difference in cases of the units and hence think their ISP is cheating them or offering them poor quality service. As mentioned earlier data transfer speeds are always calculated in terms of kilo bits per second (kbps) so an ISP connectivity of 512 kbps promises of transfer of at the max 512 kilo bits per second.

On the other hand, file size measure is always in Kilo Bytes and thus download speeds are always calculated based on how many Bytes per second are downloaded and hence Kilo Bytes per second (KBps). KBps and kbps are not interchangeable.

So an internet connectivity of say 512kbps can never achieve a download speed of 512 KBps. To calculate the maximum download speed of a "X kbps" connection, we need to use a simple formula as below.

Download KBPS speed = (Kbps value\*1000) / 1024.

I.e. For a connectivity of 512 kbps

kbps value \* 1000 = 512 \* 1000 = 512000

$$512000 / 8 = 64000$$

$$64000 / 1024 = 62.5 \text{ KBps}$$

Therefore theoretically an internet connection of 512kbps bandwidth can download at a speed of 62.5 KBps If you don't want to go through all the hassles of the above formula, just multiply the kbps value with 0.1220703125 to get the KBps value.  $512 \text{ kbps} * 0.1220703125 = 62.5 \text{ KBps}$ . Simple!

Internet connectivity	Download speed (approx)
256 kbps	31.3 KBps
384 kbps	46.9 KBps
512 kbps	62.5 KBps
768 kbps	93.8 KBps

$$1 \text{ mbps} \sim 1000\text{kpbs} \text{ } 122.1 \text{ KBps}$$

they will vary (always reduce) by 15 - 20% due to network signal loss, computer hardware overheads etc. So for realistic, real world figures always reduce 15 - 20% from the computed KBPS download speeds

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