



White Paper

All About Download Speed (Mbps & MBPS)

Calculating download Speed:-

Calculating download times can be confusing because people tend to think that bits and bytes are the same, but our download calculator can help.

They're not. A bit is a binary digit 1 or 0, and a byte is 8 of these. So a kilobyte is 8 times larger than a kilobit, and a megabyte is 8 times larger than a megabit. But we've simplified things with our download speed calculator which will show you the actual time to download different file types.

Below is a table full of very theoretical speeds. The file size is written in megabytes (multiply by 8 to get megabits) and the speeds are in megabits (divide by 8 to get megabytes).

4, 8, 16, 32, 50, and 100 represent some of the most common speeds in broadband – ADSL, 3G, 4G and cable. The below table will tell you how long, in minutes and seconds, the file types on the left will take to download using the speeds on the right.

Realistically speaking, because the actual speed is never as fast as the advertised and there are many things that affect speed, the times below should be multiplied by four or five to get a more accurate figure from our download estimator.

ITEM	File Size (MB)	4 Mbps	8 Mbps	16 Mbps	32 Mbps	50 Mbps	100 Mbps
Single song	5	10s	5s	2.5s	1.25s	0.8s	0.4s
YouTube clip (LQ)	10	20s	10s	5s	2.5s	1.6s	0.8s
YouTube clip (HQ)	50	1m 40s	50s	25s	12.5s	8s	4s
Album (HQ)	100	3m 20s	1m 40s	50s	25s	16s	8s
TV Show (HQ)	450	15m	7m 30s	3m 45s	1m 52s	1m 12s	36s
Film (LQ)	700	23m 20s	11m 40s	5m 50s	2m 55s	1m 52s	56s
Film (HQ)	1500	50m	25m 30s	12m 30s	6m 15s	4m	2m
Film (full DVD)	4500	2h 30m	1h 15m	37m 30s	18m 45s	9m 22s	4m 41s
Film (BlueRay)	10,000	5h 35m	2h 47m	1h 24m	42m	26m 40s	13m 20s

MBs & Mbs

Megabits are written Mb, and megabytes are written as MB. All internet speeds are measured in bits per second. An "up to 8Mbps" or "8Mb" connection means the maximum you will get is 8 megabits per second. This is one megabyte.

Thus, if a provider or salesperson tries to tell you that an 8Mbps internet connection is equal to 8 megabytes per second, they are wrong to a factor of 8.

Sometimes they will try to avoid being caught out by simply referring to "megs", which is equally unhelpful as it doesn't denote what they are actually referring to. Demand specifics and they can never fool you again!

Speeds

Speed is always denoted by time. Mb can never be a speed without the time it takes for it to download or upload. So all speeds should be written as "Mbps" because without specifying the time taken it's not a speed, it's a size.

Internet speeds are never as fast as they say they are. An 8Mbps line means that under the best circumstances, (i.e. you live inside a telephone exchange box and don't share your line with anyone) you will get 8Mbps.

Practically speaking, speeds are a lot lower. A download time is affected by many things – line sharing (also known as contention ratio), time of day, distance from telephone exchange and quality of wiring (in your house and in the street).

So it's next-to impossible to actually get your full 8Mbps. Optimistically you will get about 4Mbps, and realistically it will probably be around 2Mbps. This isn't always the fault of the provider, as it can depend on who you are connecting to and where they are.

The exception to this is when you're signed up to a fiber to the premises broadband service such as Virgin Media's, which is unaffected by the distance you live from the exchange.

However, your speed will still be impacted by the number of customers using the service at any one time.

