

INTERNET SPEED UNITS

Mbps vs MBps

Complete Conversion Chart & Examples

Mbps • MBps • Kbps • Gbps • Bits • Bytes

100 Mbps = 12.5 MBps

1 Gbps = 125 MBps

Free Printable Reference Guide | Updated 2026

Internet Speed Units Explained

Mbps vs MBps, Conversion Chart, Formulas & Real-World Examples

Internet speed is commonly measured in **bits per second**, while file sizes are usually measured in **bytes**. This is why internet plans may show speeds such as **50 Mbps, 100 Mbps, 500 Mbps or 1 Gbps**, while your computer or browser may show a download speed such as **6.25 MB/s, 12.5 MB/s or 125 MB/s**.

The most important rule to remember is:

1 byte = 8 bits

Therefore:

1 MBps = 8 Mbps

and

1 Mbps = 0.125 MBps

This PDF provides a simple reference guide to internet speed units, Mbps vs MBps, bits vs bytes, conversion formulas and real-world download-speed examples.

Quick Answer: Mbps vs MBps

Mbps means **Megabits per second**.

MBps means **Megabytes per second**.

They are not the same unit.

Since:

1 Byte = 8 bits

a speed of:

100 Mbps ÷ 8 = 12.5 MBps

Therefore, a **100 Mbps** internet connection has a theoretical maximum data rate of approximately **12.5 MB per second**.

Actual download speeds can be lower because of network overhead, Wi-Fi conditions, server limitations, congestion and other factors.

Mbps vs MBps Difference

Unit	Full Form	Measures
bps	Bits per second	Bits
Kbps	Kilobits per second	Thousands of bits
Mbps	Megabits per second	Millions of bits
Gbps	Gigabits per second	Billions of bits
B/s	Bytes per second	Bytes
KB/s	Kilobytes per second	Kilobytes
MB/s or MBps	Megabytes per second	Megabytes
GB/s or GBps	Gigabytes per second	Gigabytes

The lowercase **b** generally represents **bits**.

The uppercase **B** represents **bytes**.

Therefore:

Mb ≠ MB

and:

Mbps ≠ MBps

What Does Mbps Mean?

Mbps stands for **Megabits per second**.

It is one of the most common units used by internet service providers to advertise broadband, fiber, mobile and Wi-Fi connection speeds.

For example:

- 10 Mbps
- 25 Mbps

- 50 Mbps
- 100 Mbps
- 200 Mbps
- 500 Mbps
- 1,000 Mbps

A higher Mbps value generally indicates a higher maximum data-transfer rate.

What Does MBps Mean?

MBps stands for **Megabytes per second**.

It is commonly used when displaying file-transfer or download speeds.

For example:

- 5 MBps
- 10 MBps
- 25 MBps
- 50 MBps
- 100 MBps

Because one byte contains eight bits:

$$1 \text{ MBps} = 8 \text{ Mbps}$$

The Most Important Internet Speed Formula

Mbps to MBps

To convert Mbps to MBps:

$$\text{MBps} = \text{Mbps} \div 8$$

Example

100 Mbps:

$$100 \div 8 = 12.5 \text{ MBps}$$

Therefore:

$$100 \text{ Mbps} = 12.5 \text{ MBps}$$

MBps to Mbps

To convert MBps to Mbps:

$$\text{Mbps} = \text{MBps} \times 8$$

Example

20 MBps:

$$20 \times 8 = 160 \text{ Mbps}$$

Therefore:

$$20 \text{ MBps} = 160 \text{ Mbps}$$

Mbps to Kbps

Using decimal networking units:

$$1 \text{ Mbps} = 1,000 \text{ Kbps}$$

Therefore:

$$\text{Mbps} \times 1,000 = \text{Kbps}$$

Example

50 Mbps:

$$50 \times 1,000 = 50,000 \text{ Kbps}$$

Gbps to Mbps

Using decimal networking units:

$$1 \text{ Gbps} = 1,000 \text{ Mbps}$$

Therefore:

$$\text{Gbps} \times 1,000 = \text{Mbps}$$

Example

1 Gbps:

$$1 \times 1,000 = 1,000 \text{ Mbps}$$

[Gbps to MBps](#)

First convert Gbps to Mbps, then divide by 8.

1 Gbps = 1,000 Mbps

1,000 ÷ 8 = 125 MBps

Therefore:

1 Gbps = 125 MBps

under decimal networking units.

[Complete Internet Speed Conversion Chart](#)

Bits-Based Units

Speed	Equivalent
1 Kbps	1,000 bps
10 Kbps	10,000 bps
100 Kbps	100,000 bps
1 Mbps	1,000 Kbps
10 Mbps	10,000 Kbps
25 Mbps	25,000 Kbps
50 Mbps	50,000 Kbps
100 Mbps	100,000 Kbps
200 Mbps	200,000 Kbps
500 Mbps	500,000 Kbps
1 Gbps	1,000 Mbps
2 Gbps	2,000 Mbps
5 Gbps	5,000 Mbps
10 Gbps	10,000 Mbps

[Mbps to MBps Conversion Chart](#)

Internet Speed	Theoretical MBps
1 Mbps	0.125 MBps
5 Mbps	0.625 MBps
10 Mbps	1.25 MBps
20 Mbps	2.50 MBps
25 Mbps	3.125 MBps
50 Mbps	6.25 MBps
75 Mbps	9.375 MBps
100 Mbps	12.50 MBps
150 Mbps	18.75 MBps
200 Mbps	25.00 MBps
250 Mbps	31.25 MBps
300 Mbps	37.50 MBps
400 Mbps	50.00 MBps
500 Mbps	62.50 MBps
600 Mbps	75.00 MBps
750 Mbps	93.75 MBps
1 Gbps	125.00 MBps
2 Gbps	250.00 MBps
5 Gbps	625.00 MBps
10 Gbps	1,250.00 MBps

Note: These are theoretical conversions based on 8 bits = 1 byte. Actual file-transfer speeds can be lower.

[MBps to Mbps Conversion Chart](#)

Download Speed	Equivalent Mbps
0.5 MBps	4 Mbps
1 MBps	8 Mbps
2 MBps	16 Mbps
5 MBps	40 Mbps
10 MBps	80 Mbps

12.5 MBps	100 Mbps
20 MBps	160 Mbps
25 MBps	200 Mbps
37.5 MBps	300 Mbps
50 MBps	400 Mbps
62.5 MBps	500 Mbps
75 MBps	600 Mbps
100 MBps	800 Mbps
125 MBps	1 Gbps
250 MBps	2 Gbps
625 MBps	5 Gbps
1,250 MBps	10 Gbps

[Kbps to Mbps Conversion Chart](#)

Kbps	Mbps
100 Kbps	0.1 Mbps
500 Kbps	0.5 Mbps
1,000 Kbps	1 Mbps
2,000 Kbps	2 Mbps
5,000 Kbps	5 Mbps
10,000 Kbps	10 Mbps
25,000 Kbps	25 Mbps
50,000 Kbps	50 Mbps
100,000 Kbps	100 Mbps
500,000 Kbps	500 Mbps
1,000,000 Kbps	1,000 Mbps = 1 Gbps

[Gbps to Mbps Conversion Chart](#)

Gbps	Mbps
0.1 Gbps	100 Mbps
0.25 Gbps	250 Mbps
0.5 Gbps	500 Mbps
1 Gbps	1,000 Mbps
2 Gbps	2,000 Mbps
5 Gbps	5,000 Mbps
10 Gbps	10,000 Mbps

[Bits vs Bytes](#)

Understanding bits and bytes is essential for correctly interpreting internet speeds.

Bit

A **bit** is the smallest unit of digital information.

Its symbol is:

b

For example:

Mbps = Megabits per second

Byte

A **byte** consists of 8 bits.

Its symbol is:

B

For example:

MBps = Megabytes per second

Therefore:

1 B = 8 b

[Why Internet Plans Use Mbps](#)

Internet service providers commonly advertise connection speeds in **bits per second**, particularly Mbps and Gbps.

For example:

100 Mbps Broadband Plan

This does not mean that you will download files at 100 MB per second.

Instead:

$$100 \text{ Mbps} \div 8 = 12.5 \text{ MBps}$$

So a 100 Mbps connection has a theoretical maximum transfer rate of approximately **12.5 MB per second**.

Why Your Download Speed Looks Lower Than Your Internet Plan

This is one of the most common sources of confusion.

Suppose your internet plan is:

100 Mbps

You might expect a download speed of:

100 MBps

But that would be incorrect.

The theoretical conversion is:

$$100 \text{ Mbps} \div 8 = 12.5 \text{ MBps}$$

Therefore, a download speed around 10–12.5 MB/s can be consistent with a 100 Mbps connection, depending on network conditions.

Real-World Download Speed Examples

25 Mbps Internet

Theoretical maximum:

$$25 \div 8 = 3.125 \text{ MBps}$$

Approximately:

3.13 MB/s

50 Mbps Internet

$$50 \div 8 = 6.25 \text{ MBps}$$

Approximately:

6.25 MB/s

100 Mbps Internet

$$100 \div 8 = 12.5 \text{ MBps}$$

Approximately:

12.5 MB/s

200 Mbps Internet

$$200 \div 8 = 25 \text{ MBps}$$

Approximately:

25 MB/s

500 Mbps Internet

$$500 \div 8 = 62.5 \text{ MBps}$$

Approximately:

62.5 MB/s

1 Gbps Internet

$$1,000 \text{ Mbps} \div 8 = 125 \text{ MBps}$$

Therefore:

$$1 \text{ Gbps} = 125 \text{ MBps}$$

theoretically.

How Long Does It Take to Download a File?

A simple theoretical calculation can estimate download time.

Formula

$$\text{Download Time} = \text{File Size} \div \text{Download Speed}$$

However, both values must use compatible units.

For example:

File size = 1 GB

Internet speed = 100 Mbps

First convert the internet speed:

$$100 \text{ Mbps} \div 8 = 12.5 \text{ MB/s}$$

If using decimal units:

1 GB = 1,000 MB

Therefore:

$1,000 \div 12.5 = 80$ seconds

So a 1 GB file could theoretically take approximately:

80 seconds

at a constant 100 Mbps transfer rate.

Actual download time may be longer.

Approximate Download Times at Different Internet Speeds

The following examples assume a **1 GB file**, decimal units and ideal sustained speed.

Internet Speed	Theoretical Download Speed	Approx. Time for 1 GB
10 Mbps	1.25 MB/s	13 min 20 sec
25 Mbps	3.125 MB/s	5 min 20 sec
50 Mbps	6.25 MB/s	2 min 40 sec
100 Mbps	12.5 MB/s	1 min 20 sec
200 Mbps	25 MB/s	40 sec
300 Mbps	37.5 MB/s	26.7 sec
500 Mbps	62.5 MB/s	16 sec
1 Gbps	125 MB/s	8 sec

Important: Actual download times can vary considerably.

Why Actual Internet Speed Can Be Lower

The Mbps-to-MB/s calculation provides a theoretical conversion. Real-world performance can be affected by many factors.

Common factors include:

- Wi-Fi signal strength
- Router performance
- Wi-Fi standard
- Ethernet connection
- Network congestion
- ISP network conditions
- Server speed
- Website limitations
- Distance from the server
- Number of connected devices
- Background downloads
- VPN usage
- Device performance
- Network overhead
- Wireless interference

Therefore, a **100 Mbps connection does not guarantee exactly 12.5 MB/s for every download.**

Download Speed vs Internet Plan Speed

These terms should not be confused.

Internet Plan Speed

This is the connection speed advertised by your ISP.

Example:

100 Mbps

Actual Download Speed

This is the rate at which a particular file or service is transferred.

It might be displayed as:

11.2 MB/s

or:

89.6 Mbps

depending on the application.

Download Speed vs Upload Speed

Internet connections can have separate download and upload speeds.

Download Speed

The rate at which data travels **to your device**.

Examples:

- Downloading files
- Streaming videos
- Loading websites
- Receiving emails

Upload Speed

The rate at which data travels **from your device** to the internet.

Examples:

- Uploading videos
- Sending large files
- Cloud backups
- Video conferencing
- Uploading photos

A connection might have:

100 Mbps download

and:

50 Mbps upload

depending on the plan.

Mbps, MBps, Gbps and GBps

These units are frequently confused.

Unit	Meaning
Mbps	Megabits per second
MBps	Megabytes per second
Gbps	Gigabits per second
GBps	Gigabytes per second

The difference between lowercase **b** and uppercase **B** is extremely important.

Gbps vs GBps

A 1 Gbps connection does **not** mean 1 GBps.

Because:

1 byte = 8 bits

Therefore:

1 Gbps = 0.125 GBps

or:

1 Gbps = 125 MBps

By comparison:

1 GBps = 8 Gbps

Common Internet Speed Examples

Advertised Speed	Theoretical MB/s
10 Mbps	1.25 MB/s
20 Mbps	2.50 MB/s
30 Mbps	3.75 MB/s
40 Mbps	5.00 MB/s
50 Mbps	6.25 MB/s
75 Mbps	9.375 MB/s
100 Mbps	12.5 MB/s
150 Mbps	18.75 MB/s
200 Mbps	25 MB/s

300 Mbps	37.5 MB/s
500 Mbps	62.5 MB/s
750 Mbps	93.75 MB/s
1 Gbps	125 MB/s

Is 100 Mbps Fast?

A **100 Mbps** internet connection can provide a relatively high theoretical data-transfer rate for many common household activities. Its theoretical maximum byte rate is:

$$100 \div 8 = 12.5 \text{ MB/s}$$

Actual performance depends on the network, device, Wi-Fi conditions, server and other factors.

For example, several devices may share the available connection capacity.

Is 1 Gbps Fast?

1 Gbps equals:

1,000 Mbps

and theoretically:

125 MB/s

It can provide substantially greater bandwidth than a 100 Mbps connection.

However, the actual benefit depends on how the connection is used, the network equipment, the connected devices and the services being accessed.

Common Internet Speed Unit Mistakes

Mistake 1: Treating Mbps and MBps as the same

Incorrect:

100 Mbps = 100 MBps

Correct:

100 Mbps = 12.5 MBps

Mistake 2: Ignoring the capital B

Mb means megabits.

MB means megabytes.

They are different units.

Mistake 3: Assuming a 1 Gbps plan downloads at 1 GB/s

Incorrect:

1 Gbps = 1 GB/s

Correct:

1 Gbps = 125 MB/s

under decimal units.

Mistake 4: Assuming theoretical speed equals actual speed

Theoretical conversion does not account for:

- Network overhead
- Wi-Fi limitations
- Server limitations
- Congestion
- Device limitations

Decimal vs Binary Units

Internet networking speeds are generally expressed using **decimal prefixes**.

For networking:

1 Kbps = 1,000 bits per second

1 Mbps = 1,000,000 bits per second

1 Gbps = 1,000,000,000 bits per second

Computer storage and memory can use different binary conventions, such as:

KiB, MiB and GiB

Therefore, do not automatically treat MB and MiB as identical.

[Internet Speed Unit Cheat Sheet](#)

Bits

1 byte = 8 bits

Kilobits

1 Mbps = 1,000 Kbps

Megabits

1 Gbps = 1,000 Mbps

Megabytes

1 MBps = 8 Mbps

Gigabits

1 Gbps = 125 MBps

Gigabytes

1 GBps = 8 Gbps

[Quick Conversion Formulas](#)

Mbps → MBps

Mbps ÷ 8

Example:

80 Mbps ÷ 8 = 10 MBps

MBps → Mbps

MBps × 8

Example:

10 MBps × 8 = 80 Mbps

Gbps → Mbps

Gbps × 1,000

Example:

2 Gbps × 1,000 = 2,000 Mbps

Gbps → MBps

Gbps × 125

Example:

2 Gbps × 125 = 250 MBps

MBps → Gbps

MBps ÷ 125

Example:

250 MBps ÷ 125 = 2 Gbps

[Internet Speed Conversion Table](#)

From	To	Formula
Mbps	MBps	÷ 8
MBps	Mbps	× 8
Gbps	Mbps	× 1,000
Mbps	Gbps	÷ 1,000
Gbps	MBps	× 125
MBps	Gbps	÷ 125
Mbps	Kbps	× 1,000
Kbps	Mbps	÷ 1,000

[Popular Searches and Quick Answers](#)

10 Mbps in MBps

10 Mbps = 1.25 MBps

25 Mbps in MBps

25 Mbps = 3.125 MBps

50 Mbps in MBps

50 Mbps = 6.25 MBps
100 Mbps in MBps
100 Mbps = 12.5 MBps
200 Mbps in MBps
200 Mbps = 25 MBps
500 Mbps in MBps
500 Mbps = 62.5 MBps
1 Gbps in Mbps
1 Gbps = 1,000 Mbps
1 Gbps in MBps
1 Gbps = 125 MBps
1 MBps in Mbps
1 MBps = 8 Mbps

[Internet Speed Units for Different Activities](#)

Internet speed requirements vary depending on the service, number of users, quality settings and other factors.

Common activities include:

- Web browsing
- Video streaming
- Online gaming
- Video calls
- File downloads
- Cloud backups
- Social media
- Music streaming
- Smart-home devices

A higher connection speed can provide more available bandwidth, particularly when multiple devices use the connection simultaneously.

[How to Read a Speed Test Result](#)

A typical internet speed test may show:

Download

95 Mbps

Upload

48 Mbps

Ping

12 ms

These measurements represent different aspects of network performance.

Mbps measures data-transfer rate.

ms measures latency.

Therefore, Mbps and ping should not be treated as the same measurement.

[Mbps vs Ping](#)

Mbps

Measures how much data can theoretically be transferred per second.

Ping

Measures network response time, generally reported in milliseconds.

For activities such as online gaming and interactive applications, latency can be important in addition to bandwidth.

[Internet Speed Unit Reference Chart](#)

Unit	Full Form	Approximate Decimal Value
bps	Bits per second	1 bit/s
Kbps	Kilobits per second	1,000 bits/s
Mbps	Megabits per second	1,000,000 bits/s
Gbps	Gigabits per second	1,000,000,000 bits/s
B/s	Bytes per second	8 bits/s
KB/s	Kilobytes per second	8,000 bits/s
MB/s	Megabytes per second	8,000,000 bits/s

[Frequently Asked Questions](#)

What is the difference between Mbps and MBps?

Mbps means Megabits per second, while MBps means Megabytes per second. Since one byte contains eight bits, **1 MBps equals 8 Mbps**.

How many MBps is 100 Mbps?

100 Mbps divided by 8 equals **12.5 MBps** theoretically.

How many Mbps is 1 MBps?

1 MBps equals **8 Mbps**.

How many Mbps is 1 Gbps?

1 Gbps equals **1,000 Mbps** using decimal networking units.

How many MBps is 1 Gbps?

1 Gbps equals **125 MBps** theoretically.

Why is my download speed lower than my Mbps plan?

Your actual download rate can be affected by Wi-Fi, network overhead, congestion, server limitations, device performance and other network conditions.

Is Mbps faster than MBps?

Mbps and MBps measure different units, so they should not simply be described as one being "faster." **1 MBps represents eight times as many bits per second as 1 Mbps.**

What does the lowercase b mean in Mbps?

The lowercase **b** means **bit**.

What does the uppercase B mean in MBps?

The uppercase **B** means **byte**.

What is the difference between Mbps and Gbps?

Both measure bits per second, but Gbps is a larger unit.

1 Gbps = 1,000 Mbps.

How do I convert Mbps to MBps?

Divide the Mbps value by 8.

MBps = Mbps ÷ 8

How do I convert MBps to Mbps?

Multiply the MBps value by 8.

Mbps = MBps × 8

[Internet Speed Conversion Cheat Sheet](#)

Remember These Five Conversions

8 bits = 1 byte

1,000 Kbps = 1 Mbps

1,000 Mbps = 1 Gbps

1 MBps = 8 Mbps

1 Gbps = 125 MBps

[Final Internet Speed Reference](#)

If you remember only one rule from this guide, remember:

Divide Mbps by 8 to get MBps.

Examples:

10 Mbps → 1.25 MBps

50 Mbps → 6.25 MBps

100 Mbps → 12.5 MBps

200 Mbps → 25 MBps

500 Mbps → 62.5 MBps

1 Gbps → 125 MBps

These conversions are theoretical and use decimal networking units. Actual download speeds can vary depending on network conditions and other technical factors.

[Download the Internet Speed Units PDF](#)

Keep this **Internet Speed Units Explained PDF** as a quick reference for Mbps, MBps, Kbps, Gbps, bits, bytes and download-speed conversions.

This PDF includes:

- Mbps vs MBps difference
- Bits vs bytes
- Mbps to MBps conversion
- MBps to Mbps conversion
- Kbps to Mbps conversion
- Gbps to Mbps conversion
- Gbps to MBps conversion
- Internet speed conversion charts
- Download-speed examples
- 100 Mbps and 1 Gbps examples
- File download-time examples
- Internet speed formulas
- Speed-test explanation
- Frequently asked questions
- Internet speed cheat sheet

Website: ShineCap – The Technical Guide

Related article: Internet Speed Units Explained (Mbps vs MBps Difference with Examples)

[Disclaimer](#)

Internet speeds shown in this PDF are based on theoretical unit conversions. Actual network performance may vary because of network overhead, Wi-Fi conditions, router and device limitations, congestion, server performance, ISP infrastructure and other factors.

Networking speeds generally use decimal units, while some storage and computing systems may use binary units. Always check the unit displayed by your ISP, device or application.

Important note for your PDF

Use **MB/s** rather than **MBps** when you want the most standard technical notation for megabytes per second. Both are commonly understood, but **MB/s** is clearer and avoids ambiguity.

So I recommend your PDF consistently use:

Mbps = Megabits per second

MB/s = Megabytes per second

Gbps = Gigabits per second

GB/s = Gigabytes per second

And prominently state:

1 Byte = 8 bits

1 Mbps = 0.125 MB/s

1 Gbps = 125 MB/s

These calculations use **decimal networking units (1,000-based)**, which is the appropriate convention for advertised network speeds.

Internet Speed Conversion Chart

Online reference

<https://tg.shinecap.co.in/images/internet-speed-mbps-vs-mbps.jpg>

For More Tools & Guides – Visit <https://tg.shinecap.co.in>