

# Data Transfer

## Determining Transfer Rates

### First Steps: Wired or Wireless Network?

First you should determine if you are transferring data over a wireless network (to a remote server, or cloud storage) or a wired network using cables (from a laptop to an external hard drive). This decision should be informed by your storage needs.

#### Wired Transfer

There are several ways to connect your computer to an external drive. The simplest of these is to run a Universal Serial Bus (USB) cable directly from your computer to the external device. Transfer speeds between your computer and external drives will vary based on the technology of the devices and the cables used in the process.

##### USB Cable Options:

##### **USB 3.0 (Fastest)**

Rate: up to 5 gigabits per second (Gbps)

##### **USB 2.0**

Rate: 480 megabits per second (Mbps)

If you work with vast quantities of data that you copy or transfer on an ongoing basis, investing in the fastest technology you can afford will save you a lot of time.

#### Wireless Transfer

Data-transfer performance across a wireless network can be affected by many factors: hardware, connection speeds of ISPs, number of simultaneous connections, etc. The fastest rate at which you will be able to transfer data will be the speed of the slowest link in your data-transfer chain. For example, if you are using DSL for your transfer, the slow speed of DSL (128 Kbps to 3Mbps) acts as a dam in the flow of data.

##### Sites to Check Your ISP Current Upload/Download Speeds:

- ⚙️ [speakeasy.net](https://www.speakeasy.net)
- ⚙️ [TestMy.net](https://www.testmy.net)
- ⚙️ [speedtest.net](https://www.speedtest.net)
- ⚙️ use the test provided by your ISP (Verizon, AT&T, TimeWarner, etc.)

To get the most accurate test results and fastest speeds, it is recommended that you use an Ethernet cable rather than a wireless connection, and first disconnect from any Virtual Private Networks (VPNs.)

##### Note on Transfers to Online Storage Services (The Cloud):

While generally OK for small to medium amounts of data, the rate of data transfer to these services is generally insufficient for individuals who need to upload large files and/or vast data collections. Transferring very large files or complete backups of large amounts of data can take a day or more. Be aware that connections can "time out"; if this happens, not all the data in the process of being transferred may have been copied.