# Transmission Control Protocol

The transmission control protocol, or short TCP, is a network protocol, that is widely used on the internet. The communication does use a network address and a port, but in contrast to UDP, the communication is connection based, including checks for defective packages. This has the advantage of being very reliable, as data does not get lost or undiscoveredly altered during the process.

The downside of it is, that it is rather slow. To establish a simple connection, there are multiple steps necessary:

1. Connection request from the sender to the communications partner (recipient).
2. Recipient answers it positively.
3. Another confirmation by the sender, that the actual transfer is about to start.
4. Begin actual transmission of information.

The transfer of data then again is a loop of sending data and getting the acknowledgements about receiving data from the other side. It gets even more complicated, when data is altered on route to the destination or when packages get lost altogether. Then the packages will be re-sent for as long as there is no positive acknowledgment by the recipient. All this overhead is not present in UDP, which makes it faster than TCP, but not as reliable. For the gaming sector reliability is usually not needed to that extent, so UDP is preferred for its speed.

## See Also

- protocol
- UDP
- IPX

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