

Network Address

When connecting multiple computers via a network, it is necessary to make communication between individual [hosts](#) uniquely addressing the destination host. For this purpose, usually every computer is assigned a unique address. There are various ways how such an address can be assigned (e.g. statically configuring it on each computer, [DHCP](#) or [Zero Conf](#)). Also the kind of address may vary ([IPX](#) uses the used network card's [MAC](#) address, IPv6 and IPv4 use a number assigned by the before mentioned mechanisms). The only really basic requirement is the uniqueness. Depending on the used [protocol](#), even more requirements must be met, such as the address being part of a local [subnet](#).

Here is a selection of network addresses for different protocols:

Protocol	Address
IPX	11-22-33-ab-cd-ef, can also be depicted as 11:22:33:ab:cd:ef
IPv4	192.168.0.1
IPv6	2001:4860:4860::8888

Most of the time data sent via a network is chopped into packages, that are sent over the physical connection. Each package has a source address (sender) and a target address (recipient). In case of TCP/IP, there is also another number required, the [port](#) number. Such a combination *must* be unique on a computer and on the network. So for example you can reach a FritzBox router by 192.178.0.1:80 (TCP) on an IPv4 network, with IP address 192.178.0.1 and port 80 (TCP). So any connection attempted to that IP-port-combination will end up at the exact same spot every time. Same goes for your own end. When attempting to communicate with another device, your own IP is used, along with a (usually randomly pre-defined) port. If you use a connection protocol like [TCP](#), this combination of source IP and port and destination IP and port defines the connection parameters (not the state of that connection). If you use a connection less protocol like [UDP](#), in principle the same applies, only that there is no such formal state like „is communicating“. So those two behave a bit differently, but both use IP-port-combinations for communication.

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