

IP

Short for **Internet Protocol**, **IP** is an address of a computer or other network device on a network using IP or TCP/IP. For example, the number "166.70.10.23" is an example of such an address. These addresses are similar to an addresses used on a house and is what allows data to reach the appropriate destination on a network.

There are five classes of available IP ranges: Class A, Class B, Class C, Class D and Class E, while only A, B and C are commonly used. Each class allows for a range of valid IP addresses. Below is a listing of these addresses.

Class	Address Range	Supports
Class A	1.0.0.1 to 126.255.255.254	Supports 16 million hosts on each of 127 networks.
Class B	128.1.0.1 to 191.255.255.254	Supports 65,000 hosts on each of 16,000 networks.
Class C	192.0.1.1 to 223.255.254.254	Supports 254 hosts on each of 2 million networks.
Class D	224.0.0.0 to 239.255.255.255	Reserved for multicast groups.
Class E	240.0.0.0 to 254.255.255.254	Reserved for future use, or Research and Development Purposes.

Ranges 127.x.x.x are reserved for loopback or localhost, for example, 127.0.0.1 is the common loopback address. Range 255.255.255.255 broadcasts to all hosts on the local network.

IP address breakdown

Every IP address is broke down into four sets of octets that break down into binary to represent the actual IP address. The below chart is an example of the IP 255.255.255.255. If you are new to binary, we highly recommend reading our binary and hexadecimal conversions section to get a better understanding of what we're doing in the below charts.

IP:	255	255	255	255
Binary value:	11111111	11111111	11111111	11111111
Octet value:	8	8	8	8

If we were to break down the IP "166.70.10.23", you would get the below value. The below first row is the IP address, the second row the binary values, and the third row the binary value calculated to equal the total of that section of the IP address.

166	70	10	23
10100110	01000110	00001010	00010111
$128+32+4+2=166$	$64+4+2=70$	$8+2=10$	$16+4+2+1=23$

Automatically assigned addresses

There are several IP addresses that are automatically assigned when you setup a home network. These default addresses are what allow your computer and other network devices to communicate and broadcast information over your network. Below is the most commonly assigned network addresses in a home network.

192.168.1.0	0 is the automatically assigned network address.
192.168.1.1	1 is the commonly used address used as the gateway.
192.168.1.2	2 is also a commonly used address used for a gateway.
192.168.1.3 - 254	Addresses beyond 3 are assigned to computers and devices on the network.
192.168.1.255	255 is automatically assigned on most networks as the broadcast address.

Getting an IP address

By default the router you use will assign each of your computers their own IP address, often using NAT to forward the data coming from those computers to outside networks such as the Internet. If you need to register an IP address that can be seen on the Internet, you must register through InterNIC or use a web