How do IP addresses work?

An Internet Protocol (IP) address is a string of numbers separated by periods. IP addresses are expressed as a set of four numbers (IPv4) — an example address might be 192.158.1.38. Each number in the set can range from 0 to 255. So, the full IP addressing range goes from 0.0.0.0 to 255.255.255.255.

> As the use of the internet has continued to dramatically rise, a new Internet Protocol, is increasing in use. IPv6 uses a set of six alphanumeric characters instead of just numbers, allowing for far, far more unique addresses.

- IP addresses are allocated by the Internet Assigned Numbers Authority (IANA), a division of the Internet Corporation for Assigned Names and Numbers (ICANN).
- Your IP address is assigned to you by your ISP. However, your IP address can change if you reset your router. In addition, if you are on the road, your IP address will change based on the location of the server you are using. VPNs further complicate the process by assigning you an IP address from your VPN provider or administrator.

How to look up IP addresses

The simplest way to check your router's public IP address is to search "What is my IP address?" on Google. Google will show you the answer at the top of the page.

Geolocation using the IP address

When an internet user uses their computer or mobile device to access a webpage, their IP address is shared with that webpage. IP-to-location databases determine which IP range (provided by ISPs) the provided IP falls within. Then you can determine in which geographic location that IP range is used, thus determining the **approximate** location of the user.

Generally, you will only receive an approximation of location using this technique — where the **provider** is, but not the actual device location. Obtaining the actual physical location address for the public IP address usually requires a search warrant to be submitted to the ISP.