Verify IP Address: Everything You Need to Know about IP Addresses

by Amber Iven - Monday, September 14, 2020

https://www.searchbug.com/info/verify-ip-address/

You've almost certainly heard of the term "IP address," but do you know what it is? Probably not because an Internet Protocol address works behind the scenes, often out of sight and out of mind.

However, knowing how IP addresses work and how they can be used can help you determine who is behind which addresses and keep your own secure.

In this article we cover some frequently asked questions about IP addresses: everything from what they are to how they can be used. If you find yourself needing to verify an IP address, we have tools for that, too!

What's an IP Address?

An Internet Protocol (IP) address is a number or label assigned to a computer or computer network. No two IP addresses are the same, so IP addresses can be used to identify users or owners of specific computers or networks.

IP addresses are composed of four numbers, 0-255, separated by decimals. For example, 76.215.5.58. There are four types of IP addresses: private, public, static, and dynamic.

Public vs. Private IP Address

Public and private IP addresses correspond with the location of a network. You can operate within a network (private) or outside of a network (public).

For example, when you connect to the wifi at your local coffee shop, you are typically met with a pop up asking whether you'd like your connection to be public or private.

Choosing a public network means your IP address will not be discoverable by other devices on that network. This is a good idea when you're in a room full of strangers.

Private means your device will be discoverable by other devices. This is helpful when you're at home or work and need to connect to a printer or share information between trusted computers.

Dynamic vs. Static IP Addresses

Your IP address at home is probably dynamic while your IP address at work might be static. Dynamic IP addresses are cheaper for Internet Service Providers (ISP) and, therefore, you. They are assigned by a

Dynamic Host Configuration Protocol (DHCP) server, and they expire.

Your ISP might assign an IP address from a pool for an undefined amount of time, and when it expires, it rejoins the pool and another is assigned. Static IP addresses are manually created and assigned by request. They do not expire and do not change.

There are some advantages of static IP addresses which is why there is a fee to get one from your ISP. They can host computer servers, operate at faster speeds, and improve geolocation accuracy. But setting one up requires some technical skill.

Static IP addresses are better suited for businesses rather than residences. Businesses typically have more computers to host, more services to operate, and have an IT department or specialist on hand for set-up and maintenance.

How Do IP Addresses Work?

IP addresses allow computers to communicate with one another. Routers use IP addresses to send information---via the Internet---to the correct computer. It's like a mailing address for the internet "post office" to use to find a computer or destination.

Take your phone for example. If someone sends you an email, you won't receive it unless you are connected to WiFi or are on a data plan. Without that connection, the message cannot find its destination because there is no address. You cannot send an email either as there would be no "return address" or IP address to send from without an internet connection.

Once you connect, however, that message can be sent from one computer to another via the IP address of the network you are connected to, whether it be public WiFi, your private home network, or the nearest tower.

What Information can You Get from an IP Address?

IP address lookups can provide the country, city, and state where an IP address is registered. It cannot provide a physical postal address associated with the IP address.

You could get a physical postal address for an IP address from the ISP, but these companies are not likely to hand that information over easily. Getting specific address information this way typically requires a warrant or other legal documentation.

From an IP address, you can also learn the name and ownership association of a computer system, ISP, domain name, and blacklist status. IP addresses are added to blacklists when they are reported for sending spam or other malicious messages.

Are IP Address Locations Accurate?

While IP address lookups can provide general and/or specific location information, there are some factors

to consider when evaluating the accuracy of the results.

First of all, the location results of an IP address lookup only show where the owner of the IP address has registered it. Second, if the IP address is registered in one country, but the controlling agency of the IP address is in another, the results could show the location of the controlling agency.

While IP address locations can never be 100% accurate, considering that there are about 4.5 billion internet users all over the world, even general information can be useful.

What is My IP Address?

Figuring out your IP address is quite simple. If your computer has the Command Prompt app (I searched my own Windows computer to see if it would come up and it did!), you can type “ipconfig” and hit “Enter” and you can find your private IP address towards the bottom.

You can also search Google or any web browser for your public IP address. Just type, “What is my IP address” and the top search result should be the IP address for the computer the search initiated from.

Next, find out how to change your IP address.

Can IP Addresses Be Changed?

As we mentioned before, the IP address for your home network can change after a few days, weeks, or months. This is just systematic as dynamic IP addresses are assigned, expire, and get reassigned.

They also change with your location. When you connect to a different network, for example, the IP address changes.

As far as manually changing an IP address, there are a few options depending on your reason for doing so. If you’re having connection issues, you can switch from your home WiFi network to mobile data as each of these networks have their own IP addresses. You can also reset your modem.

You can reach out to your ISP to get a different IP address assigned if the current one isn’t configured properly or if it’s unusable.

You can change a local IP address through your computer settings. You might need to do this if you’re in another country but want to view online search results like you would at home. You can also change the IP address for your phone through the WiFi settings.

Other reasons for changing an IP address include security, data protection, and tracking (more on this next!).

How are IP Addresses Used?

Government agencies use IP addresses to track the selling and shipment of illegal goods offered on the

dark web. Agents posing as sellers or dealers can gain access to IP addresses of interested parties and track the geographic location of guilty parties.

We said above that postal addresses can be gathered by reaching out to the ISP. In 2011, the FBI was able to track down members of a notorious hacking group and arrest them.

You can also use IP addresses to prevent spam. When you flag an email as spam or opt out of receiving certain messages, the software notes the IP address the messages originated from and blocks those IP addresses from delivering more messages to your inbox.

Websites use IP addresses to provide relevant information based on your location. For example, if you search “weather,” you should receive local results based on the geolocation of the IP address of the network you are connected to during the time of the query.

Businesses might use IP addresses to track the geographic location of their users to build profiles and better target their ads. This way, campaigns can be customized to appeal to different regions based on specific needs or current events of a particular area.

IP addresses can also be used to track online activity and habits. Businesses might use this information as well to target ads. If you’ve ever wondered why your feed fills with ads for, say, vacuum cleaners the day after you search for vacuum cleaner reviews, that’s why!

How are IP Addresses Tracked?

It’s commonly referred to as a “handshake” when two devices connect to one another through internet protocol. When you request information from a website, that request is sent to the server that hosts that website and includes your IP address.

When the receiving server acknowledges that packet of information from your IP address, it “shakes hands” with it and sends a response back to the computer that requested the specific information.

The three main reasons for IP tracking as mentioned above are to help combat illegal online activity, to help businesses market, and to help prevent spam. There’s really no need to worry about the ease of tracking your IP address, especially if you aren’t a friend to the dark web….

However, if you’d prefer to keep your web browsing private, there are a few options.

How Can IP Addresses be Blocked?

First, you can “mask” your IP address with a virtual private network (VPN). This is a paid service that encrypts your internet activity and prevents websites from identifying your geographic location.

A VPN is the best way to make sure your personal data stays safe when you use public WiFi networks, and it allows you to avoid geographic restrictions when visiting certain websites. With a VPN, you can still stream your favorite shows even if you are out of the country.

A proxy server is a free option that hides your IP address by intercepting it with another. Think of it like a mediator: one IP address requests information from another server on behalf of yours, therefore keeping yours more private.

Tor is another free option. It's an add-on that can be used on your browser. This service bounces your internet connection off of multiple different nodes when you visit a website. This makes it hard to track as it is hard to catch a ricochet.

How to Verify IP Address

We've covered what an IP address is, how it works, and why it is used. IP addresses provide general information regarding the location and owner of a computer or network.

If you need to know the geolocation of an IP address, or verify the validity of an IP address, you can use Searchbug's verify IP address tool. Find out what zip codes visitors to your website come from to inform your marketing decisions. Or, find out where that pesky spammer hails from.

As you can see, there is a lot to know about IP addresses. Most people don't consider how their online activity is tracked. You can now use this information to keep yourself secure and to improve your marketing techniques if you're in business.

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