## What is a DNS AAAA record?

DNS AAAA records match a domain name to an IPv6 address. DNS AAAA records are exactly like [DNS A records](https://www.cloudflare.com/learning/dns/dns-records/dns-a-record/), except that they store a [domain](https://www.cloudflare.com/learning/dns/glossary/what-is-a-domain-name/)'s IPv6 address instead of its IPv4 address.

IPv6 is the latest version of the [Internet Protocol (IP)](https://www.cloudflare.com/learning/network-layer/internet-protocol/). One of the important differences between IPv6 and IPv4 is that IPv6 addresses are longer than IPv4 addresses. The Internet is running out of IPv4 addresses, just as there are only so many possible phone numbers for a given area code. But IPv6 addresses offer exponentially more permutations and thus far more possible [IP addresses](https://www.cloudflare.com/learning/dns/glossary/what-is-my-ip-address/).

As an example of the difference between IPv4 and IPv6 addresses, Cloudflare offers a [public DNS resolver](https://www.cloudflare.com/learning/dns/what-is-1.1.1.1/) that anyone can use by setting their device's DNS to 1.1.1.1 and 1.0.0.1. These are the IPv4 addresses. The IPv6 addresses for this service are 2606:4700:4700::1111 and 2606:4700:4700::1001.

#### DNS AAAA record example

Here is an example of an AAAA record:

|  |  |  |  |
| --- | --- | --- | --- |
| **example.com** | **record type:** | **value:** | **TTL** |
| @ | AAAA | 2001:0db8:85a3:0000: 0000:8a2e:0370:7334 | 14400 |

## **When are AAAA records used?**

Like A records, AAAA records enable client devices to learn the IP address for a domain name. The client device can then connect with and load the website.

AAAA records are only used when a domain has an IPv6 address in addition to an IPv4 address, and when the client device in question is configured to use IPv6. While all domains have one or more IPv4 addresses and accompanying A records, not all domains have IPv6 addresses, and not all user devices are configured to use IPv6.

However, IPv6 is growing in adoption. This will likely continue to be the case because the number of available IPv4 addresses is rapidly diminishing, often forcing multiple devices to share an IPv4 address. To combat this, Cloudflare began turning on IPv6 for all customers [in 2016](https://blog.cloudflare.com/98-percent-ipv6/).

It is probable that in the future, all domains will have AAAA records.

Read more about [DNS records](https://www.cloudflare.com/learning/dns/dns-records/).