**How DNS works:**

**link**

**DNS Records**

[DNS](https://www.cloudflare.com/learning/dns/what-is-dns/) records (aka zone files) are instructions that live in authoritative name server and provide information about a domain including what [IP address](https://www.cloudflare.com/learning/dns/glossary/what-is-my-ip-address/) is associated with that domain and how to handle requests for that domain.

These records consist of a series of text files written in what is known as DNS syntax.

DNS syntax is just a string of characters used as commands that tell the DNS server what to do.

There are many DNS records but we will discuss the common ones

1. A record: The A record resolves domain name to IPv4 IP address. IPv4 is a 32 bit numeric address. Eg: 172.167.234.123.
2. AAAA record: The AAAA record resolves domain name to IPv6 IP Address. IPv6 is a 128-bit alpha-numeric address. Eg: 2501:0:53b::3330:c2f4.

IPv6 is replacing IPv4 because there is a scarcity of IPv4 address.

1. CNAME (Canonical Name) record: It resolves domain or subdomain to another domain name. Eg: [www.example.com](http://www.example.com).

Computer read domain names right to left. Now .com is Top level Domain. Example is 2 level domain. And www is subdomain.

Now if we type [www.example.com](http://www.example.com) or example.com we will land on same page. Here CNAME changes the domain from [www.example.com](http://www.example.com) to example.com.

1. MX (Mail Exchanger) record: It is used for email. The MX record points to the server where email should be delivered for that domain.

Eg: If we want to send mail to [sadiq@example.com](mailto:sadiq@example.com), our Mail Transfer Agent will query the MX record for example.com because its looking for an email server. The DNS will responses back with which server to send the email.

MX record has two entries: Primary Email Server and Secondary Email server. First primary email server is used if its goes down then the secondary email server is used.

1. SOA (Start of Authority) record: It stores administrative information about a DNS zone. A DNS zone is a section of domain name space that a certain administrator has been delegated control over.

DNS zone allows a domain namespace to be divided into different subdomains.

Eg: example.com can be broken down into many subdomain such as shop.example.com, blog.example.com, support.example.com. The head admin could create DNS zones and delegate control over these subdomains to different admin if he want. Suppose head will create a DNS ZONE 1 for shop.example.com and blog.example.com and assign a admin to it. And DNS ZONE 2 for support.example.com and assign another admin to it.

And each zone has it own SOA record.

1. NS (Name server) record: It provides the name of the authoritative name server within the domain. NS record also have 2 entries: Primary and secondary.
2. SRV (service) record: The SRV records points to a server and a service by including a port number.
3. PTR (Pointer) record: This is reverse of A and AAAA record. This resolves IP Address to domain name.
4. TXT (Text) record: This record contains information about the domain such as general or contact information.