

DNS Basic Process

Step Numbers	Description of action
1 - 2	User Request: When you type a URL into your browser, the browser checks its cache to see if it has recently looked up the IP address for that domain. If not, it makes a request to the DNS resolver.
3	Resolver Check: The DNS resolver first checks its own cache. If it has the IP address stored from a previous lookup, it returns this address to the browser.
4 - 5	Root Server Query: If the resolver doesn't have the IP address cached, it sends a query to a root DNS server. The root server doesn't know the IP address for the domain, but it knows the addresses of the DNS servers for the top-level domains (TLDs), such as .com, .net, .org, etc.
6 - 7	TLD Server Query: The resolver then sends a query to the TLD DNS server (e.g., the .com server if the domain is www.example.com). The TLD server doesn't know the exact IP address either, but it knows the addresses of the authoritative DNS servers for the specific domain.
8	Authoritative DNS Server Query: The resolver now queries the authoritative DNS server for the domain. This server contains the actual DNS records for the domain and can provide the IP address.
9	Response to Resolver: The authoritative DNS server responds with the IP address to the resolver.
10	Caching: The resolver caches this IP address for a specified time-to-live (TTL) period to speed up future lookups.
11 - 12	Response to User: Finally, the resolver sends the IP address back to the user's browser, which can then contact the server at that IP address to retrieve the required information.

