# "DNS AND TYPES OF DNS RECORDS"

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DNS:

The internet and the World Wide Web are wild frontiers that rely on computer languages and codes to find and share data and information. One of the most fundamental instruments of the internet is the Domain Name System, or DNS. (Although many people think "DNS" stands for "Domain Name Server," it really stands for "Domain Name System.") DNS is a protocol within the set of standards for how computers exchange data on the internet and on many private networks, known as the TCP/IP protocol suite. Its purpose is vital, as it helps convert easy-to-understand domain names like "howstuffworks.com" into an Internet Protocol (IP) address, such as 70.42.251.42 that computers use to identify each other on the network. It is, in short, a system of matching names with numbers.
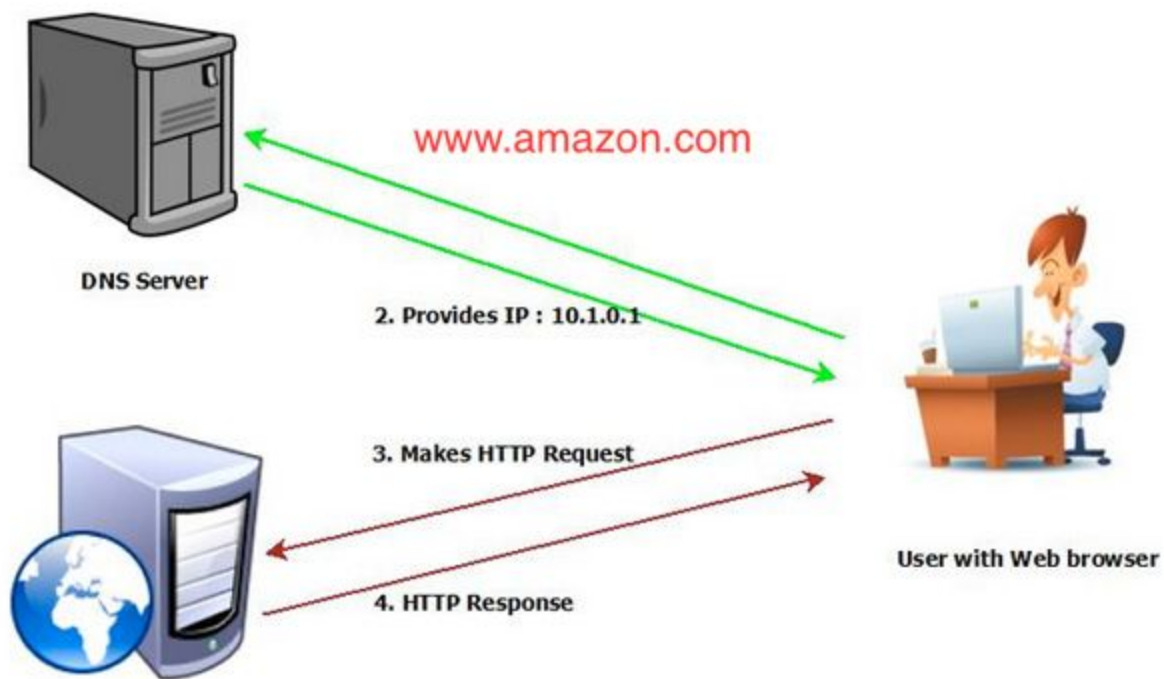
The DNS concept is like a phone book for the internet. Without this kind of wayfinding system, you'd have to resort to much more complicated and esoteric means to sift through the virtual open plains and dense cities of data strewn across the global internet ... and you can bet that it wouldn't be nearly as much fun, especially since there are now hundreds of millions of domain names [source: VeriSign].

Computers and other network devices on the internet use an IP address to route your request to the site you're trying to reach. This is similar to dialing a phone number to connect to the person you're trying to call. Thanks to DNS, though, you don't have to keep your own address book of IP addresses. Instead, you just connect through a domain name server, also called a DNS server or name server, which manages a massive database that maps domain names to IP addresses.

Whether you're accessing a website or sending e-mail, your computer uses a DNS server to look up the domain name you're trying to access. The proper term for this process is DNS name resolution, and you would say that the DNS server resolves the domain name to the IP address. For example, when you enter "www.howstuffworks.com" in your browser, part of the network connection includes resolving the domain name "howstuffworks.com" into an IP address, for example 70.42.251.42, for HowStuffWorks' web servers.

But, you're probably more likely to remember "howstuffworks.com" when you want to return later. In addition, a website's IP address can change over time, and some sites associate multiple IP addresses with a single domain name.

Without DNS servers, the internet would shut down very quickly. But how does your computer know what DNS server to use? Typically, when you connect to your home network, internet service provider (ISP) or WiFi network, the modem or router that assigns your computer's network address also sends some important network configuration information to your computer or mobile device. That configuration includes one or more DNS servers that the device should use when translating DNS names to IP addresses.

TYPES OF DNS RECORDS:

- Address Mapping record (A Record)—also known as a DNS host record, stores a hostname and its corresponding IPv4 address.
- IP Version 6 Address record (AAAA Record)—stores a hostname and its corresponding IPv6 address.
- Canonical Name record (CNAME Record)—can be used to alias a hostname to another hostname. When a DNS client requests a record that contains a CNAME, which points to another hostname, the DNS resolution process is repeated with the new hostname.
- Mail exchanger record (MX Record)—specifies an SMTP email server for the domain, used to route outgoing emails to an email server.
- Name Server records (NS Record)—specifies that a DNS Zone, such as "example.com" is delegated to a specific Authoritative Name Server, and provides the address of the name server.
- Reverse-lookup Pointer records (PTR Record)—allows a DNS resolver to provide an IP address and receive a hostname (reverse DNS lookup).
- Certificate record (CERT Record)—stores encryption certificates—PKIX, SPKI, PGP, and so on.
- Service Location (SRV Record)—a service location record, like MX but for other communication protocols.
- Text Record (TXT Record)—typically carries machine-readable data such as opportunistic encryption, sender policy framework, DKIM, DMARC, etc.
- Start of Authority (SOA Record)—this record appears at the beginning of a DNS zone file, and indicates the Authoritative Name Server for the current DNS zone, contact details for the domain administrator, domain serial

number, and information on how frequently DNS information for this zone should be refreshed.