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# Fun with DNS: Three Useful Commands

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The DNS is a distributed, hierarchical database where authority flows from the top (or root) of the hierarchy downward.

When thinking of the structure of the DNS, imagine an inverted tree. Each branch of the tree is within a zone of authority; however, multiple branches of the tree can be within a single zone.

The software (Bind being the most common) that stores domain name information is called a domain name server. A single name server can be authoritative for multiple zones. All zones have a primary master and a secondary master name server that provides authoritative responses for their zones.

If you query a name server not authoritative for a particular zone, that name server will most likely have up-to-date information. This is because zone information propagates throughout the Internet at regular intervals, and name servers cache zone information for which they are not authoritative.

## DNS Commands:

There are three crucial commands that can put all the DNS information you need at your fingertips. The way to use this article is to try each of the commands listed on a domain name, so you can see what the output looks like. Learn by doing!

Zone file database records divide DNS information into three primary types: NS (Name Server) records, MX (Mail Exchange) records, and A (Address) records. NS records indicate the name servers. MX records indicate the hosts that handle e-mail delivery; the priority (pri) number indicates the order in which mail servers are used, with the lowest number receiving the highest priority. The A (Address) records map hostnames to IP addresses, the real names of machines.

## *host:*

This is the simplest of the DNS commands. It is a quick way to determine the IP address of a hostname:

```
: host www.your-domain-name.com
```

The -a option will return all of the DNS information in verbose format.

```
: host -a www.your-domain-name.com
```

Now that you know the IP address for www.your-domain-name.com, try a reverse lookup.

```
: host IP-ADDRESS
```

## *dig (domain information groper):*

This command gathers and returns DNS information in a format the name server can use directly. You will find it easy to query specific name servers with dig.

You can quickly determine the Name servers of your host or any other host:

```
: dig ns your-host.com
```

Then you check your (or another) website against the host's name servers:

```
: dig www.your-domain-name.com @ns.your-host.com
```

Dig can provide output that is in the same format as the zone file itself. Here is how to get the whole zone file:

```
: dig any your-domain-name.com
```

Here are the most useful dig query types: dig any (gathers all DNS information), dig ns (gathers name server information), dig mx (gathers mail exchanger information) and dig a (gathers network address information).

*continued...*

The dig command can also do reverse lookups with output formatted for the zone file:

```
: dig -x IP-Address
```

### *nslookup:*

You can use this tool as a single line command, or you can use it interactively, which distinguishes it from the other DNS commands. Once you have started nslookup, type set all to list the default options. As with dig you can choose the server (name server) you want to query, and you can decide the type of DNS information on which to focus.

Just as you can issue commands to nslookup interactively, you can also change the initial defaults by starting a .nslookuprc file. The format of the .nslookup is one command per line:

```
set type=NS
```

```
set domain=svvns.your-host.com
```

```
set timeout=10
```

### *Conclusion:*

These three commands can provide you with most of the information you need about your domain names. They are powerful tools, and this article should provide you enough information to get started or offer a quick refresher if you already use these commands.

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