

### 3. host -C

**Aim:** Command to displays the SOA records on authoritative Nameserver.

```
/ It is by the fortune of God that, in \
| this country, we have three benefits: |
| freedom of speech, freedom of thought, |
| and the wisdom never to use either. |
|
\-- Mark Twain
-----
 \ ^ ^
  (oo)\_____
   (__)\       )\/\
    ||----w |
    ||     ||

emperor-kautilya@pop-os:~$ host -C geeksforgeeks.org
Nameserver 205.251.198.33:
  geeksforgeeks.org has SOA record ns-869.awsdns-44.net. awsdns-hostmaster.amazon.com. 1 7200 900 1209600 86400
Nameserver 205.251.192.245:
  geeksforgeeks.org has SOA record ns-869.awsdns-44.net. awsdns-hostmaster.amazon.com. 1 7200 900 1209600 86400
Nameserver 205.251.197.240:
  geeksforgeeks.org has SOA record ns-869.awsdns-44.net. awsdns-hostmaster.amazon.com. 1 7200 900 1209600 86400
Nameserver 205.251.195.101:
  geeksforgeeks.org has SOA record ns-869.awsdns-44.net. awsdns-hostmaster.amazon.com. 1 7200 900 1209600 86400
netmgr/netmgr.c:1703: REQUIRE(((handle) != ((void *)0) && ((const isc_magic_t *)(handle))>magic == (((('N') << 24 | ('M') << 16 | ('H') << 8 | ('D')))) && __extension__ ({ __auto_type __atomic_load_ptr = (&(handle)->references); __typeof__ ((void)0, * __atomic_load_ptr) __atomic_load_tmp; __atomic_load (__atomic_load_ptr, &__atomic_load_tmp, (5)); __atomic_load_tmp; }) > 0)) failed, backtrace
/lib/x86_64-linux-gnu/libisc-9.18.1-1ubuntu1.3-Ubuntu.so(+0x32073)[0x7f315fc32073]
/lib/x86_64-linux-gnu/libisc-9.18.1-1ubuntu1.3-Ubuntu.so(isc_assertion_failed+0x10)[0x7f315fc31560]
/lib/x86_64-linux-gnu/libisc-9.18.1-1ubuntu1.3-Ubuntu.so(isc_nmhandle_attach+0x67)[0x7f315fc1b697]
host(+0xe9c2)[0x55eb482d89c2]
host(+0xee25)[0x55eb482d8e25]
host(+0xf25e)[0x55eb482d925e]
/lib/x86_64-linux-gnu/libisc-9.18.1-1ubuntu1.3-Ubuntu.so(isc_nm_async_sendcb+0x99)[0x7f315fc20eb9]
/lib/x86_64-linux-gnu/libisc-9.18.1-1ubuntu1.3-Ubuntu.so(isc_nm_sendcb+0xe5)[0x7f315fc21035]
/lib/x86_64-linux-gnu/libuv.so.1(+0x217cf)[0x7f31602fb7cf]
/lib/x86_64-linux-gnu/libuv.so.1(uv_run+0x158)[0x7f31602e8768]
/lib/x86_64-linux-gnu/libisc-9.18.1-1ubuntu1.3-Ubuntu.so(+0x25e9e)[0x7f315fc25e9e]
/lib/x86_64-linux-gnu/libisc-9.18.1-1ubuntu1.3-Ubuntu.so(isc_trampoline_run+0x1a)[0x7f315fc5586a]
/lib/x86_64-linux-gnu/libc.so.6(+0x94b43)[0x7f315f494b43]
/lib/x86_64-linux-gnu/libc.so.6(+0x126a00)[0x7f315f526a00]
Aborted (core dumped)
```

**Conclusion:** The host -C command is a utility used to query information about a domain name or IP address using the DNS (Domain Name System). The -C option is used to specify that the host command should perform a reverse DNS lookup. This means that it will take an IP address as input and return the corresponding hostname or domain name.

#### 4. host -d

**Aim:** Command To find the IP address of a particular domain and enable the verbose OUTPUT

```
/ Your business will assume vast \
\ proportions.

-----
 \  ^__^
  (oo)\_____
   (__)\       )\/\
    ||----w |
    ||     ||

emperor-kautilya@pop-os:~$ host -d geeksforgeeks.org
Trying "geeksforgeeks.org"
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 56512
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 0

;; QUESTION SECTION:
;geeksforgeeks.org.      IN      A

;; ANSWER SECTION:
geeksforgeeks.org.      3       IN      A      34.218.62.116

Received 51 bytes from 127.0.0.53#53 in 7 ms
Trying "geeksforgeeks.org"
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 6025
;; flags: qr rd ra; QUERY: 1, ANSWER: 0, AUTHORITY: 1, ADDITIONAL: 0

;; QUESTION SECTION:
;geeksforgeeks.org.      IN      AAAA

;; AUTHORITY SECTION:
geeksforgeeks.org.      663     IN      SOA      ns-869.awsdns-44.net. awsdns-hostmaster.amazon.com. 1 72
00 900 1209600 86400

Received 119 bytes from 127.0.0.53#53 in 23 ms
Trying "geeksforgeeks.org"
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 29901
;; flags: qr rd ra; QUERY: 1, ANSWER: 5, AUTHORITY: 0, ADDITIONAL: 0

;; QUESTION SECTION:
;geeksforgeeks.org.      IN      MX

;; ANSWER SECTION:
geeksforgeeks.org.      142     IN      MX      10 alt3.aspmx.l.google.com.
geeksforgeeks.org.      142     IN      MX      5 alt2.aspmx.l.google.com.
geeksforgeeks.org.      142     IN      MX      10 alt4.aspmx.l.google.com.
geeksforgeeks.org.      142     IN      MX      1 aspmx.l.google.com.
geeksforgeeks.org.      142     IN      MX      5 alt1.aspmx.l.google.com.

Received 153 bytes from 127.0.0.53#53 in 0 ms
```

**Conclusion:** The host -d option is used with the host command to specify that verbose output should be displayed. This option can be useful for troubleshooting DNS issues or for obtaining more detailed information about a domain or IP address.

## 5. host -v

**Aim:** Command To find the IP address of a particular domain and enable the verbose OUTPUT

```
/ You have the capacity to learn from \
\ mistakes. You'll learn a lot today. /
-----
 \ ^ ^
  \ (oo)\_____
   (_)\       )\/\
    ||----w |
    ||     ||
emperor-kautilya@pop-os:~$ host -v geeksforgeeks.org
Trying "geeksforgeeks.org"
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 12865
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 0
;; QUESTION SECTION:
;geeksforgeeks.org.      IN      A
;; ANSWER SECTION:
geeksforgeeks.org.      25      IN      A      34.218.62.116

Received 51 bytes from 127.0.0.53#53 in 7 ms
Trying "geeksforgeeks.org"
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 8772
;; flags: qr rd ra; QUERY: 1, ANSWER: 0, AUTHORITY: 1, ADDITIONAL: 0
;; QUESTION SECTION:
;geeksforgeeks.org.      IN      AAAA
;; AUTHORITY SECTION:
geeksforgeeks.org.      148      IN      SOA      ns-869.awsdns-44.net. awsdns-hostmaster.amazon.com. 1 72
00 900 1209600 86400

Received 119 bytes from 127.0.0.53#53 in 7 ms
Trying "geeksforgeeks.org"
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 57014
;; flags: qr rd ra; QUERY: 1, ANSWER: 5, AUTHORITY: 0, ADDITIONAL: 0
;; QUESTION SECTION:
;geeksforgeeks.org.      IN      MX
;; ANSWER SECTION:
geeksforgeeks.org.      92      IN      MX      5 alt2.aspmx.l.google.com.
geeksforgeeks.org.      92      IN      MX      10 alt4.aspmx.l.google.com.
geeksforgeeks.org.      92      IN      MX      5 alt1.aspmx.l.google.com.
geeksforgeeks.org.      92      IN      MX      10 alt3.aspmx.l.google.com.
geeksforgeeks.org.      92      IN      MX      1 aspmx.l.google.com.

Received 153 bytes from 127.0.0.53#53 in 0 ms
```

**Conclusion:** The host -d option is used with the host command to specify that verbose output should be displayed. This option can be useful for troubleshooting DNS issues or for obtaining more detailed information about a domain or IP address.

## 6. host <domain>

**Aim:** Command To find the IP address.

```
/ You'll wish that you had done some of \
| the hard things when they were easier |
\ to do.                                     /  
-----  
 \  ^__^  
  \  (oo)\_____  
   (__)\       )\/\  
    ||----w |  
    ||     ||  
emperor-kautilya@pop-os:~$ host iiitt.ac.in  
iiitt.ac.in has address 122.252.228.28  
iiitt.ac.in mail is handled by 5 alt1.aspmx.l.google.com.  
iiitt.ac.in mail is handled by 1 aspmx.l.google.com.  
iiitt.ac.in mail is handled by 10 alt4.aspmx.l.google.com.  
iiitt.ac.in mail is handled by 15 gr3pvprzag2zrbqpw4y2vmx3rs14srkv4hsh2xyrruymkpzxu66q.mx-verification.g  
oogle.com.  
iiitt.ac.in mail is handled by 5 alt2.aspmx.l.google.com.  
iiitt.ac.in mail is handled by 10 alt3.aspmx.l.google.com.  
emperor-kautilya@pop-os:~$ host redhat.com  
redhat.com has address 34.235.198.240  
redhat.com has address 52.200.142.250  
redhat.com mail is handled by 10 us-smtp-inbound-2.mimecast.com.  
redhat.com mail is handled by 10 us-smtp-inbound-1.mimecast.com.  
emperor-kautilya@pop-os:~$ 
```

**Conclusion:** The host command is a utility used to query information about domain names and IP addresses using the DNS (Domain Name System).

## 7. host <IP-address>

**Aim:** Command for reverse DNS lookup.

```
/ Q: What's yellow, and equivalent to the \
\ Axiom of Choice? A: Zorn's Lemon.          /  
-----  
 \  ^__^  
  \  (oo)\_____  
   (__)\       )\/\  
    ||----w |  
    ||     ||  
emperor-kautilya@pop-os:~$ host 8.8.8.8  
8.8.8.in-addr.arpa domain name pointer dns.google.  
emperor-kautilya@pop-os:~$ host 122.252.228.28  
28.228.252.122.in-addr.arpa domain name pointer ws28-228-252-122.rcil.gov.in.  
emperor-kautilya@pop-os:~$ 
```

**Conclusion:** The host command is a utility used to query information about domain names and IP addresses using the DNS (Domain Name System).

## 8. host -a <domain-name>

**Aim:** The host -a option is used with the host command to perform an exhaustive query for information about a domain or IP address. When the -a option is used, the host command will retrieve all available resource records for a domain, including A (IPv4 address), MX (mail exchange), NS (name server), and any other records that are available in the DNS.

```
/ Do what comes naturally. Seethe and \
\ fume and throw a tantrum. \
 \
  \ ^__^
  (oo)\----_
  (_)\       )\/\
    ||----w |
    ||     ||

emperor-kautilya@pop-os:~$ host -a redhat.com
Trying "redhat.com"
Trying "redhat.com"
;; ->HEADER<<- opcode: QUERY, status: NOERROR, id: 22782
;; flags: qr rd ra; QUERY: 1, ANSWER: 31, AUTHORITY: 0, ADDITIONAL: 0

;; QUESTION SECTION:
;redhat.com.           IN  ANY

;; ANSWER SECTION:
redhat.com.          599   IN  MX   10 us-smtp-inbound-2.mimecast.com.
redhat.com.          599   IN  MX   10 us-smtp-inbound-1.mimecast.com.
redhat.com.          599   IN  A    34.235.198.240
redhat.com.          599   IN  A    52.200.142.250
redhat.com.         3599   IN  NS   a1-68.akam.net.
redhat.com.         3599   IN  NS   a28-64.akam.net.
redhat.com.         3599   IN  NS   a10-65.akam.net.
redhat.com.         3599   IN  NS   a16-67.akam.net.
redhat.com.         3599   IN  NS   a13-66.akam.net.
redhat.com.         3599   IN  NS   a9-65.akam.net.
redhat.com.         3599   IN  TXT  "apple-domain-verification=xaB3GAA9xxzrpos4"
redhat.com.         3599   IN  TXT  "docusign=c6aa79da-fde1-4b7e-8874-28eeb223ca63"
redhat.com.         3599   IN  TXT  "atlassian-domain-verification=fHiTv781WbOHgzl6U1McyXa9JUSS05B0ECvgSZZ
J9+b4q8wv0Tf4iiI75xdocyC00"
redhat.com.         3599   IN  TXT  "docusign=cf355fc-11f9-4eaf-8ecf-64433ef46173"
redhat.com.         3599   IN  TXT  "adobe-idp-site-verification=10154eb7d4abe67e9e45621e46476febbec28a97a
4610d7c043c42c667aa18d4"
redhat.com.         3599   IN  TXT  "slack-domain-verification=dPrnI9sLvqvAbQUwzvFsPXSPEU1PLODdgGxLhEUR"
redhat.com.         3599   IN  TXT  "google-site-verification=rl_wq5rq_W7A70SyK08d8Ta_Hf6AKP5tqtdl04iGTvs"
redhat.com.         3599   IN  TXT  "v=spf1 ip4:107.21.15.141 ip4:108.177.8.0/21 ip4:128.17.0.0/20 ip4:128
.17.128.0/20 ip4:128.17.192.0/20 ip4:128.17.64.0/20 ip4:128.245.0.0/20 ip4:128.245.64.0/20 ip4:13.110.208.0/21 ip4:13
.110.216.0/22 ip4:13.110.224.0/20 ip4:13.111.0.0/16 ip4:136.147.128.0" "/20 ip4:136.147.176.0/20 ip4:148.105.8.0/21 ip4
:149.72.0.0/16 ip4:159.183.0.0/16 include:spf1.redhat.com -all"
redhat.com.         3599   IN  TXT  "amazonoses:ablaZDaC37yeQuCZAZjbfqRElxucC+8pBdvhFEpTSLY="
redhat.com.         3599   IN  TXT  "status-page-domain-verification=dfx5rbys1ts5"
redhat.com.         3599   IN  TXT  "status-page-domain-verification=hyls0f05cd87"
redhat.com.         3599   IN  TXT  "google-site-verification=TaSjV4J0e2XfmL_vHFKJHkPk8sjgoLkuuTTWezD00Pw"
redhat.com.         3599   IN  TXT  "MS=ms44845140"
redhat.com.         3599   IN  TXT  "miro-verification=0bc02d4257d450b9f9034363a58f88b4b904dc22"
redhat.com.         3599   IN  TXT  "google-site-verification=fkn6chapCdYNWICpsgh0K6mkR0yo7ldeIRC7EH23yoo"
redhat.com.         3599   IN  TXT  "MS=ms88428189"
redhat.com.         3599   IN  TXT  "segment-site-verification=Kk3pC9UBfhioQzibTvTIhT4TFVwP4niP"
redhat.com.         3599   IN  SOA  a1-68.akam.net. noc.redhat.com. 2023020901 300 180 604800 14400
redhat.com.         3599   IN  CAA  0 issue "letsencrypt.org"
redhat.com.         3599   IN  CAA  0 iodef "mailto:it-cert-admin@redhat.com"
redhat.com.         3599   IN  CAA  0 issue "digicert.com"

Received 1882 bytes from 127.0.0.53#53 in 31 ms
```

**Conclusion:** The output of the host command with the -a option will show all of the information that is available in the DNS for the specified domain, including the IP addresses, hostnames, and any other available resource records. This information can be useful for troubleshooting DNS issues or for obtaining information about a domain or IP address.

## 9. host -i <domain-name>

**Aim:** Specifies that reverse lookups of IPv6 addresses should use IP6.

```
< Your ignorance cramps my conversation. >
-----
  \ ^__^
  \  (oo)\_____
    (__)\       )\/\
        ||----w |
        ||     ||

emperor-kautilya@pop-os:~$ host iso.org
iso.org has address 138.81.131.132
iso.org mail is handled by 3 iso-org.mail.protection.outlook.com.
emperor-kautilya@pop-os:~$ host -i 138.81.131.132
132.131.81.138.in-addr.arpa domain name pointer www.iso.ch.
emperor-kautilya@pop-os:~$ 
```

```
/ It were not best that we should all \
| think alike; it is difference of   |
| opinion that makes horse-races.  |
|
| -- Mark Twain, "Pudd'nhead Wilson's |
\ Calendar"                         /

-----
  \ ^__^
  \  (oo)\_____
    (__)\       )\/\
        ||----w |
        ||     ||

emperor-kautilya@pop-os:~$ nslookup dns.google.
Server:      127.0.0.53
Address:      127.0.0.53#53

Non-authoritative answer:
Name: dns.google
Address: 8.8.8.8
Name: dns.google
Address: 8.8.4.4
Name: dns.google
Address: 2001:4860:4860::8844
Name: dns.google
Address: 2001:4860:4860::8888

emperor-kautilya@pop-os:~$ host -i 2001:4860:4860::8888
8.8.8.0.0.0.0.0.0.0.0.0.0.0.0.0.0.6.8.4.0.6.8.4.1.0.0.2.ip6.arpa domain name pointer dns.google.
emperor-kautilya@pop-os:~$ 
```

**Conclusion:** The output of the host command with the -i option will show the hostname or domain name associated with the specified IP address, if it is available in the DNS. Reverse IP lookups are commonly used to help identify the source of incoming network traffic or to troubleshoot connectivity issues.

## G. Dig

### 1. dig iso.org +short

**Aim:** Command to verify and troubleshoot DNS problems and to perform DNS lookups in short and concise format.

```
/ Q: What do you get when you cross a      \
| mobster with an international standard? |
| A: You get someone who makes you an      |
\ offer that you can't understand!        /  
-----  
 \  ^  ^  
 \ (oo)\-----  
  (_)\) )\/\-\  
   ||----w |  
   ||      ||  
emperor-kautilya@pop-os:~$ dig iso.org +short  
138.81.131.132  
emperor-kautilya@pop-os:~$ █
```

**Conclusion:** The +short option is used to display the output in a short and concise format, showing only the relevant information

## 2. dig iso.org +trace

**Aim:** Command to verify and troubleshoot DNS problems and to perform DNS lookups. +trace option can provide a detailed view of the DNS resolution process, which can be useful for troubleshooting DNS-related issues.

```
emperor-kautilya@pop-os:~$ dig iso.org +trace

; <>> DiG 9.18.1-1ubuntu1.3-Ubuntu <>> iso.org +trace
;; global options: +cmd
.
        460717 IN NS    a.root-servers.net.
.
        460717 IN NS    b.root-servers.net.
.
        460717 IN NS    c.root-servers.net.
.
        460717 IN NS    d.root-servers.net.
.
        460717 IN NS    e.root-servers.net.
.
        460717 IN NS    f.root-servers.net.
.
        460717 IN NS    g.root-servers.net.
.
        460717 IN NS    h.root-servers.net.
.
        460717 IN NS    i.root-servers.net.
.
        460717 IN NS    j.root-servers.net.
.
        460717 IN NS    k.root-servers.net.
.
        460717 IN NS    l.root-servers.net.
.
        460717 IN NS    m.root-servers.net.
;;
Received 239 bytes from 127.0.0.53#53(127.0.0.53) in 43 ms

.org.          172800 IN NS    a0.org.afilias-nst.info.
.org.          172800 IN NS    a2.org.afilias-nst.info.
.org.          172800 IN NS    b0.org.afilias-nst.org.
.org.          172800 IN NS    b2.org.afilias-nst.org.
.org.          172800 IN NS    c0.org.afilias-nst.info.
.org.          172800 IN NS    d0.org.afilias-nst.org.
.org.          86400  IN DS    26974 8 2 4FEDF294C53F438A158C41D39489CD78A86BEB0D8A0AEAFF14745C0D 16E
1DE32
.org.          86400  IN RRSIG   DS 8 1 86400 20230224050000 20230211040000 951 . ZeBmlV4qc03c1Y7AXOoT2
OgdkXD0sJvRV0wdUmsWlHv7o7PHvaZq79+z lHAG+5gawn+tGFsNc35oZwjzC4e6+ZoVVf+jXnHXOAuZb1yPj8AiVw6h wYuGLTQj1DbXKBgD7msdna260
3AwhCb5JYnnmn04QL2A1I63yncTpq3Dn U7tF68tJ9v+pk/CDOjRL7ztk8NsUmJlieLDTvIWhNOEoSyl4l49nqohDB avuGp+C60LBlyV00n9v8WdLUWneR
7IinlqyTVxJga7UTg0sXnf5w7f5 08KLdy5gyn467jXhPvNYs7rGt2h8hnxU6zguj+6/nhURDcEhINCbhe8 aXXNzA==
;;
Received 815 bytes from 199.7.83.42#53(l.root-servers.net) in 203 ms

iso.org.       3600   IN NS    dns2.iso.org.
iso.org.       3600   IN NS    dnsone.iso.org.
gdtpongmpok61u9lvnipqor8lra9l4t0.org. 3600 IN NSEC3 1 1 0 332539EE7F95C32A GDTREA8KMJ2RNEQEN4M20GJ26KFSUKJ7 NS SOA RRS
IG DNSKEY NSEC3PARAM
outlmfq0dj9aora0061tla6g1gh5ht9l.org. 3600 IN NSEC3 1 1 0 332539EE7F95C32A OUTOJR2Q8PN6PL2BNT1II1N5G7I873N5 NS DS RRSI
G
gdtpongmpok61u9lvnipqor8lra9l4t0.org. 3600 IN RRSIG NSEC3 8 2 3600 202303040101720 20230211091720 59280 org. oBQhQVDpCo
4sjHTOVap7dG2uiozidTbaixlaT1uss+BLD1GhTCRu1HvK P5Wvg9e8dJubTySh10Gf97klsH5C+jIlH30hcco0vrAH9MLXkW/afpcb /ffuZprv0M/Niy
aM/Srxdhbw7Rs2aKA7Ec3JgijzeTl0tnxGy5fPh6K2 Nsg=
outlmfq0dj9aora0061tla6g1gh5ht9l.org. 3600 IN RRSIG NSEC3 8 2 3600 20230302152452 20230209142452 59280 org. Ayt5MPG7Ra
Y3jetFn5S/fzbQdl+7E/oioj8CzwvGiOHX6h50jne/QD ZmQG0q7EUQA9MR7Miv+pmh8l5SUQQ6XkG0cCy1cUzSshoal9o8SMRno5 ZmFZacviXnu3Mn
xWBuAIsy6+AwSlicUwryFBAAzZzXideX8SemJidKSPb rMg-
;;
Received 609 bytes from 199.249.112.1#53(a2.org.afilias-nst.info) in 163 ms

iso.org.       1800   IN A     138.81.131.132
iso.org.       1800   IN NS    dnsone.iso.org.
iso.org.       1800   IN NS    dns2.iso.org.
;;
Received 152 bytes from 138.81.130.13#53(dnsone.iso.org) in 211 ms
```

**Conclusion:** The dig command with the +trace option is used to perform a DNS trace query, which traces the resolution path of a domain name from the root DNS servers to the authoritative servers for the target domain. The +trace option displays the sequence of DNS servers that are queried, starting from the root servers and continuing until it reaches the authoritative servers for the target domain.

### 3. dig google.dns. any

**Aim:** Command with the ANY option is used to retrieve all available resource records for a specified domain name. The ANY option is used to retrieve any and all types of DNS records associated with a domain, including A, MX, NS, SOA, and others.

```
/ Good day to deal with people in high \
| places; particularly lonely           |
\ stewardesses.                         /  
-----  
 \  ^__^  
  \  (oo)\----  
   (__)\       )\/\  
    ||----w |  
    ||     ||  
  
emperor-kautilya@pop-os:~$ dig google.dns. any  
  
; <>> DiG 9.18.1-1ubuntu1.3-Ubuntu <>> google.dns. any  
;; global options: +cmd  
;; Got answer:  
;; ->HEADER<<- opcode: QUERY, status: NXDOMAIN, id: 57637  
;; flags: qr rd ra; QUERY: 1, ANSWER: 0, AUTHORITY: 1, ADDITIONAL: 1  
  
;; OPT PSEUDOSECTION:  
; EDNS: version: 0, flags:; udp: 65494  
;; QUESTION SECTION:  
;google.dns.          IN      ANY  
  
;; AUTHORITY SECTION:  
.          86380    IN      SOA      a.root-servers.net. nstld.verisign-gr  
s.com. 2023021001 1800 900 604800 86400  
  
;; Query time: 91 msec  
;; SERVER: 127.0.0.53#53(127.0.0.53) (TCP)  
;; WHEN: Fri Feb 10 23:27:25 IST 2023  
;; MSG SIZE  rcvd: 114
```

**Conclusion:** Command retrieve all available resource records for the domain.

#### 4. dig google.dns. +nocomments

**Aim:** Command with the +nocomment option is used to display the output of a dig query without the accompanying comments. The comments in the output of a dig query provide additional information and context about the query and the results, but the +nocomment option can be useful if you want to obtain a more concise and straightforward display of the results.

```
/ Q: Know what the difference between \
| your latest project \
| \
| and putting wings on an elephant is? A: \
| Who knows? The elephant *might* fly,
\ heh, heh...
-----
 \ ^ ^
 (oo)\_____
 (_)\____ )\/\
 ||----w |
 ||   ||
emperor-kautilya@pop-os:~$ dig google.dns. +nocomment

; <>> DiG 9.18.1-1ubuntu1.3-Ubuntu <>> google.dns. +nocomment
;; global options: +cmd
google.dns.           IN      A
.                      86398    IN      SOA     a.root-servers.net. nstld.verisign-gr
s.com. 2023021002 1800 900 604800 86400
;; Query time: 75 msec
;; SERVER: 127.0.0.53#53(127.0.0.53) (UDP)
;; WHEN: Fri Feb 10 23:29:55 IST 2023
;; MSG SIZE  rcvd: 114

emperor-kautilya@pop-os:~$ 
```

**Conclusion:** The comments in the output of a dig query provide additional information and context about the query and the results, but the +nocomment option can be useful if you want to obtain a more concise and straightforward display of the results.

## 5. dig google.dns. +noall +answer

**Aim:** Command the +noall +answer options is used to perform a DNS query and display only the answers to the query, without the additional information and statistics provided by the dig command..

```
/ Q: What's the difference between an \
| Irish wedding and an Irish wake? A: One |
\ less drunk.

-----
 \  ^ ^
 \ (oo)\_-
 (__)\" )\/\
    ||----w |
    ||      |

emperor-kautilya@pop-os:~$ dig iso.org +noall +answer
iso.org.      742      IN      A      138.81.131.132
emperor-kautilya@pop-os:~$ 
```

**Conclusion:** The +noall option is used to turn off the display of all header information and statistics, while the +answer option is used to display only the answer section of the query results.

## 6. dig iso.org MX

**Aim:** Command with the MX option is used to perform a DNS query for the Mail Exchange (MX) records of a domain. MX records specify the mail servers responsible for accepting email messages on behalf of a domain.

```
< You're at the end of the road again. >
-----
 \ ^__^
  \ oo)\_____
   (__)\       )\/\
    ||----w |
    ||     ||

emperor-kautilya@pop-os:~$ dig iso.org MX

; <>> DiG 9.18.1-1ubuntu1.3-Ubuntu <>> iso.org MX
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 21836
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 65494
;; QUESTION SECTION:
;iso.org.           IN      MX

;; ANSWER SECTION:
iso.org.        1800    IN      MX      3 iso-org.mail.protection.outlook.com
.

;; Query time: 395 msec
;; SERVER: 127.0.0.53#53(127.0.0.53) (UDP)
;; WHEN: Fri Feb 10 23:32:04 IST 2023
;; MSG SIZE  rcvd: 87
```

**Conclusion:** The output of the query will include the priority of each MX record and the hostname of the mail server responsible for accepting email messages for the domain. The priority value is used to determine the order in which mail servers should be tried if multiple MX records are present for a domain. Lower priority values indicate higher priority mail servers.

## 7. dig iso.org@8.8.8.8

**Aim:** Command would perform a `dig` query for the domain "iso.org" using the DNS server at IP address `8.8.8.8`. The `@` symbol is used to specify the DNS server to use for the query.

```
emperor-kautilya@pop-os:~$ dig iso.org@8.8.8.8

; <>> DiG 9.18.1-1ubuntu1.3-Ubuntu <>> iso.org@8.8.8.8
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NXDOMAIN, id: 29275
;; flags: qr rd ra; QUERY: 1, ANSWER: 0, AUTHORITY: 1, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 65494
;; QUESTION SECTION:
;iso.org\@8.8.8.8.           IN      A

;; AUTHORITY SECTION:
.          86397    IN      SOA      a.root-servers.net. nstld.verisign-gr
s.com. 2023021002 1800 900 604800 86400

;; Query time: 71 msec
;; SERVER: 127.0.0.53#53(127.0.0.53) (UDP)
;; WHEN: Fri Feb 10 23:34:29 IST 2023
;; MSG SIZE  rcvd: 119
```

**Conclusion:** Specifying a specific DNS server, you can bypass the configured DNS servers on your local machine and query a different server for information. This can be useful for troubleshooting DNS-related issues, or for obtaining information from a specific DNS server.

## 8. dig dns9.quad9.net. +noall +answer +stats

**Aim:** Command with the +noall option is used to turn off the display of all header information, while the +answer option is used to display only the answer section of the query results, and the +stats option is used to display the statistics section of the query results.

```
/ Q: What's the difference between an \
| Irish wedding and an Irish wake? A: One |
\ less drunk.

\ ^ ^
\ (oo)\_____
\_)\\/\\
 ||----w |
 ||   ||
emperor-kautilya@pop-os:~$ dig dns9.quad9.net. +noall +answer +stats
dns9.quad9.net.      699      IN      A      9.9.9.9
dns9.quad9.net.      699      IN      A      149.112.112.9
;; Query time: 0 msec
;; SERVER: 127.0.0.53#53(127.0.0.53) (UDP)
;; WHEN: Fri Feb 10 23:38:24 IST 2023
;; MSG SIZE  rcvd: 75
```

**Conclusion:** The +noall +answer +stats options can be useful when you want to obtain a more concise and straightforward display of the query results and statistics.