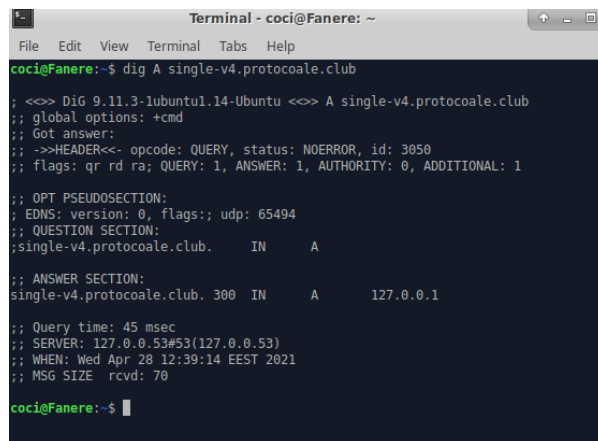


Exercitiul 2

a. Cererile de tip A sunt pentru gazdele care au adrese IPv4. Se ruleaza in terminal comanda **dig A gazda**.



```
Terminal - coci@Fanere: ~
File Edit View Terminal Tabs Help

coci@Fanere:~$ dig A single-v4.protocoale.club

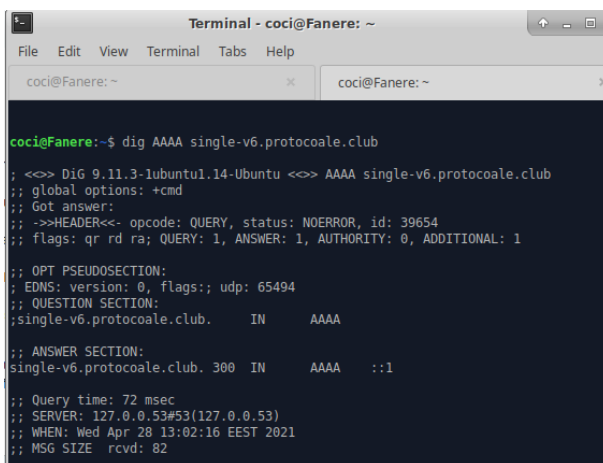
;<<>> DiG 9.11.3-lubuntu1.14-Ubuntu <<>> A single-v4.protocoale.club
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 3050
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
;; EDNS: version: 0, flags:; udp: 65494
;; QUESTION SECTION:
;single-v4.protocoale.club.      IN      A
;; ANSWER SECTION:
single-v4.protocoale.club. 300 IN      A      127.0.0.1

;; Query time: 45 msec
;; SERVER: 127.0.0.53#53(127.0.0.53)
;; WHEN: Wed Apr 28 12:39:14 EEST 2021
;; MSG SIZE rcvd: 70

coci@Fanere:~$
```

b. Cererile de tip AAAA sunt pentru gazdele care au adrese IPv6. Se ruleaza in terminal comanda **dig AAAA gazda**.



```
Terminal - coci@Fanere: ~
File Edit View Terminal Tabs Help

coci@Fanere:~$ dig AAAA single-v6.protocoale.club

;<<>> DiG 9.11.3-lubuntu1.14-Ubuntu <<>> AAAA single-v6.protocoale.club
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 39654
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
;; EDNS: version: 0, flags:; udp: 65494
;; QUESTION SECTION:
;single-v6.protocoale.club.      IN      AAAA
;; ANSWER SECTION:
single-v6.protocoale.club. 300 IN      AAAA      ::1

;; Query time: 72 msec
;; SERVER: 127.0.0.53#53(127.0.0.53)
;; WHEN: Wed Apr 28 13:02:16 EEST 2021
;; MSG SIZE rcvd: 82
```

- c. Am realizat o cerere de tip MX pentru serverul de mail din tabel.

```
coci@Fanere:~$ dig MX protocoale.club
; <<> DiG 9.11.3-lubuntu1.14-Ubuntu <<> MX protocoale.club
;; global options: +cmd
;; Got answer:
;; ->HEADER<- opcode: QUERY, status: NOERROR, id: 28220
;; flags: qr rd ra; QUERY: 1, ANSWER: 3, AUTHORITY: 0, ADDITIONAL: 1

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

;; ANSWER SECTION:
protocoale.club.          300     IN      MX      20 alt2.gmail-smtp-in.l.google.com.
protocoale.club.          300     IN      MX      10 alt1.gmail-smtp-in.l.google.com.
protocoale.club.          300     IN      MX      30 alt3.gmail-smtp-in.l.google.com.

;; Query time: 78 msec
;; SERVER: 127.0.0.53#53(127.0.0.53)
;; WHEN: Wed Apr 28 13:04:09 EEST 2021
;; MSG SIZE rcvd: 133
```

- d. Pentru a afisa doar sectiunea de RR-uri autoritare trebuie rulata comanda **dig gazda +noall authority**. Folosim **+noall** ca sa ii spunem ca nu vrem sa afiseze nicio sectiune, apoi **+authority** pentru a ne arata doar sectiunea specificata.

```
coci@Fanere:~$ dig @80.179.155.4 google.com +noall +authority
; <<> DiG 9.11.3-lubuntu1.14-Ubuntu <<> @80.179.155.4 google.com +noall +authority
; (1 server found)
;; global options: +cmd
google.com.              249050  IN      NS      ns2.google.com.
google.com.              249050  IN      NS      ns3.google.com.
google.com.              249050  IN      NS      ns4.google.com.
google.com.              249050  IN      NS      ns1.google.com.
```

- e. Nu se primește același IP deoarece serverele de nume folosite pentru a interoga adresa lui **google.com** corespund unor zone geografice diferite, interogarea va ajunge la unul dintre serverele Google din acea zona/regiune.

```
coci@Fanere:~$ dig @212.66.129.107 google.com +short
172.217.18.110
coci@Fanere:~$ dig @80.179.155.4 google.com +short
172.217.19.46
coci@Fanere:~$ dig @95.141.206.1 google.com +short
216.58.211.14
```

f. Pentru a realiza o interogare tip bulk, am rulat in terminal comanda **dig @8.8.8.8 -f bulk.txt +noall +answer**.

```
coci@Fanere:~/Desktop$ dig @8.8.8.8 -f bulk.txt +noall +answer
single-v4.protocoale.club. 299 IN A 127.0.0.1
single.protocoale.club. 299 IN A 127.0.0.1
dorinel.protocoale.club. 299 IN A 127.42.0.0
multi-v4.protocoale.club. 299 IN A 127.2.2.2
multi-v4.protocoale.club. 299 IN A 127.1.1.1
multi-v4.protocoale.club. 299 IN A 127.3.3.3
multi-v4.protocoale.club. 299 IN A 127.4.4.4
multi.protocoale.club. 299 IN A 127.1.1.1
multi.protocoale.club. 299 IN A 127.2.2.2
multi.protocoale.club. 299 IN A 127.4.4.4
multi.protocoale.club. 299 IN A 127.3.3.3
pc.protocoale.club. 299 IN CNAME pcom.protocoale.club.
pcom.protocoale.club. 299 IN CNAME protocoale.protocoale.club.
protocoale.protocoale.club. 299 IN A 127.42.42.42
pcom.protocoale.club. 299 IN CNAME protocoale.protocoale.club.
protocoale.protocoale.club. 299 IN A 127.42.42.42
protocoale.protocoale.club. 299 IN A 127.42.42.42
coci@Fanere:~/Desktop$
```

g.

```
coci@Fanere:~$ dig test.dorinel.protocoale.club +trace
; <<>> DiG 0.11.3-lubuntu1.14-Ubuntu <<>> test.dorinel.protocoale.club +trace
;; global options: +cmd
;; Received 51 bytes from 127.0.0.53#53(127.0.0.53) in 0 ms

coci@Fanere:~$ dig protocoale.club +trace
; <<>> DiG 9.11.3-lubuntu1.14-Ubuntu <<>> protocoale.club +trace
;; global options: +cmd
;; Received 51 bytes from 127.0.0.53#53(127.0.0.53) in 0 ms

coci@Fanere:~$ dig dorinel.protocoale.club +trace
; <<>> DiG 9.11.3-lubuntu1.14-Ubuntu <<>> dorinel.protocoale.club +trace
;; global options: +cmd
;; Received 51 bytes from 127.0.0.53#53(127.0.0.53) in 0 ms
```

h. Am realizat o căutare inversă (PTR) pentru o adresa IP a youtube.com

```
coci@Fanere:~$ dig -x 208.65.153.238 +noall +answer
; <<>> DiG 9.11.3-lubuntu1.14-Ubuntu <<>> -x 208.65.153.238 +noall +answer
;; global options: +cmd
238.153.65.208.in-addr.arpa. 7098 IN PTR cache.google.com.
coci@Fanere:~$
```

- i. Pentru a vedea doar cererile/raspunsurile DNS, am adaugat in Wireshark filtrul **port 53**, apoi am rulat in terminal comanda **dig google.com**.

The image shows two windows. The top window is Wireshark, displaying a packet capture on interface 'wlo1' with a filter of 'port 53'. It shows two DNS packets: a standard query for google.com and a standard query response. The bottom window is a terminal running the command 'dig google.com', which outputs detailed DNS query and response information, including the query ID, flags, and the IP address of the server (172.217.20.14).

Wireshark interface showing the capture filter 'port 53' and the packet list. The packet list shows two packets: a DNS Standard query (port 53) and a DNS Standard query response (port 53).

Terminal output showing the results of the 'dig google.com' command:

```
coci@Fanere:~$ dig google.com
; <>> DiG 9.11.3-lubuntu1.14-Ubuntu <>> google.com
;; global options: +cmd
;; Got answer:
;;->HEADER<- opcode: QUERY, status: NOERROR, id: 60524
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 65494
;; QUESTION SECTION:
;google.com.                IN      A
;; ANSWER SECTION:
google.com.                 79      IN      A      172.217.20.14

;; Query time: 15 msec
;; SERVER: 127.0.0.53#53(127.0.0.53)
;; WHEN: Wed Apr 28 15:55:47 EEST 2021
;; MSG SIZE rcvd: 55

coci@Fanere:~$
```