```
.1
```

```
C:\Users\97250>nslookup -type=NS tsinghua.edu.cn
Server: Broadcom.Home
Address: 192.168.1.1

Non-authoritative answer:
tsinghua.edu.cn nameserver = dns2.edu.cn
tsinghua.edu.cn nameserver = ns2.cuhk.hk
tsinghua.edu.cn nameserver = dns2.tsinghua.edu.cn
tsinghua.edu.cn nameserver = dns.tsinghua.edu.cn
dns.tsinghua.edu.cn internet address = 166.111.8.30
dns2.edu.cn internet address = 202.112.0.13
dns2.tsinghua.edu.cn internet address = 166.111.8.31
dns2.edu.cn AAAA IPv6 address = 2001:da8:1:100::13
```

C:\Users\97250>nslookup -type=NS www.cam.ac.uk
Server: Broadcom.Home
Address: 192.168.1.1

cam.ac.uk
 primary name server = primary.dns.cam.ac.uk
 responsible mail addr = hostmaster.cam.ac.uk
 serial = 1651134815
 refresh = 1800 (30 mins)
 retry = 900 (15 mins)
 expire = 604800 (7 days)
 default TTL = 3600 (1 hour)
C:\Users\97250>

```
C:\Users\97250>nslookup primary.dns.cam.ac.uk mail.yahoo.com
DNS request timed out.
    timeout was 2 seconds.
Server: UnKnown
Address: 2a00:1288:84:800::1001

DNS request timed out.
    timeout was 2 seconds.
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```
Frame 5: 72 bytes on wire (576 bits), 72 bytes captured (576 bits) on interface \Device\NPF_{D77A8BF6-8D31-4553-A2F3-82CA261D26D2}, id 0
```

- Ethernet II, Src: IntelCor\_84:70:d3 (04:33:c2:84:70:d3), Dst: D-LinkIn\_73:3a:84 (e4:6f:13:73:3a:84)
- Internet Protocol Version 4, Src: 192.168.1.4, Dst: 192.168.1.1
- User Datagram Protocol, Src Port: 57936, Dst Port: 53
- Domain Name System (query)

- .UDP .4
- Src port: 57936. Dest port: 53. .5
  - yes the are the same. .6

```
Connection-specific DNS Suffix
IPv6 Address. . . . . . . . . . : 2a0e:9cc0:23c7:3d00:5cf6:ce22:3aed:5561
Temporary IPv6 Address. . . . . : 2a0e:9cc0:23c7:3d00:58a1:c351:fcb0:5134
Link-local IPv6 Address . . . . . : fe80::5cf6:ce22:3aed:5561%16
IPv4 Address. . . . . . . . . : 192.168.1.4
Subnet Mask . . . . . . . . . : 255.255.255.0
                                    fe80::e66f:13ff:fe73:3a84%16
Default Gateway . . .
```

- Frame 5: 72 bytes on wire (576 bits), 72 bytes captured (576 bits) on interface \Device\NPF\_{D77A8BF6-8D31-4553-A2F3-82CA261D26D2}, id 0
  Ethernet II, Src: IntelCor\_84:70:d3 (04:33:c2:84:70:d3), Dst: D-LinkI\_73:3a:84 (e4:6f:13:73:3a:84)
  Internet Protocol Version 4, Src: 192.168.1.4. Dst: 192.168.1.1
- Internet Protocol Version 4, Src: 192.168.1.4, Dst: 192.168.1.1
- User Datagram Protocol, Src Port: 57936, Dst Port: 53
- Domain Name System (query)

- Type 'A', standard host address resource record, no answer .7
  - 3 answer like we can see in the screen-shot. .8

## containing the IP address of www.ietf.org.

	7 2.870140	192.168.1.4	192.168.1.1	DNS	72 Standard query 0x5fae AAAA www.ietf.org
	8 2.906346	192.168.1.1	192.168.1.4	DNS	459 Standard query response 0xa319 A www.ietf.org CNAME www.i
	9 2.908988	192.168.1.1	192.168.1.4	DNS	483 Standard query response 0x5fae AAAA www.ietf.org CNAME ww
-	10 2.912014	2a0e:9cc0:23c7:3d00	2606:4700::6810:2c63	TCP	86 51785 → 443 [SYN] Seq=0 Win=64800 Len=0 MSS=1440 WS=256 S
	11 2.998560	fe80::e66f:13ff:fe7	ff02::1:ffb0:5134	ICMPv6	86 Neighbor Solicitation for 2a0e:9cc0:23c7:3d00:58a1:c351:f
	12 2.999222	2a0e:9cc0:23c7:3d00	fe80::e66f:13ff:fe7	ICMPv6	86 Neighbor Advertisement 2a0e:9cc0:23c7:3d00:58a1:c351:fcb€
	13 3.030257	2606:4700::6810:2c63	2a0e:9cc0:23c7:3d00	TCP	86 443 → 51785 [SYN, ACK] Seq=0 Ack=1 Win=65535 Len=0 MSS=13
	14 3.030658	2a0e:9cc0:23c7:3d00	2606:4700::6810:2c63	TCP	74 51785 → 443 [ACK] Seq=1 Ack=1 Win=131840 Len=0
	15 3 031516	2202.0cc0.23c7.3d00	2606-47006810-2-63	TLSv1 3	623 Client Hello

Domain Name System (response)

Transaction ID: 0xa319

> Flags: 0x8180 Standard query response, No error Questions: 1

Answer RRs: Authority RRs: 5 Additional RRs: 10

01 04 00 35 ed 52 01 a9 19 5b a3 19 81 80 00 01 0030 <mark>00 03 00 05</mark> 00 0a <mark>03 77</mark>

- > www.ietf.org: type CNAME, class IN, cname www.ietf.org.cdn.cloudflare.net
- > www.ietf.org.cdn.cloudflare.net: type A, class IN, addr 104.16.44.99
- > www.ietf.org.cdn.cloudflare.net: type A, class IN, addr 104.16.45.99
- · Δuthoritative nameservers

Yes, as seen in the prior screenshot, the destination address is 104.16.44.99 which is .9 the address provided by the DNS server for www.ietf.org.

```
No.
          Time
                         Source
                                                 Destination
                                                                        Protocol
                                                                                       Info
                                                                                 Length
                                                 20.199.120.151
        1 0.000000
                         192.168.1.4
                                                                                    98 Application Data
                                                                        TLSv1.2
        2 0.071319
                         20.199.120.151
                                                192.168.1.4
                                                                        TLSv1.2
                                                                                   229 Application Data
                                                20.199.120.151
        3 0.123179
                         192.168.1.4
                                                                        ТСР
                                                                                    54 49418 → 443 [ACK] Seq
        4 2.831670
                                                 192.168.1.1
                                                                                    72 Standard query 0xa319
                         192.168.1.4
        5 2.832944
                         192.168.1.4
                                                192.168.1.1
                                                                       DNS
                                                                                    72 Standard query 0x5fae
     Answer RRs: 3
     Authority RRs: 5
     Additional RRs: 10
   ✓ Queries
       www.ietf.org: type A, class IN
   Answers
        www.ietf.org: type CNAME, class IN, cname www.ietf.org.cdn.cloudflare.net
           Name: www.ietf.org
           Type: CNAME (Canonical NAME for an alias) (5)
           Class: IN (0x0001)
           Time to live: 974 (16 minutes, 14 seconds)
Data length: 33
           CNAME: www.ietf.org.cdn.cloudflare.net
        www.ietf.org.cdn.cloudflare.net: type A, class IN, addr 104.16.44.99
Name: www.ietf.org.cdn.cloudflare.net
            Type: A (Host Address) (1)
           Class: IN (0x0001)
            Time to live: 300 (5 minutes)
           Data length: 4
           Address: 104.16.44.99
```

No, the images are all loaded from www.ietf.org, so no additional DNS queries. .10

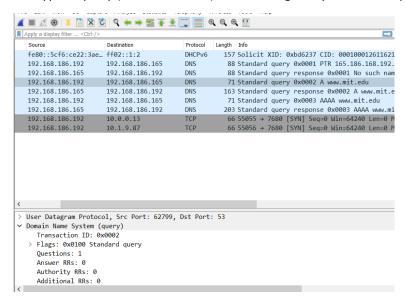
## עברתי מהבית לספרייה לכן ה ip של ברירת המחדל השתנה..

Src port: 62799 dest port: 53 .11

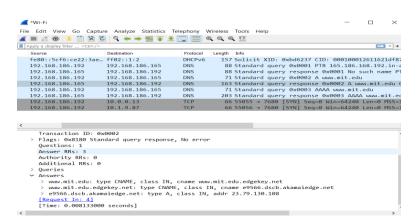
```
Internet Protocol Version 4, Src: 192.168.186.192, Dst: 192.168
User Datagram Protocol, Src Port: 62799, Dst Port: 53
Domain Name System (query)
   Transaction ID: 0x0002
> Flags: 0x0100 Standard query
```

Yes, 192.168.186.165 .12

Standard type A query (see screenshot). The message only contains a query. .13

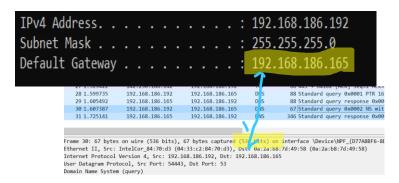


Three answers , two corre sponding to CNAMEs and one host address .14

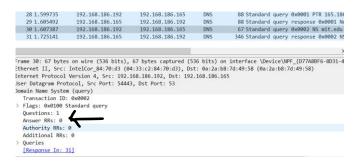


Yes 192.168.186.165 .16

.15



Standard type A query (see screenshot). The message only contains a query. .17



.19

```
26 1.399905 192.168.186.192 142.250.186.142 TCP 55 64102 + 443 [ACK] Sec 27 1.529422 142.250.186.142 192.168.186.192 TCP 66 443 + 64102 [ACK] Sec 28 1.599735 192.168.186.165 192.168.186.192 DNS 88 Standard query 0x0001 29 1.605492 192.168.186.165 192.168.186.192 DNS 88 Standard query response 30 1.607387 192.168.186.165 DNS 67 Standard query 0x0001 31 1.725141 192.168.186.165 192.168.186.192 DNS 346 Standard query response 31 1.725141 192.168.186.165 192.168.186.192 DNS 346 Standard query response Questions: 1

Answer RRs: 8

Authority RRs: 0

Additional RRs: 7

Queries

> mit.edu: type NS, class IN, ns ns1-173.akam.net

> mit.edu: type NS, class IN, ns use5.akam.net

> mit.edu: type NS, class IN, ns use2.akam.net

> mit.edu: type NS, class IN, ns use2.akam.net

> mit.edu: type NS, class IN, ns asia2.akam.net

> mit.edu: type NS, class IN, ns asia1.akam.net

> mit.edu: type NS, class IN, ns asia1.akam.net

> mit.edu: type NS, class IN, ns ns1-37.akam.net

> Additional records

[Request In: 30]

[Time: 0.117754000 seconds]
```

different, address know its sent to 18.0.72.3 because we ask him to connect .20 through other DNS server. its comper to the DNS of bitsy.mit.edu..

32 9.941864 192.168.186.192 18.0.72.3 DNS 74 Standard query 0x0904 A www.aiit.or.kr 33 10.938786 192.168.186.195 192.168.186.195 DNS 75 Standard query exponse 0x45cb A play.google.com A 142.250.185.110 NS ns1.goo 35 10.451141 192.168.186.195 142.250.185.110 DNS 311 Standard query response 0x45cb A play.google.com A 142.250.185.110 NS ns1.goo 35 10.454111 192.168.186.192 142.250.185.110 QUIC 1292 Initial, DCTD=4bdd6e928cf83bd8, PKN: 1, CRYPTO, PADDING, PING, PADDING, CRYPTOR 10.0555644 142.250.185.110 192.168.186.192 QUIC 1292 Protected Payload (KP)

Frame 31: 74 bytes on wire (592 bits), 74 bytes captured (592 bits) on interface \(\text{DeviceNMF}\_{\text{COMP}}\) 11 \(\text{Local Local L

25 2.781037

26 2.875840

27 3.922875 28 5.930132

29 5.996420

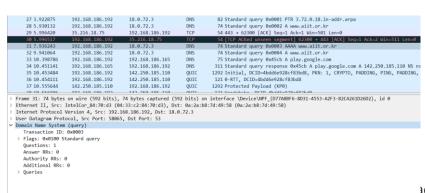
30 5.996517 31 7.936243 32 9.941064 192.168.186.192

142.250.184.238 192.168.186.192

192,168,186,192

35.216.18.75

Standard type A query (see screenshot). The message only contains a query. .21



iges. .22