

Задание А

```
alex@sasha: ~  
Файл Правка Вид Поиск Терминал Справка  
alex@sasha:~$ nslookup www.kyoto-u.ac.jp  
Server:      192.168.1.1  
Address:     192.168.1.1#53  
  
Non-authoritative answer:  
www.kyoto-u.ac.jp      canonical name = pipe.pr.kyoto-u.ac.jp.  
pipe.pr.kyoto-u.ac.jp  canonical name = dualstack.j.sni.global.fastly.net.  
Name:   dualstack.j.sni.global.fastly.net  
Address: 151.101.14.132  
Name:   dualstack.j.sni.global.fastly.net  
Address: 2a04:4e42:3::644  
  
alex@sasha:~$ nslookup -type=NS cam.ac.uk  
Server:      192.168.1.1  
Address:     192.168.1.1#53  
  
Non-authoritative answer:  
cam.ac.uk      nameserver = ns1.mythic-beasts.com.  
cam.ac.uk      nameserver = dns0.eng.cam.ac.uk.  
cam.ac.uk      nameserver = ns2.ic.ac.uk.  
cam.ac.uk      nameserver = auth0.dns.cam.ac.uk.  
cam.ac.uk      nameserver = ns3.mythic-beasts.com.  
cam.ac.uk      nameserver = dns0.cl.cam.ac.uk.  
  
Authoritative answers can be found from:  
auth0.dns.cam.ac.uk      internet address = 131.111.8.37  
dns0.cl.cam.ac.uk        has AAAA address 2a05:b400:110::d:a0  
dns0.cl.cam.ac.uk        has AAAA address 2001:630:212:200::d:a0  
auth0.dns.cam.ac.uk      has AAAA address 2001:630:212:8::d:a0  
  
alex@sasha:~$ nslookup www.spbu.ru  
Server:      192.168.1.1  
Address:     192.168.1.1#53  
  
Non-authoritative answer:  
www.spbu.ru      canonical name = spbu.ru.  
Name:   spbu.ru  
Address: 82.202.190.112  
  
alex@sasha:~$ nslookup www.google.com  
Server:      192.168.1.1  
Address:     192.168.1.1#53  
  
Non-authoritative answer:  
Name:   www.google.com  
Address: 64.233.165.105  
Name:   www.google.com  
Address: 64.233.165.103  
Name:   www.google.com  
Address: 64.233.165.106  
Name:   www.google.com  
Address: 64.233.165.99  
Name:   www.google.com  
Address: 64.233.165.104
```

1. 151.101.14.132
2. -
 - a. auth0.dns.cam.ac.uk
 - b. dns0.cl.cam.ac.uk
 - c. dns0.cl.cam.ac.uk
 - d. auth0.dns.cam.ac.uk
3. www.google.com, только один: 82.202.190.112

Задание Б

Файл Редактирование Просмотр Запуск Захват Анализ Статистика Телефония Беспроводной Инструменты Помощь

ip.addr == 192.168.1.73

No.	Time	Source	Destination	Protocol	Length	Info
33	6.798702395	173.194.221.147	192.168.1.73	TLSv1.3	97	Application Data
34	6.798774799	192.168.1.73	173.194.221.147	TCP	66	46952 → 443 [ACK] Seq=1268 Ack=2060 Win=64128
35	6.798702491	173.194.221.147	192.168.1.73	TLSv1.3	105	Application Data
36	6.798787422	192.168.1.73	173.194.221.147	TCP	66	46952 → 443 [ACK] Seq=1268 Ack=2099 Win=64128
37	6.799677946	192.168.1.73	173.194.221.147	TLSv1.3	105	Application Data
38	6.811261488	173.194.221.147	192.168.1.73	TCP	66	443 → 46952 [ACK] Seq=2099 Ack=1307 Win=68608
39	7.549393587	192.168.1.73	192.168.1.1	DNS	72	Standard query 0xb720 A www.ietf.org
40	7.554451380	192.168.1.1	192.168.1.73	DNS	149	Standard query response 0xb720 A www.ietf.org
41	7.555056128	192.168.1.73	104.16.45.99	TCP	74	37876 → 443 [SYN] Seq=0 Win=64240 Len=0 MSS=1460
42	7.558043041	192.168.1.73	104.16.45.99	TCP	74	37878 → 443 [SYN] Seq=0 Win=64240 Len=0 MSS=1460
43	7.576062579	104.16.45.99	192.168.1.73	TCP	66	443 → 37876 [SYN, ACK] Seq=0 Ack=1 Win=65535 Len=0
44	7.576096420	192.168.1.73	104.16.45.99	TCP	54	37876 → 443 [ACK] Seq=1 Ack=1 Win=64256 Len=0
45	7.576354557	192.168.1.73	104.16.45.99	TLSv1.3	607	Client Hello

Frame 40: 149 bytes on wire (1192 bits), 149 bytes captured (1192 bits) on interface wlp3s0, id 0

Ethernet II, Src: Keenetic_4d:62:1c (50:ff:20:4d:62:1c), Dst: LiteonTe_50:53:01 (94:e9:79:50:53:01)

Internet Protocol Version 4, Src: 192.168.1.1, Dst: 192.168.1.73

User Datagram Protocol, Src Port: 53, Dst Port: 39437

Domain Name System (response)

Transaction ID: 0xb720

Flags: 0x8180 Standard query response, No error

Questions: 1

Answer RRs: 3

Authority RRs: 0

Additional RRs: 0

Queries

- www.ietf.org: type A, class IN
- Name: www.ietf.org
- [Name Length: 12]
- [Label Count: 3]
- Type: A (Host Address) (1)
- Class: IN (0x0001)

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: 790 (13 minutes, 10 seconds)
- Data length: 33
- CNAME: www.ietf.org.cdn.cloudflare.net
- www.ietf.org.cdn.cloudflare.net: type A, class IN, addr 104.16.45.99
- Name: www.ietf.org.cdn.cloudflare.net
- Type: A (Host Address) (1)
- Class: IN (0x0001)
- Time to live: 600 (10 minutes)
- Data length: 4
- Address: 104.16.45.99
- 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: 600 (10 minutes)
- Data length: 4
- Address: 104.16.44.99

[Request In: 39]

[Time: 0.005057793 seconds]

0000 94 e9 79 50 53 01 50 ff 20 4d 62 1c 08 00 45 00 ...yPS.P.

0010 00 87 8f e1 40 00 40 11 26 ea c0 a8 01 01 c0 a8 ...@.@.

0020 01 49 00 35 9a 0d 00 73 59 a3 b7 20 81 80 00 01 .I.5...s Y..

0030 00 03 00 00 00 00 03 77 77 77 04 69 65 74 66 03W

wireshark_wlp3s0RM2BJ1.pcapng

1. UDP
2. 53
3. 192.168.1.1, да
4. если я правильно понимаю, тип -- A; ответов нет
5. три ответа; содержат Name, Type, Class, Time, Data length, CNAME/Address
6. да
7. только DNS запрос о analytics.tetf.org

Задание В

Файл Редактирование Просмотр Запуск Захват Анализ Статистика Телефония Беспроводной Инструменты Помощь

ip.addr == 192.168.1.73

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000000	192.168.1.73	192.168.1.1	DNS	71	Standard query 0xa5bc A www.spbu.ru
2	0.033083751	192.168.1.1	192.168.1.73	DNS	173	Standard query response 0xa5bc A www.spbu.ru
3	0.033819934	192.168.1.73	192.168.1.1	DNS	67	Standard query 0xe92e AAAA spbu.ru
4	0.064950702	192.168.1.1	192.168.1.73	DNS	120	Standard query response 0xe92e AAAA spbu.ru

Frame 4: 120 bytes on wire (960 bits), 120 bytes captured (960 bits) on interface wlp3s0, id 0
Ethernet II, Src: Keenetic_4d:62:1c (50:ff:20:4d:62:1c), Dst: LiteonTe_50:53:01 (94:e9:79:50:53:01)
Internet Protocol Version 4, Src: 192.168.1.1, Dst: 192.168.1.73
User Datagram Protocol, Src Port: 53, Dst Port: 54413
Domain Name System (response)
Transaction ID: 0xe92e
Flags: 0x8180 Standard query response, No error
Questions: 1
Answer RRs: 0
Authority RRs: 1
Additional RRs: 0
Queries
spbu.ru: type AAAA, class IN
Name: spbu.ru
[Name Length: 7]
[Label Count: 2]
Type: AAAA (IPv6 Address) (28)
Class: IN (0x0001)
Authoritative nameservers
spbu.ru: type SOA, class IN, mname ns.pu.ru
Name: spbu.ru
Type: SOA (Start Of a zone of Authority) (6)
Class: IN (0x0001)
Time to live: 165 (2 minutes, 45 seconds)
Data length: 41
Primary name server: ns.pu.ru
Responsible authority's mailbox: hostmaster.pu.ru
Serial Number: 2022022028
Refresh Interval: 7200 (2 hours)
Retry Interval: 3600 (1 hour)
Expire limit: 604800 (7 days)
Minimum TTL: 3600 (1 hour)
[Request In: 3]
[Time: 0.031130768 seconds]

0000 94 e9 79 50 53 01 50 ff 20 4d 62 1c 00 00 45 00 ..yPS.P.
0010 00 6a 03 61 40 00 40 11 b3 87 c0 a8 01 01 c0 a8 .j.a0@.
0020 01 49 00 35 d4 8d 00 56 80 44 e9 2e 81 80 00 01 .I.5..V
0030 00 00 00 01 00 00 04 73 70 62 75 02 72 75 00 00s

wireshark_wlp3s0794EJ1.pcapng

1. 53, 53
2. 192.168.1.1, да
3. тип -- AAAA, ответов нет
4. один ответ, там в дополнение к тому что перечислено в Б.5 есть еще различные интервалы обновления, время жизни и тд

Задание Г

ФайлРедактированиеПросмотрЗапускЗахватАнализСтатистикаТелефонияБеспроводнойИнструментыПомощь

ip.addr == 192.168.1.73

No.	Time	Source	Destination	Protocol	Length	Info
26	6.887533457	192.168.1.73	192.168.1.1	DNS	67	Standard query 0x319f NS spbu.ru
27	6.921185475	192.168.1.1	192.168.1.73	DNS	139	Standard query response 0x319f NS spbu.ru
28	8.672781340	192.168.1.73	85.21.78.91	NTP	90	NTP Version 4, client
29	8.697127363	85.21.78.91	192.168.1.73	NTP	90	NTP Version 4, server

Internet Protocol Version 4, Src: 192.168.1.1, Dst: 192.168.1.73

User Datagram Protocol, Src Port: 53, Dst Port: 35821

Domain Name System (response)

Transaction ID: 0x319f

Flags: 0x8180 Standard query response, No error

Questions: 1

Answer RRs: 3

Authority RRs: 0

Additional RRs: 1

Queries

spbu.ru: type NS, class IN

Name: spbu.ru

[Name Length: 7]

[Label Count: 2]

Type: NS (authoritative Name Server) (2)

Class: IN (0x0001)

Answers

spbu.ru: type NS, class IN, ns ns.pu.ru

spbu.ru: type NS, class IN, ns ns7.spbu.ru

Name: spbu.ru

Type: NS (authoritative Name Server) (2)

Class: IN (0x0001)

Time to live: 3600 (1 hour)

Data length: 6

Name Server: ns7.spbu.ru

spbu.ru: type NS, class IN, ns ns2.pu.ru

Name: spbu.ru

Type: NS (authoritative Name Server) (2)

Class: IN (0x0001)

Time to live: 3600 (1 hour)

Data length: 6

Name Server: ns2.pu.ru

Additional records

ns7.spbu.ru: type A, class IN, addr 185.44.15.195

Name: ns7.spbu.ru

Type: A (Host Address) (1)

Class: IN (0x0001)

Time to live: 3464 (57 minutes, 44 seconds)

Data length: 4

Address: 185.44.15.195

[\[Request In: 26\]](#)

[Time: 0.033652018 seconds]

004002 00 01 c0 0c 00 02 00 01 00 00 0e 10 00 08 02

00506e 73 02 70 75 c0 11 c0 0c 00 02 00 01 00 00 0e ns.pu..

006010 00 06 03 6e 73 37 c0 0c c0 0c 00 02 00 01 00ns7-

007000 0e 10 00 06 03 6e 73 32 c0 28 c0 39 00 01 00ns

1. 192.168.1.1, да

2. тип -- NS, ответов нет

3. адресов нет, имена серверов:

a. ns.pu.ru

b. ns7.spbu.ru

c. ns2.pu.ru

Задание Д

ФайлРедактированиеПросмотрЗапускЗахватАнализСтатистикаТелефонияБеспроводнойИнструментыПом

ip.addr == 192.168.1.73

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000000	192.168.1.73	192.168.1.1	DNS	69	Standard query 0x93ed A ns2.pu.ru
2	0.000024131	192.168.1.73	192.168.1.1	DNS	69	Standard query 0x2fe8 AAAA ns2.pu.ru
3	0.031555777	192.168.1.1	192.168.1.73	DNS	155	Standard query response 0x93ed A ns2
4	0.031555836	192.168.1.1	192.168.1.73	DNS	119	Standard query response 0x2fe8 AAAA
5	0.032285636	192.168.1.73	195.70.196.210	DNS	71	Standard query 0xd8ba A www.spbu.ru
6	0.037264590	195.70.196.210	192.168.1.73	DNS	205	Standard query response 0xd8ba A www
7	0.037803779	192.168.1.73	195.70.196.210	DNS	67	Standard query 0xa967 AAAA spbu.ru
8	0.042727872	195.70.196.210	192.168.1.73	DNS	120	Standard query response 0xa967 AAAA
9	0.054964481	192.168.1.73	188.225.9.167	NTP	90	NTP Version 4, client
10	0.078654609	188.225.9.167	192.168.1.73	NTP	90	NTP Version 4, server

Frame 8: 120 bytes on wire (960 bits), 120 bytes captured (960 bits) on interface wlp3s0, id 0

Ethernet II, Src: Keenetic_4d:62:1c (50:ff:20:4d:62:1c), Dst: LiteonTe_50:53:01 (94:e9:79:50:53:01)

Internet Protocol Version 4, Src: 195.70.196.210, Dst: 192.168.1.73

User Datagram Protocol, Src Port: 53, Dst Port: 55270

Domain Name System (response)

Transaction ID: 0xa967

Flags: 0x8500 Standard query response, No error

Questions: 1

Answer RRs: 0

Authority RRs: 1

Additional RRs: 0

Queries

spbu.ru: type AAAA, class IN

Name: spbu.ru

[Name Length: 7]

[Label Count: 2]

Type: AAAA (IPv6 Address) (28)

Class: IN (0x0001)

Authoritative nameservers

spbu.ru: type SOA, class IN, mname ns.pu.ru

Name: spbu.ru

Type: SOA (Start Of a zone of Authority) (6)

Class: IN (0x0001)

Time to live: 3600 (1 hour)

Data length: 41

Primary name server: ns.pu.ru

Responsible authority's mailbox: hostmaster.pu.ru

Serial Number: 2022022028

Refresh Interval: 7200 (2 hours)

Retry Interval: 3600 (1 hour)

Expire limit: 604800 (7 days)

Minimum TTL: 3600 (1 hour)

[Request In: 7]

[Time: 0.004924093 seconds]

0040	1c 00 01 c0 0c 00 06 00 01 00 00 0e 10 00 29 02	...
0050	6e 73 02 70 75 c0 11 0a 68 6f 73 74 6d 61 73 74	ns.pu...
0060	65 72 c0 28 78 85 9b 8c 00 00 1c 20 00 00 0e 10	er(x...
0070	00 09 3a 80 00 00 0e 10	...

Text item (text), 53 байт

1. 195.70.196.210; нет; ns2.pu.ru

2. тип -- AAAA, ответов нет

3. ответ один, Name, Type, Class, Time, Data length, имя сервера, почта, интервалы обновления, время жизни

Задание Е

NetRange: 208.67.216.0 - 208.67.223.255
CIDR: 208.67.216.0/21
NetName: OPENDNS-NET-1
NetHandle: NET-208-67-216-0-1
Parent: NET208 (NET-208-0-0-0-0)
NetType: Direct Allocation
OriginAS: AS36692
Organization: Cisco OpenDNS, LLC (OPEND-2)
RegDate: 2006-06-06
Updated: 2021-12-14
Ref: <https://rdap.arin.net/registry/ip/208.67.216.0>

OrgName: Cisco OpenDNS, LLC
OrgId: OPEND-2
Address: 145 Bluxome st.
City: San Francisco
StateProv: CA
PostalCode: 94107
Country: US
RegDate: 2008-02-26
Updated: 2021-08-18
Comment: <http://www.opendns.com/>
Comment: Use OpenDNS to make your Internet faster, safer,
Comment: and smarter.
Comment: DNS Servers: 208.67.222.222 208.67.220.220
Comment: IPv4/IPv6 Peering: peering@opendns.com
Ref: <https://rdap.arin.net/registry/entity/OPEND-2>

#	
NetRange:	208.67.216.0 - 208.67.223.255
CIDR:	208.67.216.0/21
NetName:	OPENDNS-NET-1
NetHandle:	NET-208-67-216-0-1
Parent:	NET208 (NET-208-0-0-0-0)
NetType:	Direct Allocation
OriginAS:	AS36692
Organization:	Cisco OpenDNS, LLC (OPEND-2)
RegDate:	2006-06-06
Updated:	2021-12-14
Ref:	https://rdap.arin.net/registry/ip/208.67.216.0
OrgName:	Cisco OpenDNS, LLC
OrgId:	OPEND-2
Address:	145 Bluxome st.
City:	San Francisco
StateProv:	CA
PostalCode:	94107
Country:	US
RegDate:	2008-02-26
Updated:	2021-08-18
Comment:	http://www.opendns.com/
Comment:	Use OpenDNS to make your Internet faster, safer, and smarter.
Comment:	DNS Servers: 208.67.222.222 208.67.220.220
Comment:	IPv4/IPv6 Peering: peering@opendns.com
Ref:	https://rdap.arin.net/registry/entity/OPEND-2

- там хранится информация о доменах, их регистрации, возрасте, контактах владельца
- сервисы в интернете: www.nic.ru/whois, whois.ru, DNS:
 - 208.67.222.222 -- OpenDNS
 - 1.1.1.1 -- Cloudflare
-

```
alex@alex:~$ nslookup www.spbu.ru
Server:      192.168.1.1
Address:     192.168.1.1#53
```

```
Non-authoritative answer:
www.spbu.ru   canonical name = spbu.ru.
Name:   spbu.ru
Address: 82.202.190.112
```

```
alex@alex:~$ nslookup www.spbu.ru 1.1.1.1
Server:      1.1.1.1
Address:     1.1.1.1#53
```

```
Non-authoritative answer:
www.spbu.ru   canonical name = spbu.ru.
Name:   spbu.ru
Address: 82.202.190.112
```

```
alex@alex:~$ nslookup www.spbu.ru 208.67.222.222
Server:      208.67.222.222
Address:     208.67.222.222#53
```

```
Non-authoritative answer:
www.spbu.ru   canonical name = spbu.ru.
Name:   spbu.ru
Address: 82.202.190.112
```

```
alex@alex:~$
```