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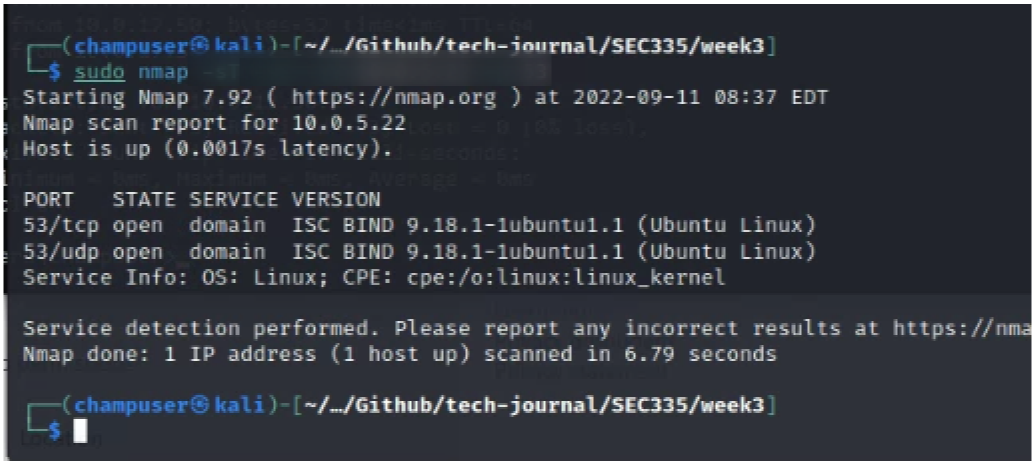
Assignment 3.2 - DNS Uses both UDP and TCP

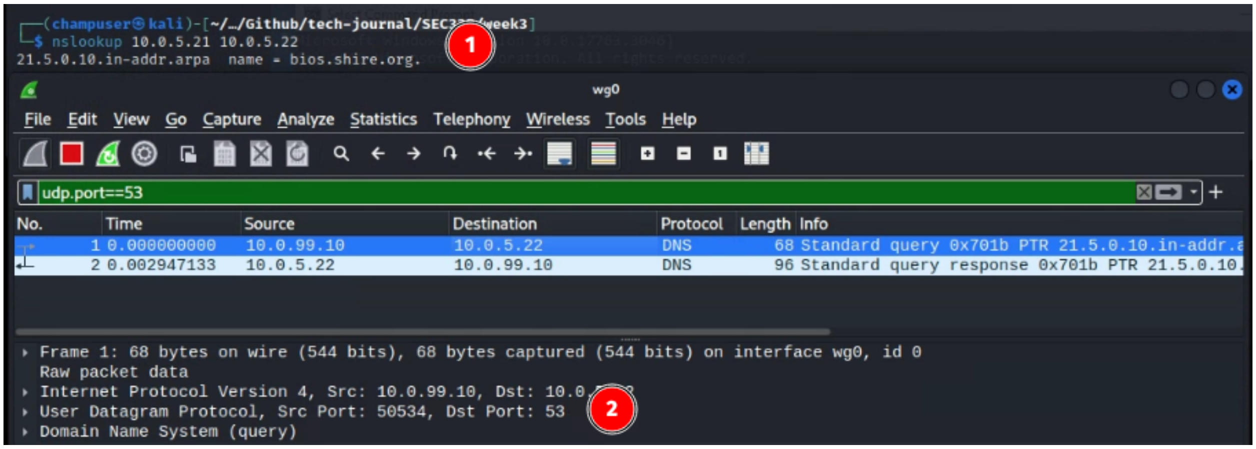
Figure out how to run nmap against 10.0.5.22 in such a way that both tcp/53 and udp/53 are checked. Provide a screenshot of your command and output similar to the screenshot below.



```
┌──(champuser㉿kali)-[~/…/Github/tech-journal/SEC335/week3]
└─$ sudo nmap [redacted]
Starting Nmap 7.92 ( https://nmap.org ) at 2022-09-11 08:37 EDT
Nmap scan report for 10.0.5.22
Host is up (0.0017s latency).

PORT   STATE SERVICE VERSION
53/tcp open  domain  ISC BIND 9.18.1-1ubuntu1.1 (Ubuntu Linux)
53/udp open  domain  ISC BIND 9.18.1-1ubuntu1.1 (Ubuntu Linux)
Service Info: OS: Linux; CPE: cpe:/o:linux:linux_kernel

Service detection performed. Please report any incorrect results at https://nma
Nmap done: 1 IP address (1 host up) scanned in 6.79 seconds

┌──(champuser㉿kali)-[~/…/Github/tech-journal/SEC335/week3]
└─$ █
```

Using Wireshark, create a capture filter for port 53 in interface wg0 (remember this is not a display filter)

`Deliverable 1.  Run nslookup against 10.0.5.21 using the dns server 10.0.5.22.  Provide a screenshot showing the traffic similar to the one below that shows your nslookup command and an indication the protocol is UDP.`



```
┌──(champuser㉿kali)-[~/…/Github/tech-journal/SEC335/week3]
└─$ nslookup 10.0.5.21 10.0.5.22
21.5.0.10.in-addr.arpa  name = bios.shire.org.
```

1
wg0
File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help

```
udp.port==53

No.  Time          Source       Destination  Protocol Length Info
   1 0.000000000   10.0.99.10   10.0.5.22    DNS        68 Standard query 0x701b PTR 21.5.0.10.in-addr.a
   2 0.002947133   10.0.5.22    10.0.99.10   DNS        96 Standard query response 0x701b PTR 21.5.0.10.

› Frame 1: 68 bytes on wire (544 bits), 68 bytes captured (544 bits) on interface wg0, id 0
  Raw packet data
› Internet Protocol Version 4, Src: 10.0.99.10, Dst: 10.0.
› User Datagram Protocol, Src Port: 50534, Dst Port: 53
› Domain Name System (query)
```

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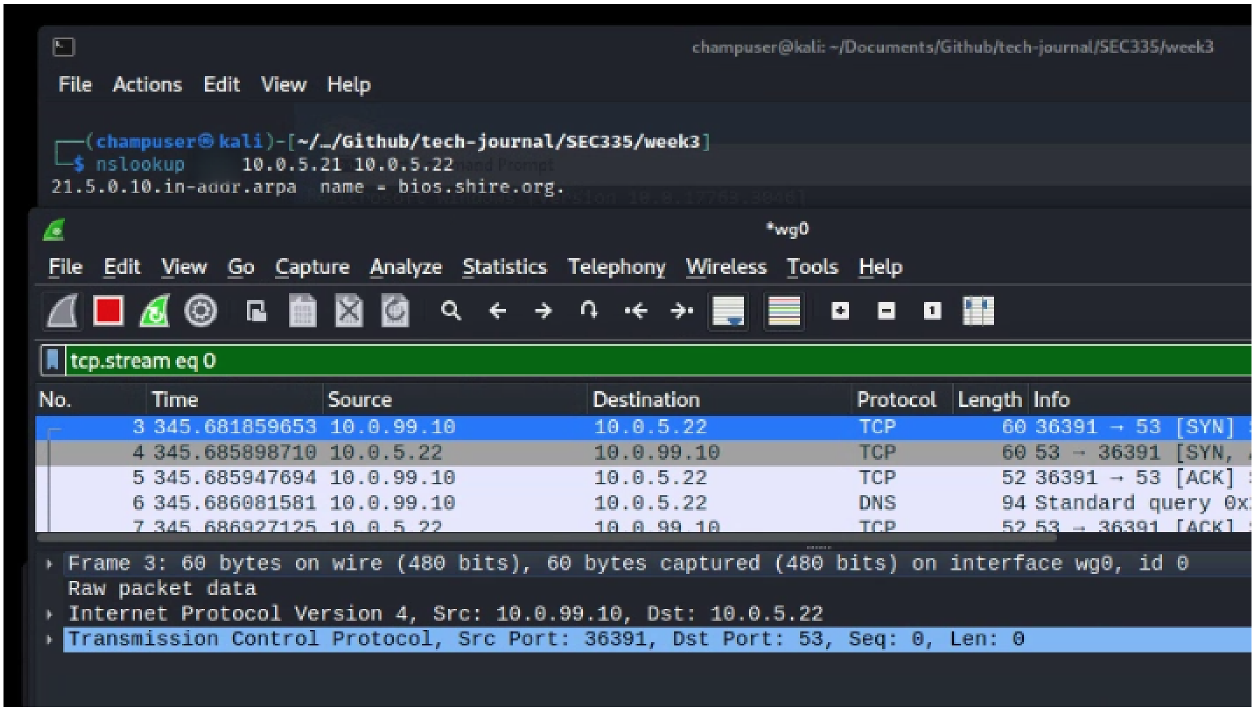
`Deliverable 2. Figure out how to coax nslookup to use tcp and repeat the lookup, continuing to capture packets to tcp/udp 53. Provide a screenshot similar to the one below that shows the modified nslookup command and the new packets. The illustration is also a reminder of why UDP is so efficient.`


champuser@kali: ~/Documents/Github/tech-journal/SEC335/week3
File Actions Edit View Help
*wg0
File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help

```
┌──(champuser㉿kali)-[~/…/Github/tech-journal/SEC335/week3]
└─$ nslookup      10.0.5.21 10.0.5.22
21.5.0.10.in-addr.arpa  name = bios.shire.org.
```

tcp.stream eq 0

```
No.   Time           Source       Destination  Protocol Length Info
    3 345.681859653  10.0.99.10   10.0.5.22    TCP          60 36391 → 53 [SYN]
    4 345.685898710  10.0.5.22    10.0.99.10   TCP          60 53 → 36391 [SYN,
    5 345.685947694  10.0.99.10   10.0.5.22    TCP          52 36391 → 53 [ACK]
    6 345.686081581  10.0.99.10   10.0.5.22    DNS          94 Standard query 0x
    7 345.686927125  10.0.5.22    10.0.99.10   TCP          52 53 → 36391 [ACK]
```

```
› Frame 3: 60 bytes on wire (480 bits), 60 bytes captured (480 bits) on interface wg0, id 0
  Raw packet data
› Internet Protocol Version 4, Src: 10.0.99.10, Dst: 10.0.5.22
› Transmission Control Protocol, Src Port: 36391, Dst Port: 53, Seq: 0, Len: 0
```

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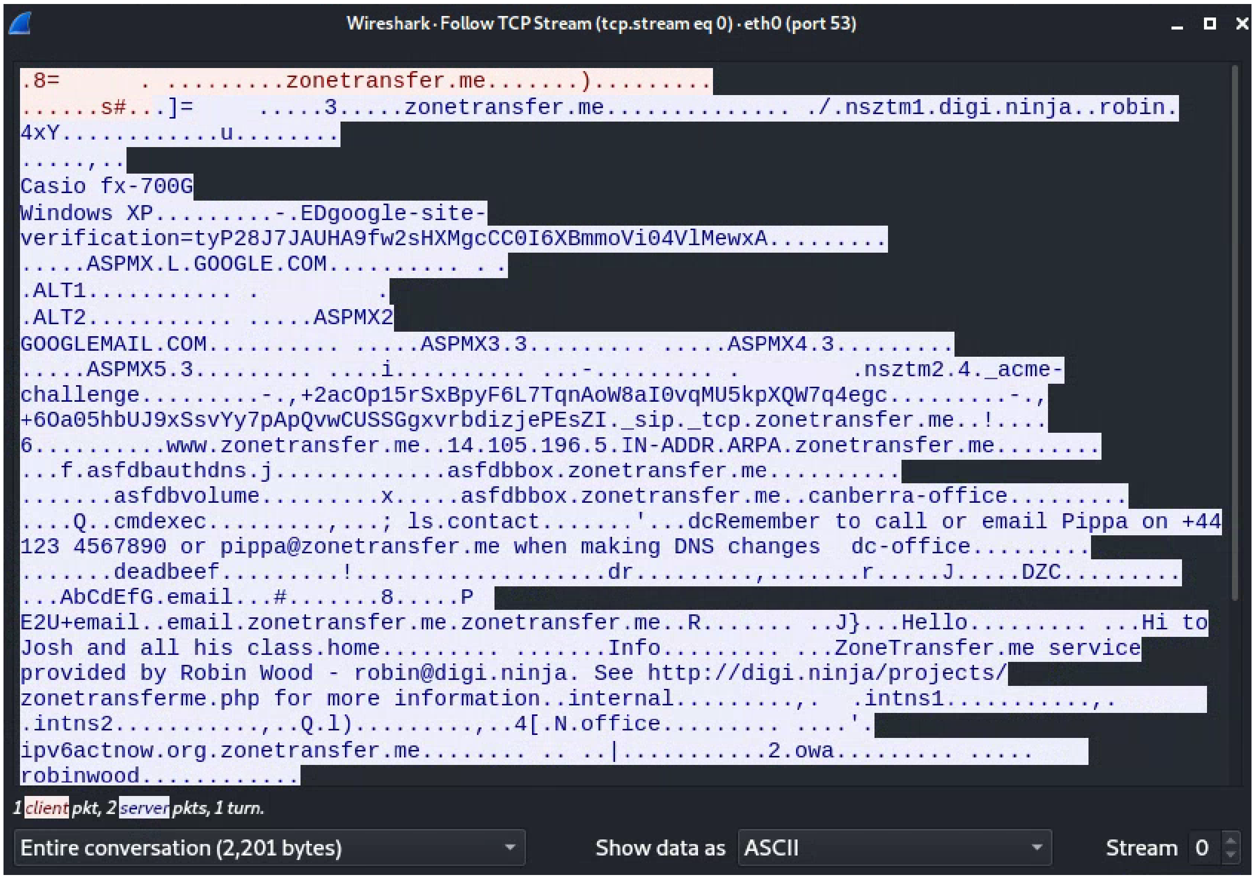
Deliverable 3. Change your capture so that you are monitoring eth0 using the same port 53 capture filter. Repeat the zone transfer from zonetransfer.me from Activity 3.1. Provide a screenshot showing the tcp stream of this transfer. (Yes, zone transfers use TCP)


Wireshark · Follow TCP Stream (tcp.stream eq 0) · eth0 (port 53)

```
.8=       . .........zonetransfer.me.......).........
......s#...]=     .....3.....zonetransfer.me.............. ./.nsztm1.digi.ninja..robin.
4xY............u........
.....,..
Casio fx-700G
Windows XP.........-.EDgoogle-site-
verification=tyP28J7JAUHA9fw2sHXMgcCC0I6XBmmoVi04VlMewxA.........
.....ASPMX.L.GOOGLE.COM.......... . .
.ALT1........... .         .
.ALT2........... .....ASPMX2
GOOGLEMAIL.COM.......... .....ASPMX3.3......... .....ASPMX4.3.........
.....ASPMX5.3......... ....i.......... ...-......... .         .nsztm2.4._acme-
challenge.........-.,+2acOp15rSxBpyF6L7TqnAoW8aI0vqMU5kpXQW7q4egc.........-.,
+6Oa05hbUJ9xSsvYy7pApQvwCUSSGgxvrbdizjePEsZI._sip._tcp.zonetransfer.me..!....
6..........www.zonetransfer.me..14.105.196.5.IN-ADDR.ARPA.zonetransfer.me........
...f.asfdbauthdns.j.............asfdbbox.zonetransfer.me.........
.......asfdbvolume.........x.....asfdbbox.zonetransfer.me..canberra-office.........
....Q..cmdexec.........,...; ls.contact.......'...dcRemember to call or email Pippa on +44
123 4567890 or pippa@zonetransfer.me when making DNS changes  dc-office.........
.......deadbeef.........!...................dr.........,.......r.....J.....DZC.........
...AbCdEfG.email...#.......8.....P
E2U+email..email.zonetransfer.me.zonetransfer.me..R....... ..J}...Hello......... ...Hi to
Josh and all his class.home......... .......Info......... ...ZoneTransfer.me service
provided by Robin Wood - robin@digi.ninja. See http://digi.ninja/projects/
zonetransferme.php for more information..internal.........,.  .intns1...........,.
.intns2...........,..Q.l).........,..4[.N.office......... ....'.
ipv6actnow.org.zonetransfer.me........ .. ..|..........2.owa......... .....
robinwood...........
```

1 client pkt, 2 server pkts, 1 turn.