

# **Assignment 2**

## Testing

Richard Ohata  
British Columbia Institute of Technology  
A01274710  
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Test	Expected	Actual	Screenshot
Running ARP command (sudo python3 <a href="#">main.py</a> -i any -c 1 -f arp)	pass	pass	<a href="#">Test 1</a>
Running UDP command (sudo python3 <a href="#">main.py</a> -i any -c 1 -f udp)	pass	pass	<a href="#">Test 2</a>
Running TCP command (sudo python3 <a href="#">main.py</a> -i any -c 1 -f tcp)	pass	pass	<a href="#">Test 3</a>
Running TCP command (sudo python3 <a href="#">main.py</a> -i any -c 1 -f icmp)	pass	pass	<a href="#">Test 4</a>
Running command with no protocol specified	fail	fail	<a href="#">Test 5</a>

# Tests

## Test 1

```
~/Dow/Networking-assignment-2 > P main !1 ?1 > sudo python3 main.py -i any -c 1 -f arp
Available interfaces: ['lo', 'enp2s0', 'enp0s31f6']
Starting packet capture on enp0s31f6
Starting packet capture on enp0s31f6 with filter: arp

Captured Packet 1:

Hex Dump:
0000  ff ff ff ff ff ff f4 e2 c6 ac 92 dc 08 06 00 01
0010  08 00 06 04 00 01 f4 e2 c6 ac 92 dc c0 a8 00 f1
0020  ff ff ff ff ff ff c0 a8 00 fa 00 00 00 00 00 00
0030  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

Ethernet Header:
Destination MAC:      ffffffff
Source MAC:          f4e2c6ac92dc
EtherType:           0806
ARP Header:
Hardware Type:        0001
Protocol Type:        0800
Hardware Size:        06
Protocol Size:        04
Operation:            0001
Sender MAC:           f4e2c6ac92dc
Sender IP:             c0a800f1
Target MAC:           ffffffff
Target IP:             c0a800fa
Packet capture completed on enp0s31f6
```

## Test 2

```
Packet capture completed on enp0s31f6.  
~/.Dow/Networking-assignment-2 P main !1 ?1 sudo python3 main.py -l any -c 1 -f udp  
Available interfaces: ['lo', 'enp2s0', 'enp0s31f6']  
Starting packet capture on enp0s31f6  
Starting packet capture on enp0s31f6 with filter: udp  
  
Captured Packet 1:  
  
Hex Dump:  
0000 01 00 5e 59 bc 01 d8 b3 70 1e 94 a8 08 00 45 00  
0010 00 20 e3 1b 40 00 01 11 2f b4 c0 a8 00 fa e9 59  
0020 bc 01 a7 af 27 11 00 0c c9 17 01 00 00 00 00 00  
0030 00 00 00 00 00 00 00 00 20 20 20 20  
  
Ethernet Header:  
Destination MAC: 01005e59bc01 | 01:00:5e:59:bc:01  
Source MAC: d8b3701e94a8 | d8:b3:70:1e:94:a8  
EtherType: 0800 | 2048  
IPv4 Header:  
Version: 4 | 4  
Header Length: 5 | 20 bytes  
Total Length: 0020 | 32  
Flags & Frag Offset: 4000 | 0b0100000000000000  
Reserved: 0  
DF (Do not Fragment): 1  
MF (More Fragments): 0  
Fragment Offset: 0x0000 | 0  
Protocol: 11 | 17  
Source IP: c0a800fa | 192.168.0.250  
Destination IP: e959bc01 | 233.89.188.1  
UDP Header:  
Source Port: a7af | 42927  
Destination Port: 2711 | 10001  
Length: 000c | 12  
Checksum: c917 | 51479  
Payload (hex): 010000000000000000000000000000002020  
Packet capture completed on enp0s31f6.
```

### Test 3

```
Packet capture completed on enp0s31f6.
~ /Dow/Networking-assignment-2 P main !1 ?1 sudo python3 main.py -i any -c 1 -f tcp
Available interfaces: ['lo', 'enp2s0', 'enp0s31f6']
Starting packet capture on enp0s31f6
Starting packet capture on enp0s31f6 with filter: tcp

Hex Dump:
0000 cc 96 e5 2a 23 2c d8 b3 70 1e 94 a8 08 00 45 00
0010 00 4c 4b a4 40 00 37 06 f6 2c ac 40 94 eb c0 a8
0020 00 07 01 bb d7 56 cd 40 d9 85 8f 7c 81 28 80 18
0030 00 13 e2 00 00 00 01 01 08 0a d2 82 ae 33 a4 75
0040 78 ae 17 03 03 00 13 88 c3 82 5a b5 52 36 e7 a8
0050 95 4a fc 29 7f a5 a4 4a 29 4f

Ethernet Header:
Destination MAC: cc96e52a232c | cc:96:e5:2a:23:2c
Source MAC: d8b3701e94a8 | d8:b3:70:1e:94:a8
EtherType: 0800 | 2048
IPv4 Header:
Version: 4 | 4
Header Length: 5 | 20 bytes
Total Length: 004c | 76
Flags & Frag Offset: 4000 | 0b0100000000000000
Reserved: 0
DF (Do not Fragment): 1
MF (More Fragments): 0
Fragment Offset: 0x0000 | 0
Protocol: 06 | 6
Source IP: ac4094eb | 172.64.148.235
Destination IP: c0a80007 | 192.168.0.7
TCP Header:
Source Port: 01bb | 443
Destination Port: d756 | 55126
Sequence Number: cd40d985 | 3443579269
Acknowledgement Number: 8f7c8128 | 2407301416
Data Offset: 8 | 32 bytes
Reserved: 0b0 | 0
Flags: 00011000 | 24
NS: 0
CWR: 0
ECE: 0
URG: 0
ACK: 1
PSH: 1
RST: 0
SYN: 0
FIN: 0
Window Size: 0013 | 19
Checksum: e200 | 57856
Urgent Pointer: 0000 | 0
Payload (hex): 170303001388c3825ab55236e7a8954a
Packet capture completed on enp0s31f6.
```

## Test 4

```
Packet capture completed on enp0s31f6.
~/Dow/Networking-assignment-2 P main !1 ?1 sudo python3 main.py -l any -c 1 -f icmp
Available interfaces: ['lo', 'enp2s0', 'enp0s31f6']
Starting packet capture on enp0s31f6
Starting packet capture on enp0s31f6 with filter: icmp

Captured Packet 1:

Hex Dump:
0000 d8 b3 70 1e 94 a8 cc 96 e5 2a 23 2c 08 00 45 00
0010 00 54 05 db 40 00 40 01 64 0f c0 a8 00 07 08 08
0020 08 08 08 00 f8 89 00 17 00 01 a3 28 e0 68 00 00
0030 00 00 b6 f9 06 00 00 00 00 00 10 11 12 13 14 15
0040 16 17 18 19 1a 1b 1c 1d 1e 1f 20 21 22 23 24 25
0050 26 27 28 29 2a 2b 2c 2d 2e 2f 30 31 32 33 34 35
0060 36 37

Ethernet Header:
Destination MAC: d8b3701e94a8 | d8:b3:70:1e:94:a8
Source MAC: cc96e52a232c | cc:96:e5:2a:23:2c
EtherType: 0800 | 2048

IPv4 Header:
Version: 4 | 4
Header Length: 5 | 20 bytes
Total Length: 0054 | 84
Flags & Frag Offset: 4000 | 0b0100000000000000
Reserved: 0 |
DF (Do not Fragment): 1 |
MF (More Fragments): 0 |
Fragment Offset: 0x0000 | 0
Protocol: 01 | 1
Source IP: c0a80007 | 192.168.0.7
Destination IP: 08080808 | 8.8.8.8

ICMP Header:
Type: 08 | 8
Code: 00 | 0
Checksum: f889 | 63625
Payload (hex): 00170001a328e06800000000b6f90600000000101112131415161718191a1b
Packet capture completed on enp0s31f6.
```

## Test 5

```
main.py: error: argument -f/--filter: expected one argument
~/Dow/Networking-assignment-2 P main !1 ?1 sudo python3 main.py -l any -c 1 -f
usage: main.py [-h] -l INTERFACE [-f FILTER] -c COUNT
main.py: error: argument -f/--filter: expected one argument
```