

## Network Engineering 2019 Exercises - Unit 3

### 0.1 Netmask Calculation

**What is the netmask for this network?**

101.152.0.0/13

Put your answer on a single line in `unit3/answers.txt`, with 160: at the beginning of the line, e.g., `160:255.255.255.0`

**What is the netmask for this network?**

35.87.229.96/27

Put your answer on a single line in `unit3/answers.txt`, with 161: at the beginning of the line, e.g., `161:255.255.255.0`

**What is the netmask for this network?**

57.42.0.0/15

Put your answer on a single line in `unit3/answers.txt`, with 162: at the beginning of the line, e.g., `162:255.255.255.0`

**What is the netmask for this network?**

100.134.0.0/18

Put your answer on a single line in `unit3/answers.txt`, with 163: at the beginning of the line, e.g., `163:255.255.255.0`

**What is the netmask for this network?**

64.0.0.0/2

Put your answer on a single line in `unit3/answers.txt`, with 164: at the beginning of the line, e.g., `164:255.255.255.0`

**What is the netmask for this network?**

2.2.110.192/26

Put your answer on a single line in `unit3/answers.txt`, with 165: at the beginning of the line, e.g., `165:255.255.255.0`

**What is the netmask for this network?**

104.225.32.0/19

Put your answer on a single line in `unit3/answers.txt`, with 166: at the beginning of the line, e.g., `166:255.255.255.0`

**What is the netmask for this network?**

46.89.0.0/16

Put your answer on a single line in `unit3/answers.txt`, with 167: at the beginning of the line, e.g., `167:255.255.255.0`

**What is the netmask for this network?**

94.216.0.0/13

Put your answer on a single line in `unit3/answers.txt`, with 168: at the beginning of the line, e.g., `168:255.255.255.0`

**What is the netmask for this network?**

64.0.128.0/17

Put your answer on a single line in `unit3/answers.txt`, with 169: at the beginning of the line, e.g., `169:255.255.255.0`

**What is the netmask for this network?**

32.64.175.99/0

Put your answer on a single line in `unit3/answers.txt`, with 170: at the beginning of the line, e.g., `170:255.255.255.0`

**What is the netmask for this network?**

84.0.0.0/6

Put your answer on a single line in `unit3/answers.txt`, with 171: at the beginning of the line, e.g., `171:255.255.255.0`

**What is the netmask for this network?**

0.0.0.0/1

Put your answer on a single line in `unit3/answers.txt`, with 172: at the beginning of the line, e.g., `172:255.255.255.0`

**What is the netmask for this network?**

120.109.88.128/25

Put your answer on a single line in `unit3/answers.txt`, with 173: at the beginning of the line, e.g., `173:255.255.255.0`

**What is the netmask for this network?**

33.14.143.128/25

Put your answer on a single line in `unit3/answers.txt`, with 174: at the beginning of the line, e.g., 174:255.255.255.0

**What is the netmask for this network?**

98.232.0.0/17

Put your answer on a single line in `unit3/answers.txt`, with 175: at the beginning of the line, e.g., 175:255.255.255.0

**What is the netmask for this network?**

22.231.227.192/26

Put your answer on a single line in `unit3/answers.txt`, with 176: at the beginning of the line, e.g., 176:255.255.255.0

**What is the netmask for this network?**

108.41.31.64/26

Put your answer on a single line in `unit3/answers.txt`, with 177: at the beginning of the line, e.g., 177:255.255.255.0

**What is the netmask for this network?**

48.0.0.0/7

Put your answer on a single line in `unit3/answers.txt`, with 178: at the beginning of the line, e.g., 178:255.255.255.0

**What is the netmask for this network?**

38.128.0.0/10

Put your answer on a single line in `unit3/answers.txt`, with 179: at the beginning of the line, e.g., 179:255.255.255.0

**What is the netmask for this network?**

116.107.64.0/18

Put your answer on a single line in `unit3/answers.txt`, with 180: at the beginning of the line, e.g., 180:255.255.255.0

**What is the netmask for this network?**

114.55.120.0/24

Put your answer on a single line in `unit3/answers.txt`, with 181: at the beginning of the line, e.g., 181:255.255.255.0

**What is the netmask for this network?**

0.0.0.0/1

Put your answer on a single line in `unit3/answers.txt`, with 182: at the beginning of the line, e.g., 182:255.255.255.0

**What is the netmask for this network?**

13.254.128.0/17

Put your answer on a single line in `unit3/answers.txt`, with 183: at the beginning of the line, e.g., 183:255.255.255.0

**What is the netmask for this network?**

97.64.0.0/11

Put your answer on a single line in `unit3/answers.txt`, with 184: at the beginning of the line, e.g., 184:255.255.255.0

**What is the netmask for this network?**

21.31.0.0/17

Put your answer on a single line in `unit3/answers.txt`, with 185: at the beginning of the line, e.g., 185:255.255.255.0

**What is the netmask for this network?**

74.63.6.140/0

Put your answer on a single line in `unit3/answers.txt`, with 186: at the beginning of the line, e.g., 186:255.255.255.0

**What is the netmask for this network?**

29.8.0.0/13

Put your answer on a single line in `unit3/answers.txt`, with 187: at the beginning of the line, e.g., 187:255.255.255.0

**What is the netmask for this network?**

100.240.135.224/28

Put your answer on a single line in `unit3/answers.txt`, with 188: at the beginning of the line, e.g., 188:255.255.255.0

**What is the netmask for this network?**

82.0.0.0/10

Put your answer on a single line in `unit3/answers.txt`, with 189: at the beginning of the line, e.g., 189:255.255.255.0

**What is the netmask for this network?**

83.224.0.0/11

Put your answer on a single line in `unit3/answers.txt`, with 190: at the beginning of the line, e.g., 190:255.255.255.0

**What is the netmask for this network?**

12.167.93.176/28

Put your answer on a single line in `unit3/answers.txt`, with 191: at the beginning of the line, e.g., 191:255.255.255.0

**What is the netmask for this network?**

59.0.0.0/8

Put your answer on a single line in `unit3/answers.txt`, with 192: at the beginning of the line, e.g., 192:255.255.255.0

**What is the netmask for this network?**

58.244.0.0/14

Put your answer on a single line in `unit3/answers.txt`, with 193: at the beginning of the line, e.g., 193:255.255.255.0

**What is the netmask for this network?**

64.0.0.0/4

Put your answer on a single line in `unit3/answers.txt`, with 194: at the beginning of the line, e.g., 194:255.255.255.0

**What is the netmask for this network?**

15.173.184.192/26

Put your answer on a single line in `unit3/answers.txt`, with 195: at the beginning of the line, e.g., 195:255.255.255.0

**What is the netmask for this network?**

10.87.127.208/29

Put your answer on a single line in `unit3/answers.txt`, with 196: at the beginning of the line, e.g., 196:255.255.255.0

**What is the netmask for this network?**

27.55.244.0/27

Put your answer on a single line in `unit3/answers.txt`, with 197: at the beginning of the line, e.g., 197:255.255.255.0

**What is the netmask for this network?**

34.118.111.64/26

Put your answer on a single line in `unit3/answers.txt`, with 198: at the beginning of the line, e.g., 198:255.255.255.0

**What is the netmask for this network?**

94.24.0.0/13

Put your answer on a single line in `unit3/answers.txt`, with 199: at the beginning of the line, e.g., 199:255.255.255.0

## **0.2 Variable Length Sub-net Masking**

**What is the VLSM name of the network corresponding to the following?**

119.54.21.38 netmask 255.254.0.0

Put your answer on a single line in `unit3/answers.txt`, with 200: at the beginning of the line, e.g., 200:10.0.0.0/8

**What is the VLSM name of the network corresponding to the following?**

5.55.125.126 netmask 255.255.192.0

Put your answer on a single line in `unit3/answers.txt`, with 201: at the beginning of the line, e.g., 201:10.0.0.0/8

**What is the VLSM name of the network corresponding to the following?**

95.61.59.112 netmask 255.255.252.0

Put your answer on a single line in `unit3/answers.txt`, with 202: at the beginning of the line, e.g., 202:10.0.0.0/8

**What is the VLSM name of the network corresponding to the following?**

41.208.165.223 netmask 255.255.192.0

Put your answer on a single line in `unit3/answers.txt`, with 203: at the beginning of the line, e.g., 203:10.0.0.0/8

**What is the VLSM name of the network corresponding to the following?**

55.181.38.210 netmask 248.0.0.0

Put your answer on a single line in `unit3/answers.txt`, with 204: at the beginning of the line, e.g., 204:10.0.0.0/8

**What is the VLSM name of the network corresponding to the following?**

74.44.218.220 netmask 254.0.0.0

Put your answer on a single line in `unit3/answers.txt`, with 205: at the beginning of the line, e.g., 205:10.0.0.0/8

**What is the VLSM name of the network corresponding to the following?**

48.221.149.16 netmask 255.255.255.0

Put your answer on a single line in `unit3/answers.txt`, with 206: at the beginning of the line, e.g., 206:10.0.0.0/8

**What is the VLSM name of the network corresponding to the following?**

118.147.27.132 netmask 255.255.252.0

Put your answer on a single line in `unit3/answers.txt`, with 207: at the beginning of the line, e.g., 207:10.0.0.0/8

**What is the VLSM name of the network corresponding to the following?**

79.164.181.161 netmask 255.255.255.224

Put your answer on a single line in `unit3/answers.txt`, with 208: at the beginning of the line, e.g., 208:10.0.0.0/8

**What is the VLSM name of the network corresponding to the following?**

87.135.213.36 netmask 255.255.128.0

Put your answer on a single line in `unit3/answers.txt`, with 209: at the beginning of the line, e.g., 209:10.0.0.0/8

**What is the VLSM name of the network corresponding to the following?**

19.47.86.31 netmask 255.255.255.248

Put your answer on a single line in `unit3/answers.txt`, with 210: at the beginning of the line, e.g., 210:10.0.0.0/8

**What is the VLSM name of the network corresponding to the following?**

87.15.208.107 netmask 255.255.248.0

Put your answer on a single line in `unit3/answers.txt`, with 211: at the beginning of the line, e.g., 211:10.0.0.0/8

**What is the VLSM name of the network corresponding to the following?**

105.26.191.90 netmask 255.255.255.248

Put your answer on a single line in `unit3/answers.txt`, with 212: at the beginning of the line, e.g., 212:10.0.0.0/8

**What is the VLSM name of the network corresponding to the following?**

34.80.145.16 netmask 255.255.255.0

Put your answer on a single line in `unit3/answers.txt`, with 213: at the beginning of the line, e.g., 213:10.0.0.0/8



**What is the VLSM name of the network corresponding to the following?**

27.126.123.23 netmask 255.255.255.240

Put your answer on a single line in `unit3/answers.txt`, with 214: at the beginning of the line, e.g., 214:10.0.0.0/8

**What is the VLSM name of the network corresponding to the following?**

15.71.205.165 netmask 255.255.255.248

Put your answer on a single line in `unit3/answers.txt`, with 215: at the beginning of the line, e.g., 215:10.0.0.0/8

**What is the VLSM name of the network corresponding to the following?**

115.162.102.140 netmask 240.0.0.0

Put your answer on a single line in `unit3/answers.txt`, with 216: at the beginning of the line, e.g., 216:10.0.0.0/8

**What is the VLSM name of the network corresponding to the following?**

84.41.171.239 netmask 255.255.255.240

Put your answer on a single line in `unit3/answers.txt`, with 217: at the beginning of the line, e.g., 217:10.0.0.0/8

**What is the VLSM name of the network corresponding to the following?**

54.190.240.218 netmask 255.252.0.0

Put your answer on a single line in `unit3/answers.txt`, with 218: at the beginning of the line, e.g., 218:10.0.0.0/8

**What is the VLSM name of the network corresponding to the following?**

23.13.101.78 netmask 255.240.0.0

Put your answer on a single line in `unit3/answers.txt`, with 219: at the beginning of the line, e.g., 219:10.0.0.0/8

### 0.3 Configure Network Interfaces using the ifconfig and ip commands

What is ip command sequence equivalent to the following ifconfig command (apply any options in the order listed)?

```
ifconfig eth0 121.221.107.179 netmask 255.192.0.0 txqueuelen 2790
```

Put your answer on a single line in unit3/answers.txt, with 220: at the beginning of the line, e.g., 220:ip blah blah; ip again with other options; ip again with yet other options

What is the ifconfig command to setup interface eth0 with the following network settings (apply any options in the order listed)?

```
32.215.185.181 netmask 32.215.128.0/17, PPP remote address 82.247.32.198,  
TX queue length = 3975
```

Put your answer on a single line in unit3/answers.txt, with 221: at the beginning of the line, e.g., 221:ifconfig moo0 1.2.3.4 netmask 255.0.0.0 -broadcast

What is ip command sequence to setup interface eth0 with the following network settings (apply any options in the order listed)?

```
24.98.89.242 netmask 24.98.89.242/31, in promiscuous mode
```

Put your answer on a single line in unit3/answers.txt, with 222: at the beginning of the line, e.g., 222:ip blah blah; ip again with other options; ip again with yet other options

What is ifconfig command equivalent to the following ip command sequence (apply any options in the order listed)?

```
ip address add 100.99.195.99/19 dev eth0; ip link set dev eth0 arp  
off
```

Put your answer on a single line in unit3/answers.txt, with 223: at the beginning of the line, e.g., 223:ip blah blah; ip again with other options; ip again with yet other options

What is ifconfig command equivalent to the following ip command sequence (apply any options in the order listed)?

```
ip address add 20.76.148.128/15 dev eth0ip link set dev eth0 mtu  
911; ip link set dev eth0 promisc on
```

Put your answer on a single line in unit3/answers.txt, with 224: at the beginning of the line, e.g., 224:ip blah blah; ip again with other options; ip again with yet other options

**What is ifconfig command equivalent to the following ip command sequence (apply any options in the order listed)?**

```
ip address add 124.217.67.33/28 dev eth0; ip link set dev eth0 promisc  
on
```

Put your answer on a single line in `unit3/answers.txt`, with 225: at the beginning of the line, e.g., 225:ip blah blah; ip again with other options; ip again with yet other options

**What is the ifconfig command to setup interface eth0 with the following network settings (apply any options in the order listed)?**

```
108.77.250.164 netmask 108.77.250.164/31, PPP remote address 64.247.143.243
```

Put your answer on a single line in `unit3/answers.txt`, with 226: at the beginning of the line, e.g., 226:ifconfig moo0 1.2.3.4 netmask 255.0.0.0 -broadcast

**What is ifconfig command equivalent to the following ip command sequence (apply any options in the order listed)?**

```
ip address add 30.4.145.205/17 dev eth0; ip link set eth0 down
```

Put your answer on a single line in `unit3/answers.txt`, with 227: at the beginning of the line, e.g., 227:ip blah blah; ip again with other options; ip again with yet other options

**What is the ifconfig command to setup interface eth0 with the following network settings (apply any options in the order listed)?**

```
58.132.145.22 netmask 58.132.145.16/28, MTU = 1543, TX queue  
length = 4153
```

Put your answer on a single line in `unit3/answers.txt`, with 228: at the beginning of the line, e.g., 228:ifconfig moo0 1.2.3.4 netmask 255.0.0.0 -broadcast

**What is ip command sequence equivalent to the following ifconfig command (apply any options in the order listed)?**

```
ifconfig eth0 59.36.242.60 netmask 240.0.0.0 promisc
```

Put your answer on a single line in `unit3/answers.txt`, with 229: at the beginning of the line, e.g., 229:ip blah blah; ip again with other options; ip again with yet other options

**What is ip command sequence equivalent to the following ifconfig command (apply any options in the order listed)?**

```
ifconfig eth0 113.105.118.101 netmask 248.0.0.0 down
```

Put your answer on a single line in `unit3/answers.txt`, with 230: at the beginning of the line, e.g., 230:ip blah blah; ip again with other options; ip again with yet other options

**What is ip command sequence equivalent to the following ifconfig command (apply any options in the order listed)?**

```
ifconfig eth0 59.216.0.0 netmask 255.224.0.0 -arp
```

Put your answer on a single line in `unit3/answers.txt`, with 231: at the beginning of the line, e.g., 231:ip blah blah; ip again with other options; ip again with yet other options

**What is ip command sequence equivalent to the following ifconfig command (apply any options in the order listed)?**

```
ifconfig eth0 108.93.195.196 netmask 255.255.254.0 -arp txqueuelen 4395
```

Put your answer on a single line in `unit3/answers.txt`, with 232: at the beginning of the line, e.g., 232:ip blah blah; ip again with other options; ip again with yet other options

**What is ip command sequence to setup interface eth0 with the following network settings (apply any options in the order listed)?**

```
93.39.197.236 netmask 93.39.197.0/24, MTU = 1509
```

Put your answer on a single line in `unit3/answers.txt`, with 233: at the beginning of the line, e.g., 233:ip blah blah; ip again with other options; ip again with yet other options

**What is ifconfig command equivalent to the following ip command sequence (apply any options in the order listed)?**

```
ip address add 114.143.172.177/15 dev eth0; ip link set eth0 down;  
ip link set dev eth0 promisc on; ip link set dev eth0 txqueuelen 709
```

Put your answer on a single line in `unit3/answers.txt`, with 234: at the beginning of the line, e.g., 234:ip blah blah; ip again with other options; ip again with yet other options

**What is ip command sequence to setup interface eth0 with the following network settings (apply any options in the order listed)?**

14.118.99.131 netmask 14.118.96.0/22

Put your answer on a single line in `unit3/answers.txt`, with 235: at the beginning of the line, e.g., 235:ip blah blah; ip again with other options; ip again with yet other options

**What is ip command sequence to setup interface eth0 with the following network settings (apply any options in the order listed)?**

115.251.243.54 netmask 115.251.224.0/19, in promiscuous mode

Put your answer on a single line in `unit3/answers.txt`, with 236: at the beginning of the line, e.g., 236:ip blah blah; ip again with other options; ip again with yet other options

**What is the ifconfig command to setup interface eth0 with the following network settings (apply any options in the order listed)?**

39.7.230.34 netmask 39.0.0.0/12, without ARP, in promiscuous mode,  
TX queue length = 2442

Put your answer on a single line in `unit3/answers.txt`, with 237: at the beginning of the line, e.g., 237:ifconfig moo0 1.2.3.4 netmask 255.0.0.0 -broadcast

**What is ip command sequence equivalent to the following ifconfig command (apply any options in the order listed)?**

ifconfig eth0 36.158.21.172 netmask 255.0.0.0

Put your answer on a single line in `unit3/answers.txt`, with 238: at the beginning of the line, e.g., 238:ip blah blah; ip again with other options; ip again with yet other options

**What is the ifconfig command to setup interface eth0 with the following network settings (apply any options in the order listed)?**

82.159.244.236 netmask 64.0.0.0/2, MTU = 3126, TX queue length  
= 3921

Put your answer on a single line in `unit3/answers.txt`, with 239: at the beginning of the line, e.g., 239:ifconfig moo0 1.2.3.4 netmask 255.0.0.0 -broadcast

## 0.4 Configure Network Interfaces using `/etc/network/interfaces` file

### 0.4.1 Prepare `unit3/iface0-solution.txt`

Produce an `interfaces` file in `unit3/iface0-solution.txt`, that contains the following:

- A template called `moths0`, that specifies an MTU of 6100 and MAC address `08:32:B4:99:E2:34`.
- A template called `moths1`, that specifies an MTU of 2310 and MAC address `E0:57:69:10:95:96`.
- A template called `castle2`, that specifies an MTU of 5058 and MAC address `E5:6A:85:CD:8D:9B`.
- An interface named `ftdi0`, with IPv4 address `75.133.130.158` and netmask `255.240.0.0`, and inherits the template `moths0`.
- An interface named `eth1`, with IPv4 settings configured by DHCP and inherits the template `moths0`.
- An interface named `wlan2`, with IPv4 address `120.124.224.79` and netmask `255.255.255.128`.

### 0.4.2 Prepare `unit3/iface1-solution.txt`

Produce an `interfaces` file in `unit3/iface1-solution.txt`, that contains the following:

- A template called `moths0`, that specifies an MTU of 718 and MAC address `3E:79:E8:00:5E:52`.
- A template called `ruins1`, that specifies an MTU of 5207 and MAC address `DF:20:66:7D:4D:E4`.
- An interface named `ftdi0`, with IPv4 address `100.58.87.230` and netmask `240.0.0.0`, and inherits the template `ruins1`.
- An interface named `ftdi1`, with IPv4 settings configured by DHCP and inherits the template `ruins1`.
- An interface named `ftdi2`, with IPv4 settings configured by DHCP.

### 0.4.3 Prepare `unit3/iface2-solution.txt`

Produce an `interfaces` file in `unit3/iface2-solution.txt`, that contains the following:

- A template called `castle0`, that specifies an MTU of 2922 and MAC address `82:35:8C:AE:14:AC`.

- A template called `wealth1`, that specifies an MTU of 1702 and MAC address `F9:F8:EA:DF:9D:7D`.
- An interface named `eth0`, with IPv4 settings configured by DHCP.
- An interface named `wlan1`, with IPv4 address `47.41.138.74` and netmask `255.255.255.0`.
- An interface named `ftdi2`, with IPv4 settings configured by DHCP.
- An interface named `wlan3`, with IPv4 settings configured by DHCP.
- An interface named `eth4`, with IPv4 address `83.133.145.1` and netmask `248.0.0.0`.
- An interface named `ftdi5`, with IPv4 settings configured by DHCP and inherits the template `wealth1`.
- An interface named `wlan6`, with IPv4 settings configured by DHCP and inherits the template `wealth1`.

#### 0.4.4 Prepare `unit3/iface3-solution.txt`

Produce an `interfaces` file in `unit3/iface3-solution.txt`, that contains the following:

- A template called `castle0`, that specifies an MTU of 5050 and MAC address `D4:0E:44:9A:6E:FC`.
- A template called `moths1`, that specifies an MTU of 6741 and MAC address `E9:BF:E1:EA:C4:86`.
- An interface named `eth0`, with IPv4 address `126.155.244.195` and netmask `224.0.0.0`, and inherits the template `moths1`.
- An interface named `ftdi1`, with IPv4 address `30.126.38.214` and netmask `128.0.0.0`, and inherits the template `moths1`.
- An interface named `wlan2`, with IPv4 address `117.210.69.178` and netmask `255.255.192.0`.
- An interface named `wlan3`, with IPv4 settings configured by DHCP and inherits the template `castle0`.
- An interface named `jam4`, with IPv4 address `23.39.71.79` and netmask `255.192.0.0`.
- An interface named `ftdi5`, with IPv4 address `113.168.210.44` and netmask `255.255.254.0`.
- An interface named `jam6`, with IPv4 address `100.83.204.174` and netmask `255.255.0.0`.

#### 0.4.5 Prepare unit3/iface4-solution.txt

Produce an `interfaces` file in `unit3/iface4-solution.txt`, that contains the following:

- A template called `moths0`, that specifies an MTU of 293 and MAC address 95:C2:37:67:44:58.
- A template called `castle1`, that specifies an MTU of 7440 and MAC address BD:4F:D2:1E:F7:22.
- An interface named `wlan0`, with IPv4 settings configured by DHCP.
- An interface named `eth1`, with IPv4 settings configured by DHCP and inherits the template `castle1`.
- An interface named `jam2`, with IPv4 address 72.104.59.163 and netmask 255.254.0.0.

#### 0.5 Create and delete routes

**0.5.1 Create files `unit3/routes0add.sh` and `unit3/routes0del.sh` that contains commands that will respective establish and delete the following routes**

- 80.36.18.128/25 via the interface to your 2nd VM
- 96.11.11.240/29 via the interface to your 2nd VM
- 13.253.0.0/17 via the interface to your 2nd VM
- 125.227.58.128/25 via the interface to your 2nd VM
- 126.153.123.86/31 via the IP address of your 2nd VM
- 15.66.176.0/20 via the IP address of your 2nd VM

**0.5.2 Create files `unit3/routes1add.sh` and `unit3/routes1del.sh` that contains commands that will respective establish and delete the following routes**

- 56.225.106.128/26 via the IP address of your 2nd VM
- 117.197.162.48/31 via the IP address of your 2nd VM
- 115.218.48.0/22 via the interface to your 2nd VM
- 65.170.194.0/24 via the IP address of your 2nd VM
- 16.155.60.0/26 via the IP address of your 2nd VM
- 111.185.66.0/24 via the IP address of your 2nd VM



**0.5.3 Create files `unit3/routes2add.sh` and `unit3/routes2del.sh` that contains commands that will respective establish and delete the following routes**

- 99.247.99.0/24 via the IP address of your 2nd VM
- 74.89.255.112/30 via the IP address of your 2nd VM
- 17.165.208.0/20 via the IP address of your 2nd VM
- 14.26.120.0/21 via the IP address of your 2nd VM
- 17.192.96.0/23 via the IP address of your 2nd VM
- 116.131.115.0/25 via the IP address of your 2nd VM

**0.5.4 Create files `unit3/routes3add.sh` and `unit3/routes3del.sh` that contains commands that will respective establish and delete the following routes**

- 52.70.224.0/20 via the IP address of your 2nd VM
- 25.229.192.0/19 via the interface to your 2nd VM
- 81.30.48.128/25 via the IP address of your 2nd VM
- 20.0.0.0/16 via the IP address of your 2nd VM
- 35.145.0.0/17 via the IP address of your 2nd VM
- 35.242.128.0/17 via the interface to your 2nd VM

**0.5.5 Create files `unit3/routes4add.sh` and `unit3/routes4del.sh` that contains commands that will respective establish and delete the following routes**

- 40.145.160.0/21 via the interface to your 2nd VM
- 90.111.80.128/26 via the IP address of your 2nd VM
- 58.116.0.0/17 via the IP address of your 2nd VM
- 30.69.72.0/22 via the IP address of your 2nd VM
- 41.201.64.0/18 via the interface to your 2nd VM
- 114.86.64.0/20 via the interface to your 2nd VM