

## Network Engineering 2019 Exercises - Unit 3

### 0.1 Netmask Calculation

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

83.128.94.0/23

Put your answer on a single line in `unit3/answers.txt`, with 0: at the beginning of the line, e.g., 0:255.255.255.0

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

104.176.0.0/12

Put your answer on a single line in `unit3/answers.txt`, with 1: at the beginning of the line, e.g., 1:255.255.255.0

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

105.208.4.64/26

Put your answer on a single line in `unit3/answers.txt`, with 2: at the beginning of the line, e.g., 2:255.255.255.0

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

81.52.145.128/29

Put your answer on a single line in `unit3/answers.txt`, with 3: at the beginning of the line, e.g., 3:255.255.255.0

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

112.0.0.0/4

Put your answer on a single line in `unit3/answers.txt`, with 4: at the beginning of the line, e.g., 4:255.255.255.0

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

33.86.97.144/28

Put your answer on a single line in `unit3/answers.txt`, with 5: at the beginning of the line, e.g., 5:255.255.255.0

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

34.220.176.0/21

Put your answer on a single line in `unit3/answers.txt`, with 6: at the beginning of the line, e.g., 6:255.255.255.0

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

29.66.165.208/28

Put your answer on a single line in `unit3/answers.txt`, with 7: at the beginning of the line, e.g., 7:255.255.255.0

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

62.182.196.0/23

Put your answer on a single line in `unit3/answers.txt`, with 8: at the beginning of the line, e.g., 8:255.255.255.0

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

37.40.0.0/14

Put your answer on a single line in `unit3/answers.txt`, with 9: at the beginning of the line, e.g., 9:255.255.255.0

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

127.8.0.0/13

Put your answer on a single line in `unit3/answers.txt`, with 10: at the beginning of the line, e.g., 10:255.255.255.0

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

123.228.85.224/27

Put your answer on a single line in `unit3/answers.txt`, with 11: at the beginning of the line, e.g., 11:255.255.255.0

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

54.214.64.4/31

Put your answer on a single line in `unit3/answers.txt`, with 12: at the beginning of the line, e.g., 12:255.255.255.0

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

62.136.96.0/19

Put your answer on a single line in `unit3/answers.txt`, with 13: at the beginning of the line, e.g., 13:255.255.255.0

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

123.0.0.0/8

Put your answer on a single line in `unit3/answers.txt`, with 14: at the beginning of the line, e.g., 14:255.255.255.0

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

22.205.124.192/26

Put your answer on a single line in `unit3/answers.txt`, with 15: at the beginning of the line, e.g., 15:255.255.255.0

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

113.78.188.0/22

Put your answer on a single line in `unit3/answers.txt`, with 16: at the beginning of the line, e.g., 16:255.255.255.0

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

35.72.0.0/14

Put your answer on a single line in `unit3/answers.txt`, with 17: at the beginning of the line, e.g., 17:255.255.255.0

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

68.80.0.0/13

Put your answer on a single line in `unit3/answers.txt`, with 18: at the beginning of the line, e.g., 18:255.255.255.0

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

64.0.0.0/3

Put your answer on a single line in `unit3/answers.txt`, with 19: at the beginning of the line, e.g., 19:255.255.255.0

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

77.197.2.144/28

Put your answer on a single line in `unit3/answers.txt`, with 20: at the beginning of the line, e.g., 20:255.255.255.0

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

8.0.0.0/10

Put your answer on a single line in `unit3/answers.txt`, with 21: at the beginning of the line, e.g., `21:255.255.255.0`

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

27.2.216.192/26

Put your answer on a single line in `unit3/answers.txt`, with 22: at the beginning of the line, e.g., `22:255.255.255.0`

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

17.83.0.0/16

Put your answer on a single line in `unit3/answers.txt`, with 23: at the beginning of the line, e.g., `23:255.255.255.0`

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

66.75.108.160/27

Put your answer on a single line in `unit3/answers.txt`, with 24: at the beginning of the line, e.g., `24:255.255.255.0`

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

64.128.0.0/10

Put your answer on a single line in `unit3/answers.txt`, with 25: at the beginning of the line, e.g., `25:255.255.255.0`

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

74.0.0.0/7

Put your answer on a single line in `unit3/answers.txt`, with 26: at the beginning of the line, e.g., `26:255.255.255.0`

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

38.148.0.0/14

Put your answer on a single line in `unit3/answers.txt`, with 27: at the beginning of the line, e.g., `27:255.255.255.0`

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

126.41.128.0/17

Put your answer on a single line in `unit3/answers.txt`, with 28: at the beginning of the line, e.g., 28:255.255.255.0

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

57.0.0.0/8

Put your answer on a single line in `unit3/answers.txt`, with 29: at the beginning of the line, e.g., 29:255.255.255.0

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

92.64.0.0/12

Put your answer on a single line in `unit3/answers.txt`, with 30: at the beginning of the line, e.g., 30:255.255.255.0

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

73.96.108.128/26

Put your answer on a single line in `unit3/answers.txt`, with 31: at the beginning of the line, e.g., 31:255.255.255.0

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

79.128.0.0/9

Put your answer on a single line in `unit3/answers.txt`, with 32: at the beginning of the line, e.g., 32:255.255.255.0

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

40.188.128.0/20

Put your answer on a single line in `unit3/answers.txt`, with 33: at the beginning of the line, e.g., 33:255.255.255.0

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

97.40.80.0/20

Put your answer on a single line in `unit3/answers.txt`, with 34: at the beginning of the line, e.g., 34:255.255.255.0

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

82.0.0.0/8

Put your answer on a single line in `unit3/answers.txt`, with 35: at the beginning of the line, e.g., 35:255.255.255.0

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

113.179.192.0/23

Put your answer on a single line in `unit3/answers.txt`, with 36: at the beginning of the line, e.g., 36:255.255.255.0

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

0.0.0.0/3

Put your answer on a single line in `unit3/answers.txt`, with 37: at the beginning of the line, e.g., 37:255.255.255.0

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

0.98.229.128/25

Put your answer on a single line in `unit3/answers.txt`, with 38: at the beginning of the line, e.g., 38:255.255.255.0

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

96.0.0.0/3

Put your answer on a single line in `unit3/answers.txt`, with 39: at the beginning of the line, e.g., 39:255.255.255.0

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

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

103.97.98.85 netmask 255.255.128.0

Put your answer on a single line in `unit3/answers.txt`, with 40: at the beginning of the line, e.g., 40:10.0.0.0/8

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

4.3.161.13 netmask 255.255.255.248

Put your answer on a single line in `unit3/answers.txt`, with 41: at the beginning of the line, e.g., 41:10.0.0.0/8

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

99.188.210.88 netmask 255.255.192.0

Put your answer on a single line in `unit3/answers.txt`, with 42: at the beginning of the line, e.g., `42:10.0.0.0/8`

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

50.232.201.235 netmask 255.255.255.254

Put your answer on a single line in `unit3/answers.txt`, with 43: at the beginning of the line, e.g., `43:10.0.0.0/8`

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

15.182.52.68 netmask 255.248.0.0

Put your answer on a single line in `unit3/answers.txt`, with 44: at the beginning of the line, e.g., `44:10.0.0.0/8`

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

91.235.46.199 netmask 255.255.255.252

Put your answer on a single line in `unit3/answers.txt`, with 45: at the beginning of the line, e.g., `45:10.0.0.0/8`

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

60.53.121.153 netmask 255.192.0.0

Put your answer on a single line in `unit3/answers.txt`, with 46: at the beginning of the line, e.g., `46:10.0.0.0/8`

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

57.163.2.120 netmask 255.255.255.240

Put your answer on a single line in `unit3/answers.txt`, with 47: at the beginning of the line, e.g., `47:10.0.0.0/8`

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

17.245.181.212 netmask 0.0.0.0

Put your answer on a single line in `unit3/answers.txt`, with 48: at the beginning of the line, e.g., `48:10.0.0.0/8`

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

31.182.76.208 netmask 255.224.0.0

Put your answer on a single line in `unit3/answers.txt`, with 49: at the beginning of the line, e.g., `49:10.0.0.0/8`

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

94.236.130.53 netmask 255.0.0.0

Put your answer on a single line in `unit3/answers.txt`, with 50: at the beginning of the line, e.g., `50:10.0.0.0/8`

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

34.11.107.211 netmask 252.0.0.0

Put your answer on a single line in `unit3/answers.txt`, with 51: at the beginning of the line, e.g., `51:10.0.0.0/8`

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

77.135.35.223 netmask 252.0.0.0

Put your answer on a single line in `unit3/answers.txt`, with 52: at the beginning of the line, e.g., `52:10.0.0.0/8`

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

93.86.221.41 netmask 255.255.0.0

Put your answer on a single line in `unit3/answers.txt`, with 53: at the beginning of the line, e.g., `53:10.0.0.0/8`



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

114.125.45.64 netmask 255.255.255.240

Put your answer on a single line in `unit3/answers.txt`, with 54: at the beginning of the line, e.g., 54:10.0.0.0/8

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

16.152.91.179 netmask 255.255.248.0

Put your answer on a single line in `unit3/answers.txt`, with 55: at the beginning of the line, e.g., 55:10.0.0.0/8

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

106.235.110.45 netmask 0.0.0.0

Put your answer on a single line in `unit3/answers.txt`, with 56: at the beginning of the line, e.g., 56:10.0.0.0/8

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

11.152.133.178 netmask 252.0.0.0

Put your answer on a single line in `unit3/answers.txt`, with 57: at the beginning of the line, e.g., 57:10.0.0.0/8

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

63.52.181.179 netmask 255.255.255.252

Put your answer on a single line in `unit3/answers.txt`, with 58: at the beginning of the line, e.g., 58:10.0.0.0/8

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

48.142.161.69 netmask 255.255.254.0

Put your answer on a single line in `unit3/answers.txt`, with 59: at the beginning of the line, e.g., 59:10.0.0.0/8

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

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

```
42.169.178.235 netmask 255.240.0.0
```

Put your answer on a single line in unit3/answers.txt, with 60: at the beginning of the line, e.g., 60: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)?

```
18.95.160.145 netmask 255.255.252.0, without ARP, in promiscuous mode, TX queue length = 4069
```

Put your answer on a single line in unit3/answers.txt, with 61: at the beginning of the line, e.g., 61: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 12.252.71.48 netmask 255.248.0.0 mtu 2361 txqueuelen 1705
```

Put your answer on a single line in unit3/answers.txt, with 62: at the beginning of the line, e.g., 62: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)?

```
83.176.226.71 netmask 0.0.0.0
```

Put your answer on a single line in unit3/answers.txt, with 63: at the beginning of the line, e.g., 63:ifconfig moo0 1.2.3.4 netmask 255.0.0.0 -broadcast

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

```
90.38.229.22 netmask 255.255.254.0, without ARP
```

Put your answer on a single line in unit3/answers.txt, with 64: at the beginning of the line, e.g., 64:ifconfig moo0 1.2.3.4 netmask 255.0.0.0 -broadcast

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

122.91.238.243 netmask 255.255.192.0, MTU = 2420, in promiscuous mode, TX queue length = 1552

Put your answer on a single line in `unit3/answers.txt`, with 65: at the beginning of the line, e.g., 65:`ifconfig moo0 1.2.3.4 netmask 255.0.0.0 -broadcast`

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

85.54.38.230 netmask 192.0.0.0

Put your answer on a single line in `unit3/answers.txt`, with 66: at the beginning of the line, e.g., 66:`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)?**

40.120.240.177 netmask 255.255.224.0

Put your answer on a single line in `unit3/answers.txt`, with 67: at the beginning of the line, e.g., 67:`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 91.86.202.163/21 dev eth0; ip link set dev eth0 mtu 3402; ip link set dev eth0 down; ip link set dev eth0 txqueuelen 773`

Put your answer on a single line in `unit3/answers.txt`, with 68: at the beginning of the line, e.g., 68:`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 7.82.11.4/13 dev eth0; ip link set dev eth0 down; ip link set dev eth0 promisc on`

Put your answer on a single line in `unit3/answers.txt`, with 69: at the beginning of the line, e.g., 69:`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)?**

10.29.64.154 netmask 255.255.254.0, MTU = 2081

Put your answer on a single line in `unit3/answers.txt`, with 70: at the beginning of the line, e.g., 70:`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 107.160.30.38 netmask 224.0.0.0`

Put your answer on a single line in `unit3/answers.txt`, with 71: at the beginning of the line, e.g., 71:`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 53.126.136.6 netmask 255.254.0.0 down txqueuelen 4029`

Put your answer on a single line in `unit3/answers.txt`, with 72: at the beginning of the line, e.g., 72:`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)?**

48.222.227.123 netmask 255.255.240.0, MTU = 1990

Put your answer on a single line in `unit3/answers.txt`, with 73: at the beginning of the line, e.g., 73:`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 26.83.57.214/29 dev eth0; ip link set dev eth0 arp off`

Put your answer on a single line in `unit3/answers.txt`, with 74: at the beginning of the line, e.g., 74:`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 58.109.243.240/9 dev eth0; ip link set dev eth0 arp  
off; ip link set dev eth0 txqueuelen 546
```

Put your answer on a single line in `unit3/answers.txt`, with 75: at the beginning of the line, e.g., 75: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 95.111.126.109/28 dev eth0; ip link set dev eth0 arp  
off
```

Put your answer on a single line in `unit3/answers.txt`, with 76: at the beginning of the line, e.g., 76: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 55.148.119.233 netmask 255.255.255.240 mtu 3315 -arp
```

Put your answer on a single line in `unit3/answers.txt`, with 77: at the beginning of the line, e.g., 77: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 45.82.178.180/2 dev eth0; ip link set dev eth0 txqueue-  
len 3464
```

Put your answer on a single line in `unit3/answers.txt`, with 78: at the beginning of the line, e.g., 78: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 123.154.34.158/27 dev eth0; ip link set dev eth0 mtu  
2607; ip link set dev eth0 arp off
```

Put your answer on a single line in `unit3/answers.txt`, with 79: at the beginning of the line, e.g., 79:ip blah blah; ip again with other options; ip again with yet other options

## 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 6111 and MAC address `DD:06:D0:87:9F:D9`.
- A template called `castle1`, that specifies an MTU of 3857 and MAC address `8D:E0:E4:EA:F4:FD`.
- A template called `ruins2`, that specifies an MTU of 3952 and MAC address `32:FC:A2:CD:C5:9D`.
- An interface named `eth0`, with IPv4 address `88.1.205.175` and netmask `255.255.255.248`.
- An interface named `jam1`, with IPv4 settings configured by DHCP.
- An interface named `wlan2`, with IPv4 address `118.135.214.96` and netmask `255.252.0.0`.

### 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 6097 and MAC address `27:B1:41:24:53:45`.
- A template called `castle1`, that specifies an MTU of 3139 and MAC address `E7:24:14:85:6F:C4`.
- A template called `castle2`, that specifies an MTU of 667 and MAC address `D1:1B:75:25:AA:9B`.
- A template called `moths3`, that specifies an MTU of 2690 and MAC address `49:79:44:B6:BC:0B`.
- A template called `moths4`, that specifies an MTU of 147 and MAC address `BC:44:07:0F:89:5E`.
- An interface named `jam0`, with IPv4 address `24.95.187.112` and netmask `192.0.0.0`, and inherits the template `moths0`.
- An interface named `eth1`, with IPv4 address `22.202.241.216` and netmask `255.255.255.240`, and inherits the template `castle2`.
- An interface named `wlan2`, with IPv4 settings configured by DHCP.

- An interface named `eth3`, with IPv4 settings configured by DHCP, and inherits the template `moths0`.
- An interface named `jam4`, with IPv4 settings configured by DHCP, and inherits the template `castle1`.
- An interface named `wlan5`, with IPv4 settings configured by DHCP, and inherits the template `moths3`.
- An interface named `ftdi6`, with IPv4 settings configured by DHCP, and inherits the template `castle1`.

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

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

- A template called `moths0`, that specifies an MTU of 6311 and MAC address `78:B0:73:EF:D6:5F`.
- A template called `moths1`, that specifies an MTU of 8916 and MAC address `56:4B:7D:09:BE:49`.
- A template called `wealth2`, that specifies an MTU of 5175 and MAC address `74:EE:28:20:84:8A`.
- A template called `castle3`, that specifies an MTU of 4405 and MAC address `C5:78:26:F2:C3:29`.
- A template called `ruins4`, that specifies an MTU of 8472 and MAC address `D9:30:2B:AF:8F:46`.
- An interface named `eth0`, with IPv4 address `100.105.141.229` and netmask `255.255.128.0`.
- An interface named `jam1`, with IPv4 settings configured by DHCP.
- An interface named `ftdi2`, with IPv4 address `74.247.242.51` and netmask `192.0.0.0`.
- An interface named `eth3`, with IPv4 address `38.98.80.127` and netmask `192.0.0.0`, and inherits the template `moths0`.
- An interface named `eth4`, with IPv4 settings configured by DHCP, and inherits the template `ruins4`.
- An interface named `wlan5`, with IPv4 address `119.89.173.88` and netmask `255.255.192.0`.
- An interface named `jam6`, with IPv4 address `82.103.251.251` and netmask `240.0.0.0`.

#### 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 120 and MAC address `2C:89:36:5A:46:B7`.
- A template called `ruins1`, that specifies an MTU of 3977 and MAC address `AF:7F:3E:6B:4E:70`.
- A template called `moths2`, that specifies an MTU of 5982 and MAC address `D3:86:4E:C6:F0:0E`.
- A template called `castle3`, that specifies an MTU of 3439 and MAC address `B2:65:36:84:E7:8C`.
- An interface named `ftdi0`, with IPv4 settings configured by DHCP, and inherits the template `ruins1`.
- An interface named `wlan1`, with IPv4 address `30.126.254.72` and netmask `240.0.0.0`.
- An interface named `jam2`, with IPv4 settings configured by DHCP, and inherits the template `moths2`.

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

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

- A template called `castle0`, that specifies an MTU of 1160 and MAC address `DA:68:0A:C5:1A:6F`.
- A template called `moths1`, that specifies an MTU of 970 and MAC address `57:87:96:6B:9C:C4`.
- A template called `ruins2`, that specifies an MTU of 5672 and MAC address `AA:21:1C:3F:E8:7F`.
- A template called `moths3`, that specifies an MTU of 8129 and MAC address `52:A3:09:F8:8E:63`.
- An interface named `jam0`, with IPv4 settings configured by DHCP, and inherits the template `moths3`.
- An interface named `ftdi1`, with IPv4 address `109.8.22.41` and netmask `224.0.0.0`, and inherits the template `moths1`.
- An interface named `ftdi2`, with IPv4 address `6.29.4.77` and netmask `255.255.255.248`, and inherits the template `castle0`.



- An interface named eth3, with IPv4 address 7.253.182.98 and netmask 252.0.0.0.
- An interface named wlan4, with IPv4 address 37.27.206.130 and netmask 255.255.224.0, and inherits the template moths3.
- An interface named eth5, with IPv4 address 91.9.116.238 and netmask 255.255.0.0.
- An interface named jam6, with IPv4 address 77.142.197.206 and netmask 255.255.255.252, and inherits the template moths1.

## 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

- 115.66.245.128/26 via the interface to your 2nd VM
- 121.95.248.0/23 via the interface to your 2nd VM
- 24.21.152.58/31 via the interface to your 2nd VM
- 22.33.138.80/30 via the IP address of your 2nd VM
- 59.61.0.0/17 via the IP address of your 2nd VM
- 122.131.152.88/29 via the interface to 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

- 86.195.97.64/26 via the IP address of your 2nd VM
- 25.173.64.0/18 via the interface to your 2nd VM
- 74.191.128.0/23 via the interface to your 2nd VM
- 80.99.16.0/20 via the interface to your 2nd VM
- 112.118.103.0/26 via the IP address of your 2nd VM
- 40.0.220.0/25 via the interface to 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**

- 34.132.116.0/22 via the IP address of your 2nd VM
- 52.196.219.136/30 via the interface to your 2nd VM
- 72.214.1.78/31 via the interface to your 2nd VM
- 19.149.130.0/23 via the IP address of your 2nd VM
- 117.182.61.98/31 via the IP address of your 2nd VM
- 90.11.96.0/19 via the interface to 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**

- 126.116.78.0/25 via the interface to your 2nd VM
- 64.234.128.0/17 via the interface to your 2nd VM
- 65.41.126.0/23 via the interface to your 2nd VM
- 53.139.6.144/28 via the interface to your 2nd VM
- 27.128.147.0/25 via the IP address of your 2nd VM
- 72.99.0.0/16 via the IP address of 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**

- 41.179.169.182/31 via the interface to your 2nd VM
- 124.101.248.0/21 via the IP address of your 2nd VM
- 57.33.65.32/27 via the IP address of your 2nd VM
- 101.127.238.64/29 via the IP address of your 2nd VM
- 117.201.1.252/31 via the IP address of your 2nd VM
- 96.29.128.0/20 via the IP address of your 2nd VM