

## 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