

## IP Interfaces: Part 1

You applied to arin.net (**American Registry for Internet Numbers**) for a block of IP addresses and they very kindly assigned you a super-C address block of 10.10.10.0/23 to use to design your network. For the first lab you will select IP addresses from 10.10.10.0/24 to configure R1, R2 and Kali in Area 0 as shown in the network diagram. Since R1, R2 and Kali are connected by a hub they are in the same broadcast and collision domain and can access each other via Ethernet. You will create an IP subnet that is just large enough to configure these three computers but no larger than necessary.

### 1: Configure the interfaces on R1 and R2

Open a terminal window (Applications > System Tools > MATE Terminal) and issue the following commands on each router:

```
sudo su
vtysh
configure terminal
interface eth1
ip address X.Y.Z.W/<netmask>
end
write
exit
```

*Similarly configure eth0 of R2 with another address from the 10.10.10.0/29 subnet.*

Bring up the network using the ifconfig command (see man ifconfig)

Configure the interfaces of the R1 and R2 routers using the IP addresses from your IP table below. Use **vtysh** to do the configuration. (See Interface Commands under Zebra in the frrouting manual.) Don't forget to **write** to memory or your changes will be lost.

VM Subnet	IP Subnet	Network	Range	Broadcast
R1(eth1), R2(eth0), Kali(eth0)				

Vtysh

Configure terminal

Ip route X.Y.Z.W/<netmask> eth1 (eth0 for R2)

End

Write

exit

### 2: Kali

Kali will be configured using Linux commands.

Again, on Kali

```
sudo su
```

```
nano /etc/network/interfaces ; or nano/vi/vim
```

Your file should have the following entries.

```
auto eth0
```

```
iface eth0 inet static
```

```
address X.Y.Z.W
```

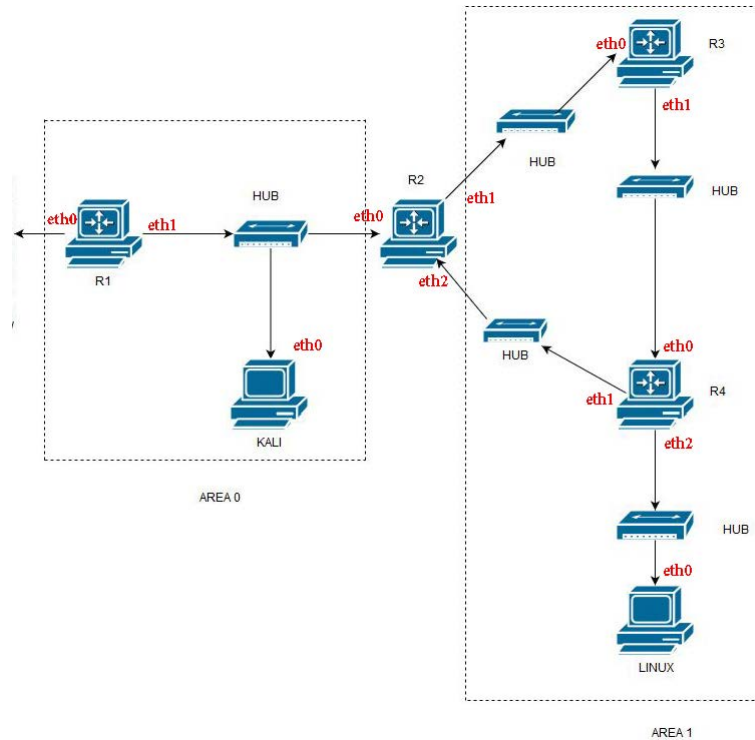
```
netmask A.B.C.D ; convert your /<network mask> notation to the octet notation.
```

```
network X.Y.Z.W
```

```
broadcast X.Y.Z.W
```

### 3: Verify IP addressing and interfaces

Use the `show IP` ***show ip route*** command of ***vttysh*** and the ***ifconfig*** command of Linux to verify that IP addressing is correct and that the interfaces are active. At this point R1 and R2 and Kali should be able to communicate with each other.



### 4: What to submit:

[30 pts] Copies of the conf files under `/etc/frr/frr.conf` for each of R1 and R2.

[10 pts] The Ethernet addresses of R1, R2 and Kali

[20 pts] A copy of the `/etc/network/interfaces` file for Kali.

[20 pts] Show that pinging works between R1, R2 and Kali. From Kali ping R1 and R2

[20 pts] Copies of the arp tables on R1, R2 and Kail.