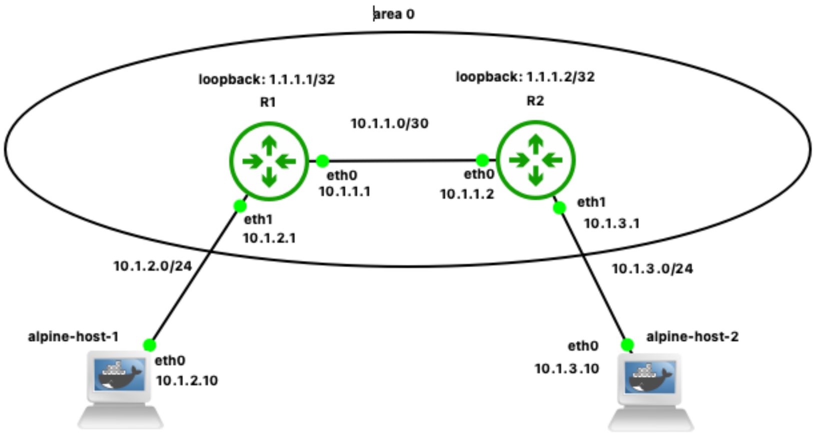
LAB 2 – Basic Routing with OSPF – Single Area

1. For this lab, first start off by stopping the lab you finished as part of the setup. You can now go to File->Save project as… Now give your project a new name for this lab. We will use the output of the setup part to get started here. I use ospf-basic.
2. Now start this up by pressing the play button.
3. Verify that Host 1 can Still Ping Host 2 and vice versa
4. Now remove the static routes.
    a. On Router-1 enter *no ip route 10.1.3.0/24 10.1.1.2*
    b. On Router-2 enter *no ip route 10.1.2.0/24 10.1.1.1*
    c. Now save each configuration on both routers via "do write"
    d. Go to step 6

5. Optionally, first start off by configuring the below topology using the knowledge you obtained in the setup lab. Remember, use auxiliary console to get access to the routers and then you need to enter the "vtysh" command to enter the configuration utility, and then "config t" to start configuration. Also change the router host names to R1 and R1 via right clicking on them and using the "change hostname" option.



Note if you mess up a configuration command you can undo it by putting "no" in front of the command. For example, if you mess up and do "ip address 10.1.3.0/24" you can undo that by first typing in "no ip address 10.1.3.0/24", and then update with the correct IP address via "ip address 10.1.3.1/24"

At this point, validate that host-1 can ping 10.1.2.1, and host-2 can ping 10.1.3.1
Also validate that host-1 at 10.1.2.10 cannot ping 10.1.3.10 (host-2) and vice versa.

Now lets go in and configure a routing algorithm.

On R1 and R2 enter the following commands (make sure you are in configuration mode)

```
router ospf
network 0.0.0.0/0 area 0
```

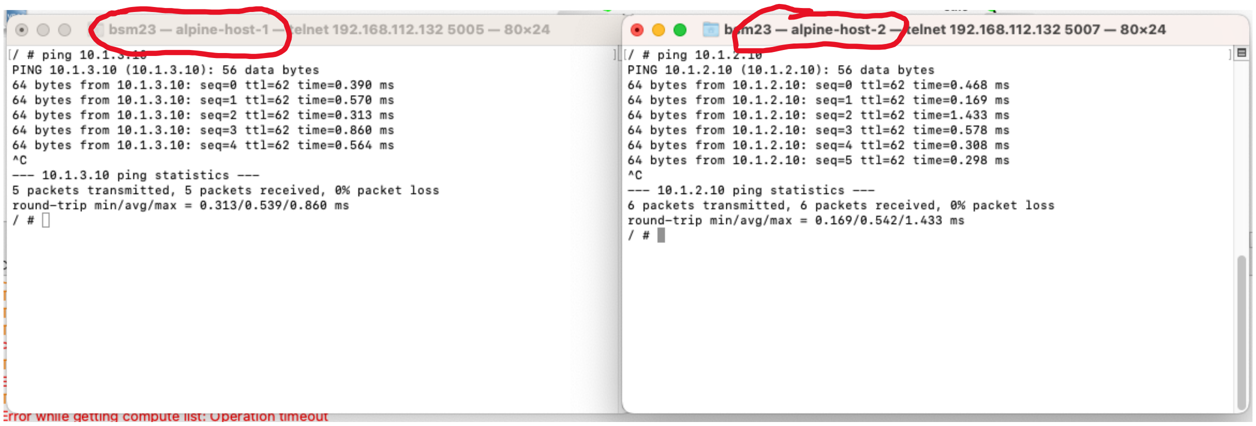
Next lets see if the routers found each other, execute:

```
do show ip ospf neighbor
```

Now lets study the routing information:

```
do show ip ospf interface
do show ip ospf route
```

Now try pinging host-2 from host-1 and vice-versa



```
/ # ping 10.1.3.10
PING 10.1.3.10 (10.1.3.10): 56 data bytes
64 bytes from 10.1.3.10: seq=0 ttl=62 time=0.390 ms
64 bytes from 10.1.3.10: seq=1 ttl=62 time=0.570 ms
64 bytes from 10.1.3.10: seq=2 ttl=62 time=0.313 ms
64 bytes from 10.1.3.10: seq=3 ttl=62 time=0.860 ms
64 bytes from 10.1.3.10: seq=4 ttl=62 time=0.564 ms
^C
--- 10.1.3.10 ping statistics ---
5 packets transmitted, 5 packets received, 0% packet loss
round-trip min/avg/max = 0.313/0.539/0.860 ms
/ #
```

```
/ # ping 10.1.2.10
PING 10.1.2.10 (10.1.2.10): 56 data bytes
64 bytes from 10.1.2.10: seq=0 ttl=62 time=0.468 ms
64 bytes from 10.1.2.10: seq=1 ttl=62 time=0.169 ms
64 bytes from 10.1.2.10: seq=2 ttl=62 time=1.433 ms
64 bytes from 10.1.2.10: seq=3 ttl=62 time=0.578 ms
64 bytes from 10.1.2.10: seq=4 ttl=62 time=0.308 ms
64 bytes from 10.1.2.10: seq=5 ttl=62 time=0.298 ms
^C
--- 10.1.2.10 ping statistics ---
6 packets transmitted, 6 packets received, 0% packet loss
round-trip min/avg/max = 0.169/0.542/1.433 ms
/ #
```

Error while getting compute list: Operation timeout

Make sure you save your work by executing “do write” on the routers from time to time

Questions/Discussion

1. A lot of magic happened with the commands router ospf, and neighbor 0.0.0.0/0 area 0. What exactly do you think these commands do?
2. There are 3 basic subnetworks in this lab. 10.1.1.0/30, 10.1.2.0/24, 10.1.3.0/24. Why are we using a /30 between the routers?, Why cant host-1 and host-2 be on the same network?
3. Provide your configuration for each of the routers. You can get this by typing “do show running-config”