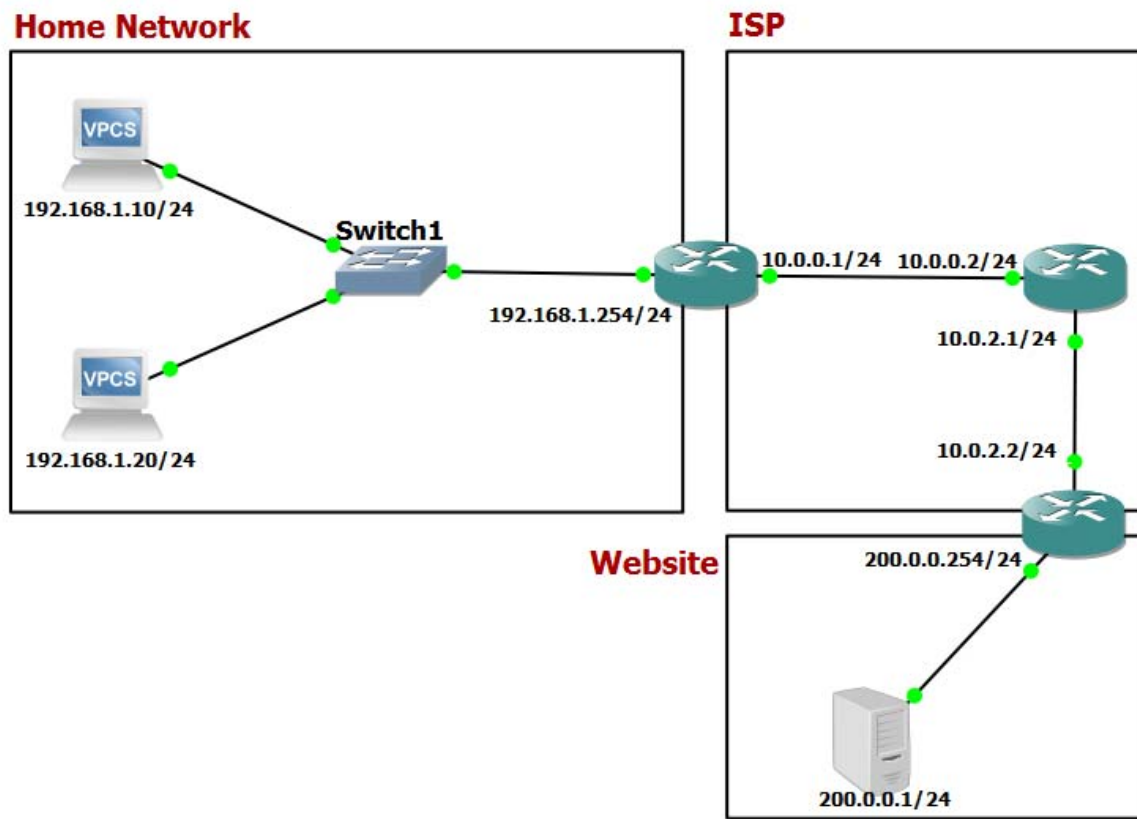


## Part 1: Topology Configuration.



Start by building the above topology and configure its IP addresses as indicated above. Make sure that any pair of hosts on the same link can ping each other.

The command "show ip interface brief" can be used to double check that all interfaces are properly configure and are "up".

Note 1: Use the "write" command on each router to save your modifications.

Note 2: In what follows we will explore several routing possibilities. Create a backup copy of the project folder at the end of this part and use a fresh copy of it for each of the next routing options (otherwise you will have to undo each of your routing instructions).

## Part 2: Static Routing.

Configure all routers to use static routing. For example, in R1 use

```
conf t
ip route 10.0.2.0 255.255.255.0 10.0.0.1
```

To say that an traffic towards the 10.0.2.0/24 network should be forwarded on the interface who IP address 10.0.0.1 (i.e. the external interface).

Note 1: if there was a sequence of networks 10.0.2.0, 10.0.3.0, 10.0.4.0, etc. on the route to the servers, it might be useful to write something like:

```
ip route 10.0.0.0 255.255.0.0 10.0.0.1
```

Note 2: this router has only one interface to the outside world (10.0.0.1); any traffic to outside has to be forwarded through that interface. In this particular case, you can use the syntax:

```
ip route 0.0.0.0 0.0.0.0 10.0.0.2
```

Which means: send traffic to all unknown destinations to 10.0.0.1. ISP Router naturally becomes a default gateway for R1 after this command.

Q1: if you only configure the default command above (and no other routes), would a ping from PC1 to R2 work?

Note 3: use the “show ip route” to display the current routing table of a router (useful for the next tasks too).

### **Part 3: RIP.**

Configure your routers to use RIP. You need to do the following on each router

- Enable RIP
- Select a version (2)
- Specify the networks to advertise: in our case, all networks you are connected to.

For example, R1's RIP configuration instructions will be:

```
conf t
router RIP
version 2
network 192.168.1.0
network 10.0.0.0
```

Note: Despite the fact that R1 is connected to 10.0.1.0, not 10.0.0.0, the fact that RIP is classless means that only 10.0.0.0/8 will be used by the protocol.

Capture the traffic on one of the links between two routers. What do you notice?

Give the network a few seconds to converge then ping from end to end.