

# IT TECHNOLOGY NETWORKING

## Assignment 10

### Routing, one router, two subnets



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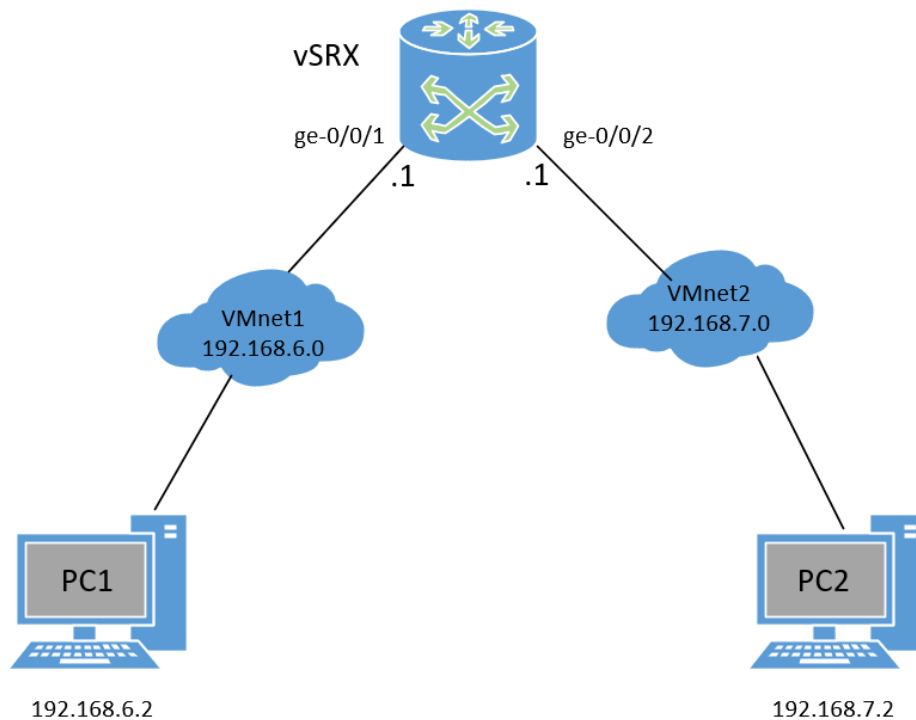
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## The Diagram



## Router

A router is a networking device that forwards data packets between computer networks. As an example, sending a message, email or a webpage will be in the form of a data packet used by a router.

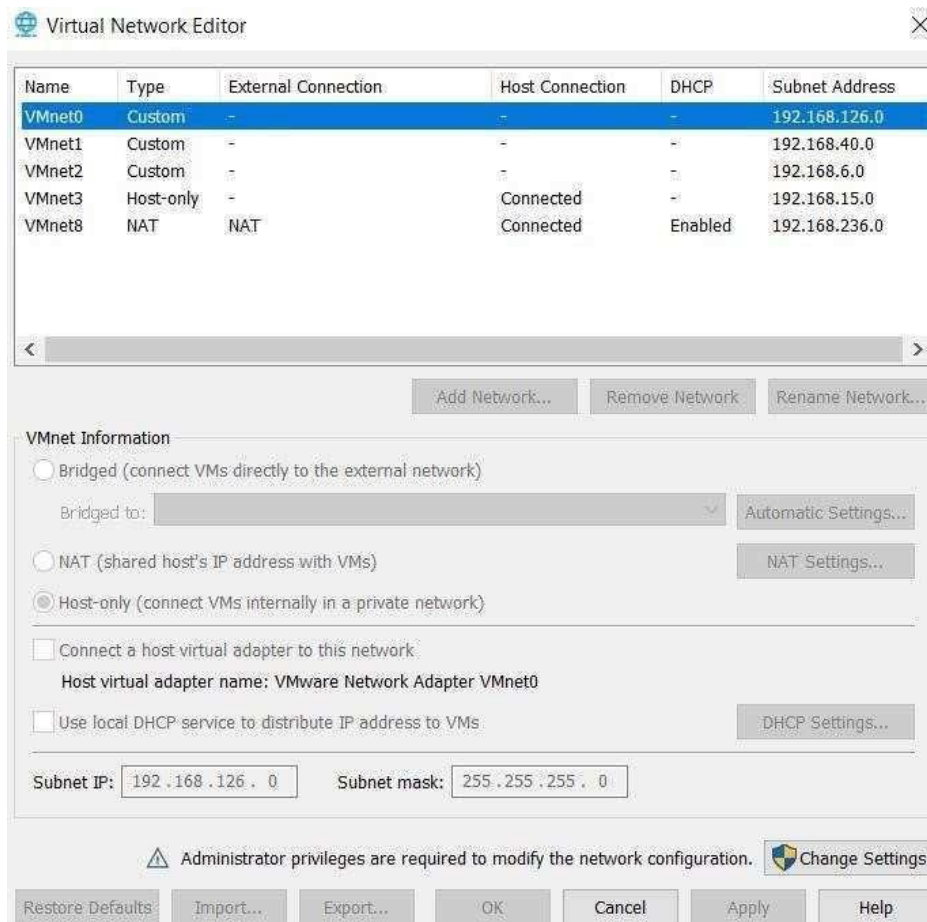
### Importing the vSRX router to VMware

	junos-vsrx-12.1X47-D15.4-domestic.mf	11/28/2021 10:57 PM	MF File	1 KB
	junos-vsrx-12.1X47-D15.4-domestic.ovf	11/28/2021 10:57 PM	Open Virtualizatio...	7 KB
	junos-vsrx-12.1X47-D15.4-domestic-disk...	11/28/2021 10:57 PM	VMware virtual dis...	222,825 KB

Double-click on the ovf(open virtualization format) and you should be asked to open it with VMware and then select that.

## Configuring the PC's


First we will configure the Network adapter to suit our diagram, VMnet1 and VMnet2



They should be Custom without a host connection or DHCP. If one of them is host-only you can change this by checking the 'Connect a host virtual adapter to this network' as that will make it host only when Host-only is enabled.





Next we setup pc1 and pc2 so their 'Network Adapter' is set to 'Custom (VMnet1)' and 'Custom (VMnet2)'

## Ubuntu 64-bit

 Power on this virtual machine

 Edit virtual machine settings

### ▼ Devices

 Memory	4 GB
 Processors	2
 Hard Disk (SCSI)	20 GB
 CD/DVD (SATA)	Auto detect
 Network Adapter	Custom (VMnet1)

Since we have both pc1 and pc2 setup now let's return to the router which I called junos.

## junos

 Power on this virtual machine

 Edit virtual machine settings

 Upgrade this virtual machine

### ▼ Devices

 Memory	2 GB
 Processors	2
 Hard Disk (IDE)	1.8 GB
 Floppy	Using drive A:
 Network Adapter	Bridged (Autom... ge-0/0/0
 Network Adapter 2	Custom (VMnet1) ge-0/0/1
 Network Adapter 3	Custom (VMnet2) ge-0/0/2
 Serial Port	Using named pi...
 Display	Auto detect

Important to note ge-0/0/1 is VMnet1 aka pc1 and ge-0/0/2 is VMnet2 aka pc2

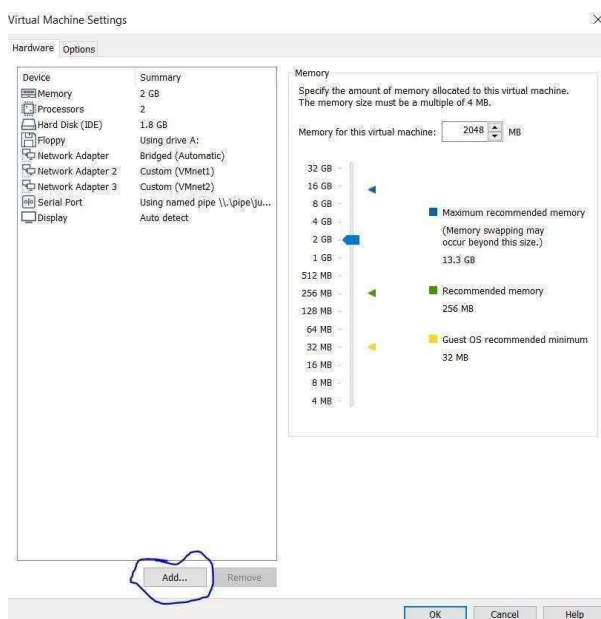
As you can see the network adapter 2 and 3 are set to VMnet1 and 2 but you may also notice Serial Port.

## Putty

Putty is a free and open-source terminal emulator, serial console and network file transfer application. It supports several network protocols, including SCP, SSH, Telnet, rlogin, and raw socket connection. It can also connect to a serial port.

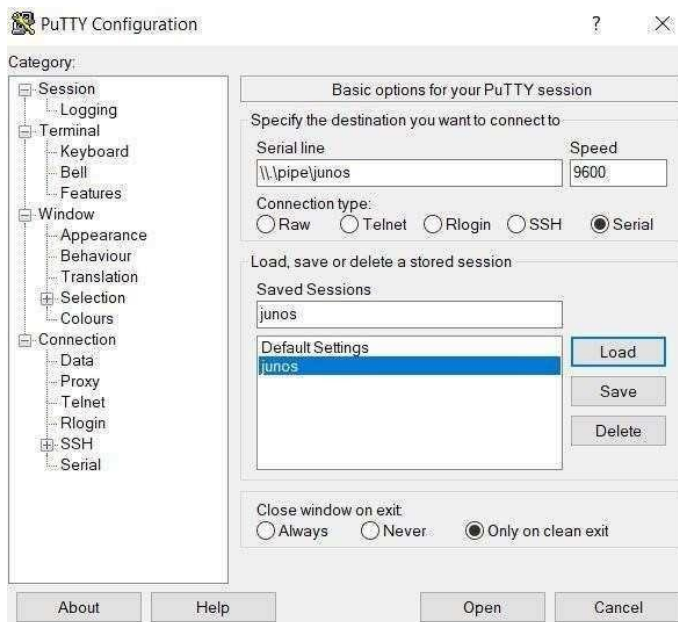
As mentioned above there is a Serial Port that we will need to use.

To add this Serial Port, we will right click our router (junos) and select 'settings' and from there we click the 'add' button at the bottom and then simply add a Serial Port.



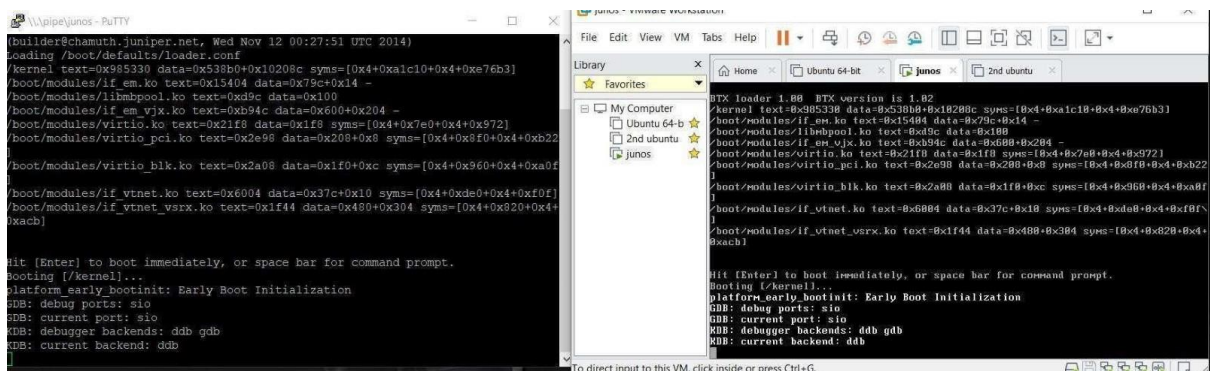
Once done we want to edit the Serial Port so it doesn't 'Auto detect' but instead uses a named pipe which in this case always will be “\\.\\pipe\\” after the last backslash you can use any name you wish. I used junos since it made things easier with everything being the same. So, my Serial Port would use the named pipe: [\\.\\pipe\\junos](#)

I recommend copying the name you created since you will need it in Putty next.



Change from SSH to Serial, and then you can go at the bottom left, select “Serial” to change the Flow control to “None”.

Now we are finally ready to run our router so navigate to your VMWare and power it on. While it is powering on you will open your router (junos) in Putty and see it display the same information as on the VMWare.



Then enter "root" at login and you should be good to go. Then type in the putty terminal "cli" and then "edit" to go into edit mode. After that you need to copy the configuration which will be after this line, type in "load override terminal" and right-click on the mouse to paste it into the terminal.

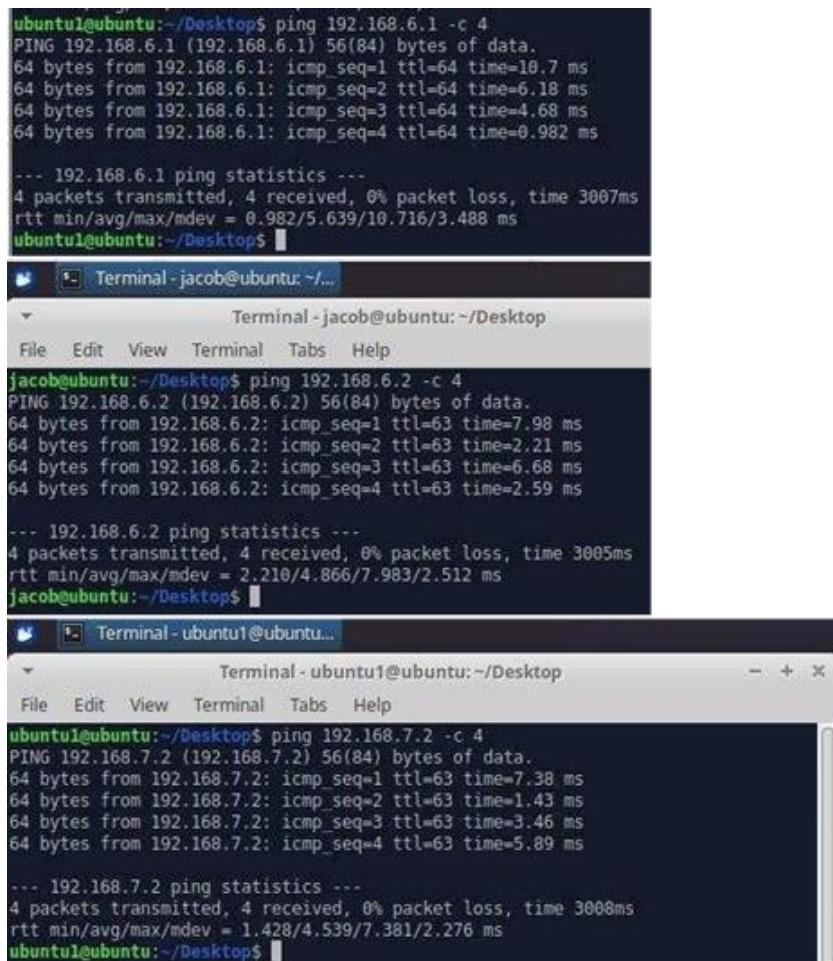
Here is the configuration:

[https://gitlab.com/bogdan7978/ucl-bogdan-buterchi/-/blob/main/Networking/vsrx\\_config.json](https://gitlab.com/bogdan7978/ucl-bogdan-buterchi/-/blob/main/Networking/vsrx_config.json)

And then press “CTRL+D” and after type “commit”.

## Pinging

Testing to see if PC1 can ping PC2 and the other way around, also pinging the router.



The image displays three terminal windows showing network connectivity tests. The first window shows a ping from 'ubuntu1@ubuntu' to '192.168.6.1' (the router) with 4 successful packets. The second window shows a ping from 'jacob@ubuntu' to '192.168.6.2' (PC2) with 4 successful packets. The third window shows a ping from 'ubuntu1@ubuntu' to '192.168.7.2' (PC1) with 4 successful packets. All tests show 0% packet loss.

```
ubuntu1@ubuntu:~/Desktop$ ping 192.168.6.1 -c 4
PING 192.168.6.1 (192.168.6.1) 56(84) bytes of data.
64 bytes from 192.168.6.1: icmp_seq=1 ttl=64 time=10.7 ms
64 bytes from 192.168.6.1: icmp_seq=2 ttl=64 time=6.18 ms
64 bytes from 192.168.6.1: icmp_seq=3 ttl=64 time=4.68 ms
64 bytes from 192.168.6.1: icmp_seq=4 ttl=64 time=0.982 ms

--- 192.168.6.1 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3007ms
rtt min/avg/max/mdev = 0.982/5.639/10.716/3.488 ms
ubuntu1@ubuntu:~/Desktop$
```

```
Terminal - jacob@ubuntu: ~/Desktop
Terminal - jacob@ubuntu: ~/Desktop
File Edit View Terminal Tabs Help
jacob@ubuntu:~/Desktop$ ping 192.168.6.2 -c 4
PING 192.168.6.2 (192.168.6.2) 56(84) bytes of data.
64 bytes from 192.168.6.2: icmp_seq=1 ttl=63 time=7.98 ms
64 bytes from 192.168.6.2: icmp_seq=2 ttl=63 time=2.21 ms
64 bytes from 192.168.6.2: icmp_seq=3 ttl=63 time=6.68 ms
64 bytes from 192.168.6.2: icmp_seq=4 ttl=63 time=2.59 ms

--- 192.168.6.2 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3005ms
rtt min/avg/max/mdev = 2.210/4.866/7.983/2.512 ms
jacob@ubuntu:~/Desktop$
```

```
Terminal - ubuntu1@ubuntu: ~/Desktop
Terminal - ubuntu1@ubuntu: ~/Desktop
File Edit View Terminal Tabs Help
ubuntu1@ubuntu:~/Desktop$ ping 192.168.7.2 -c 4
PING 192.168.7.2 (192.168.7.2) 56(84) bytes of data.
64 bytes from 192.168.7.2: icmp_seq=1 ttl=63 time=7.38 ms
64 bytes from 192.168.7.2: icmp_seq=2 ttl=63 time=1.43 ms
64 bytes from 192.168.7.2: icmp_seq=3 ttl=63 time=3.46 ms
64 bytes from 192.168.7.2: icmp_seq=4 ttl=63 time=5.89 ms

--- 192.168.7.2 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3008ms
rtt min/avg/max/mdev = 1.428/4.539/7.381/2.276 ms
ubuntu1@ubuntu:~/Desktop$
```



