Troubleshooting Speed and Duplex Issues

Lab Objective:

Learn how to troubleshoot and solve speed and duplex issues.

Lab Purpose:

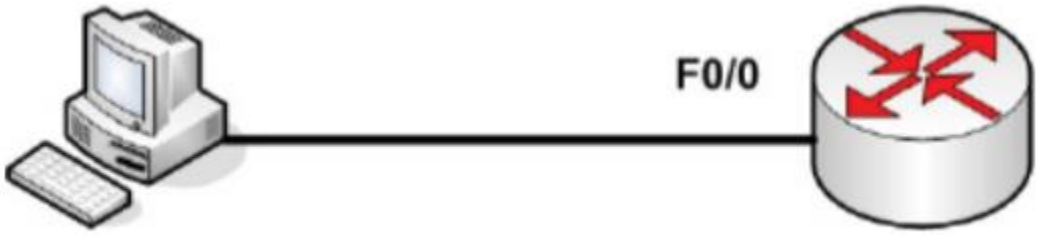
Most network installation engineers will tell you that devices should never be left to auto-configure speed and duplex settings. It can often cause issues, especially when you mix equipment from different vendors.

Lab Tool:

Packet Tracer

Lab Topology:

Please use the following topology to complete this lab exercise:



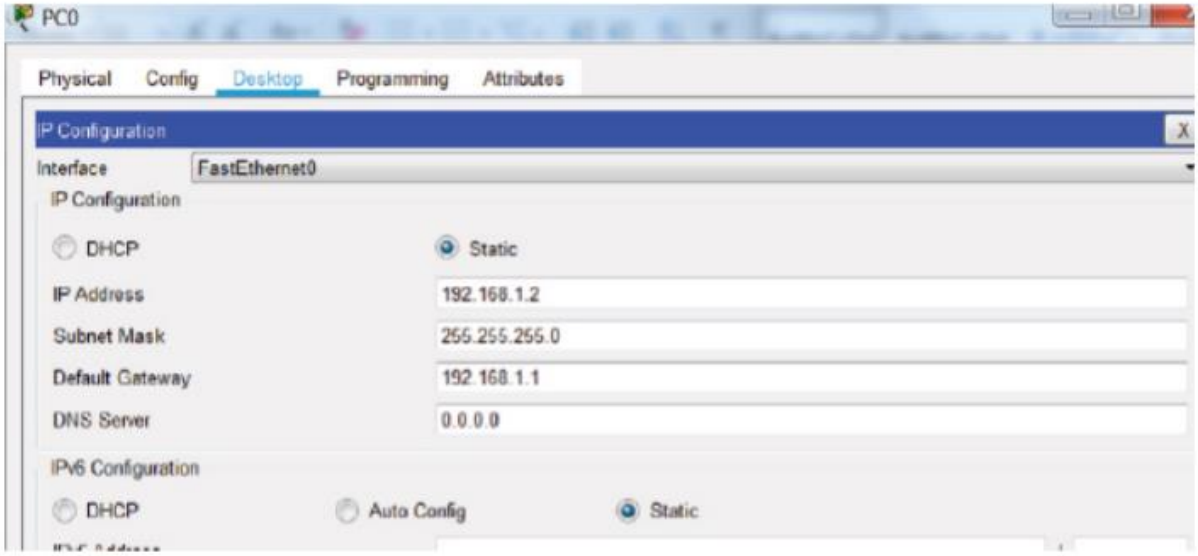
Lab Walkthrough:

Task 1:

Drag a PC and router onto the canvas and connect them using a crossover cable. You can use a Cisco 2911 model router.

Task 2:

In order to simulate issues, set the PC to half duplex 10 Mbps. Set the IP address to 192.168.1.2 and the gateway to 192.168.1.1



Task 3:

Check the interface settings on the router interface F0/0. The interface will work with either 10 Mbps or half-duplex devices. Mine is already up from a previous lab, but yours may be down until task 4.

```
Router#show int f0/0
FastEthernet0/0 is up, line protocol is up (connected)
Hardware is Lance, address is 000d.bd83.a601 (bia
000d.bd83.a601)
MTU 1500 bytes, BW 100000 Kbit, DLY 1000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Full-duplex, 100Mb/s, media type is RJ45
```

Task 4:

Set the router F0/0 interface 10 192.168.1.1, the speed to 100 Mbps, and the duplex to full. “No shut’ it.

```
Router#config t
Router(config)#interface FastEthernet0/0
Router(config-if)#ip address 192.168.1.1 255.255.255.0
Router(config-if)#no shut
Router(config-if)#speed 100
Router(config-if)#duplex full
Router(config-if)#end
```

Task 5:

Ping the router interface from the PC. It will fail.

You would usually see router interface resets and errors, but we are a bit limited on Packet tracer.

The interface will be down on the router due to the fact that keepalives fail.

```
C:\>ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

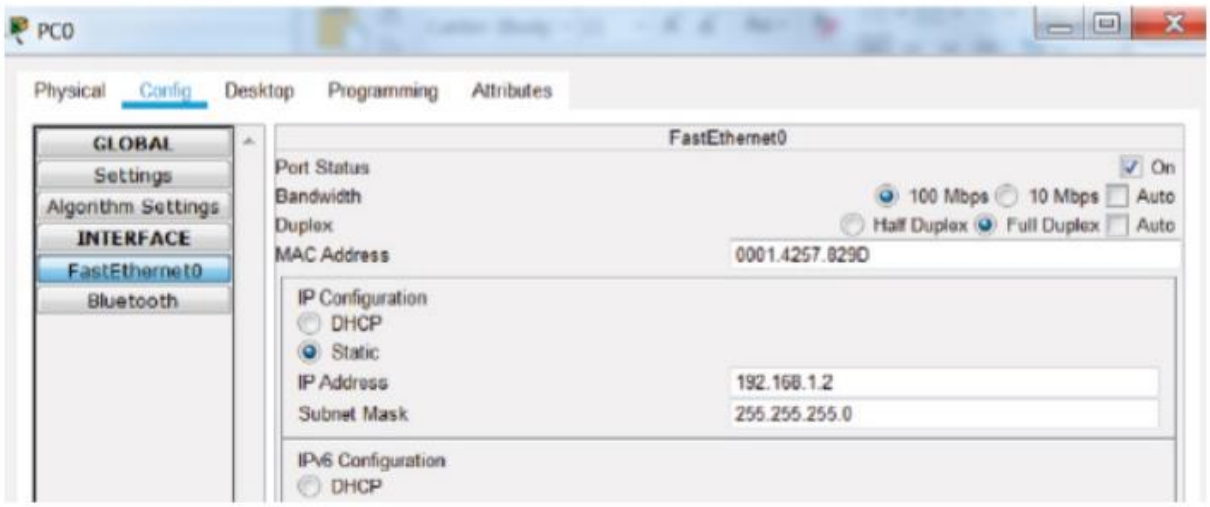
Router#show interfaces f0/0

FastEthernet0/0 is up, line protocol is down (disabled)

Hardware is Lance, address is 000d.bd83.a601 (bia 000d.bd83.a601)

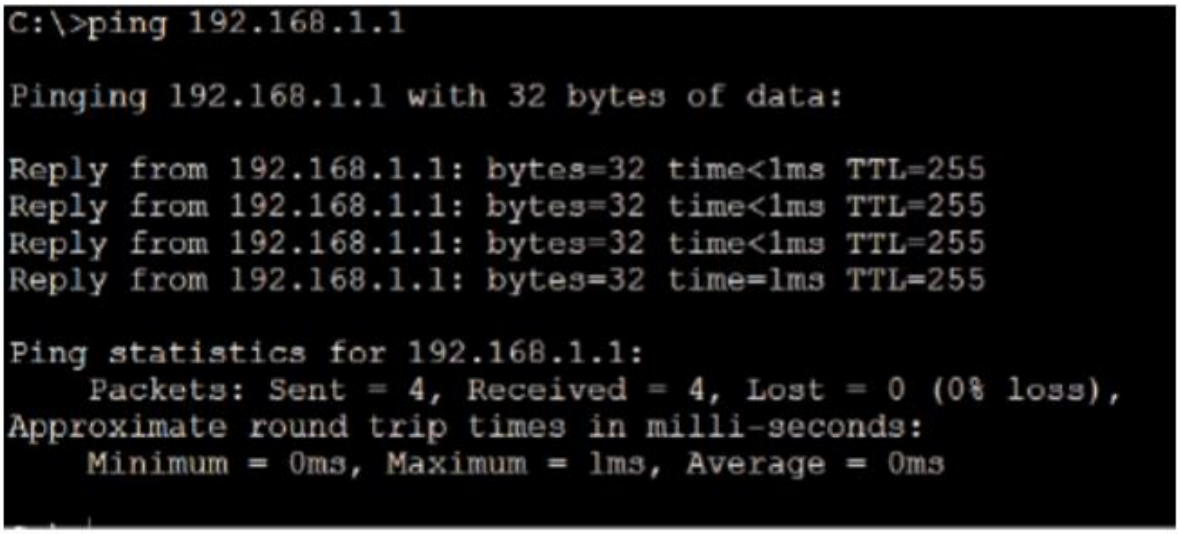
Task 6:

Set the PC interface to full duplex and 100 Mbps. Devices are usually set to auto-detect even through when you check, you see them working at 100/full.



Task 7:

Ping from the PC to the router.



Note:

The only way to really see errors and interface resets is to do this on live equipment.