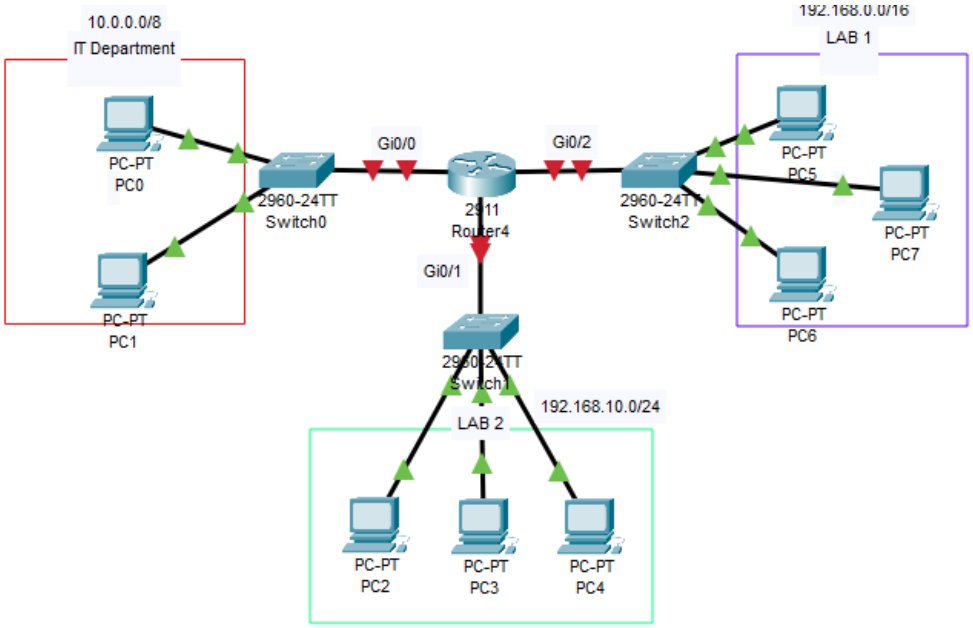
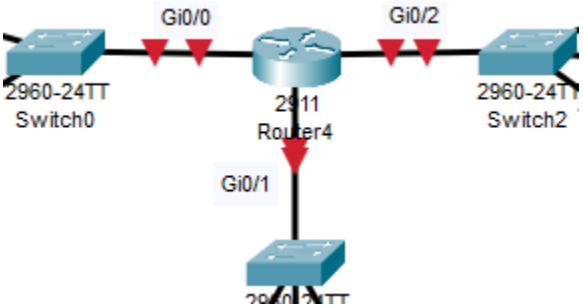
Simple Subnetting using Cisco Packet Tracer



Here we have a simple architecture between different departments. IT department having 2 PC's and a switch, Lab 1 having 3 PC's and a switch and Lab 2 with 3 PC's and a switch.



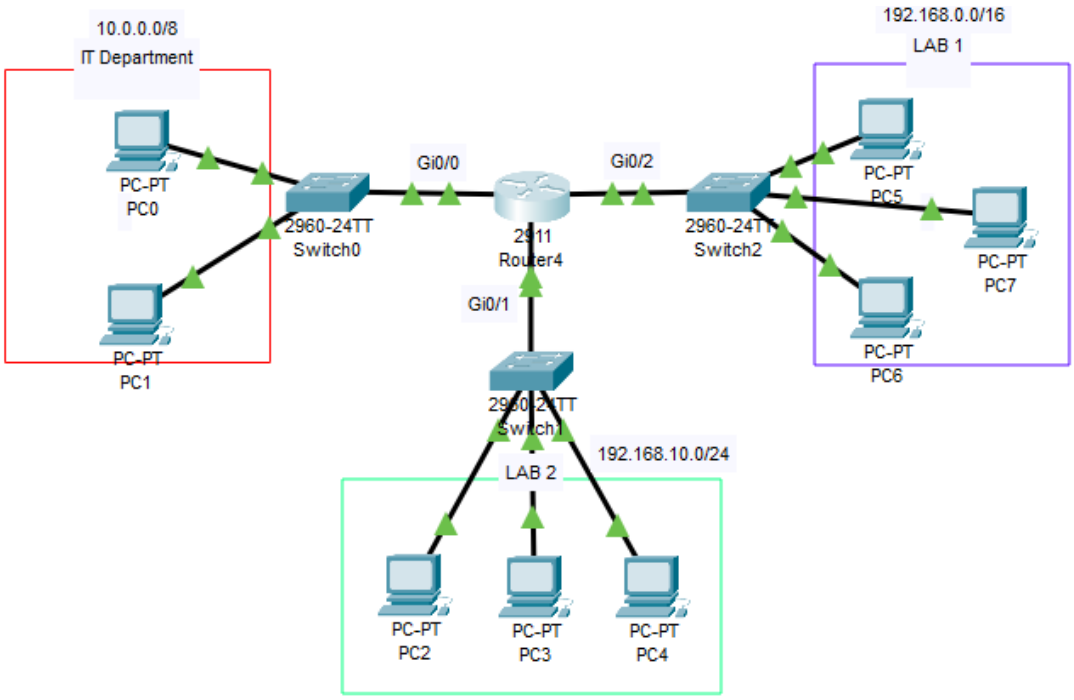
Here we have R1's interfaces, Gi0/0, Gi0/1 and Gi0/2. As you can see three out of three interfaces are down. So lets configure the router with CLI.

```
Router>en
Router#show ip inte brie
Interface              IP-Address      OK? Method Status                Protocol
GigabitEthernet0/0     unassigned      YES unset  administratively down down
GigabitEthernet0/1     unassigned      YES unset  administratively down down
GigabitEthernet0/2     unassigned      YES unset  administratively down down
Vlan1                  unassigned      YES unset  administratively down down
Router#
```

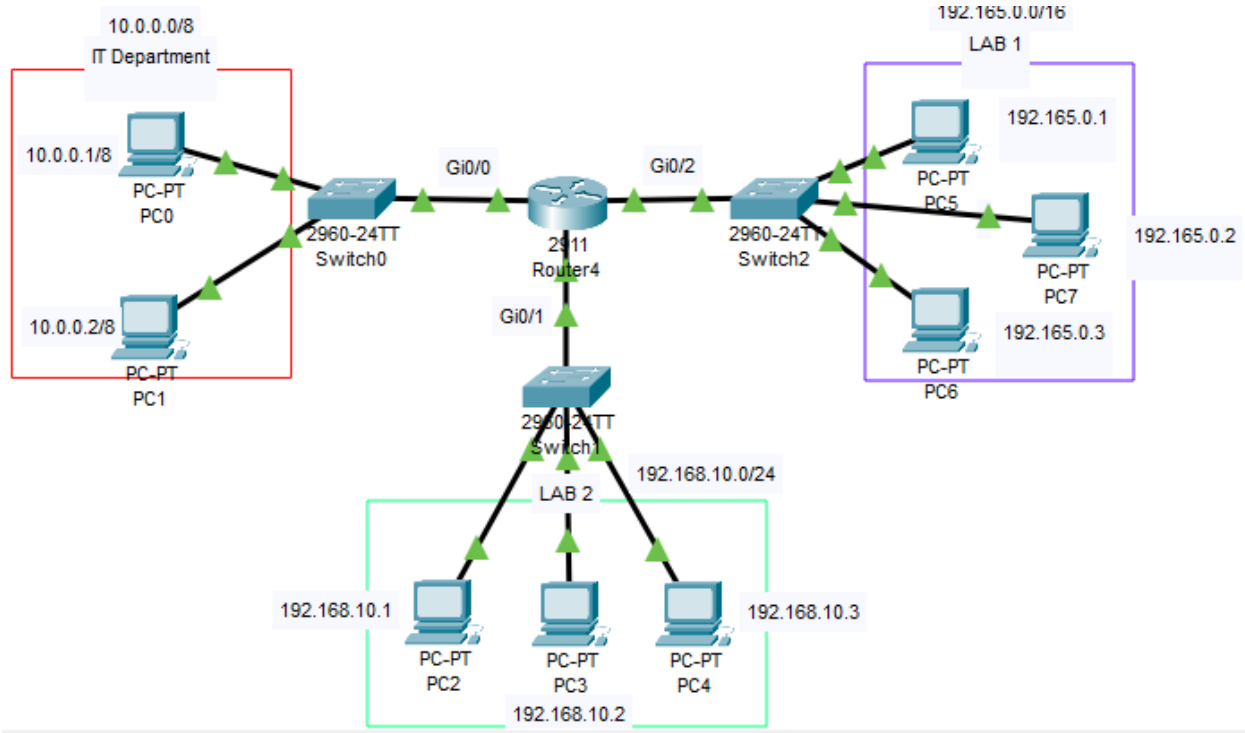
Here we can see the IP interface of the router in the CLI. Gi 0/0, 0/1,0/2 all have their Ip's unassigned and their methods unset, status and the protocol are both downed. Let's fix that.

```
Interface              IP-Address      OK? Method Status                Protocol
GigabitEthernet0/0     10.255.255.254  YES manual up                    up
GigabitEthernet0/1     192.168.10.254  YES manual up                    up
GigabitEthernet0/2     192.165.255.254 YES manual up                    up
Vlan1                  unassigned      YES unset  administratively down down
Router#
```

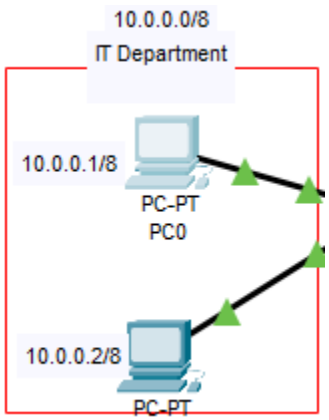
I have set up the interface of Gi 0/0, 0/1 and 0/2 with commands of Interface then assigning of IP Address and Subnet Mask. The figure above shows that all assigned interface are up by using the command no shut or no shutdown.



Now that connections between the interfaces are set up we can now assign the IP's of each PC's.



Here we have set up the IP of each PC's on the network.



Lets use PC0 with and IP of 10.0.0.1 to ping PC1 with an IP of the same network address, 10.0.0.2

```
Ping statistics for 10.0.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

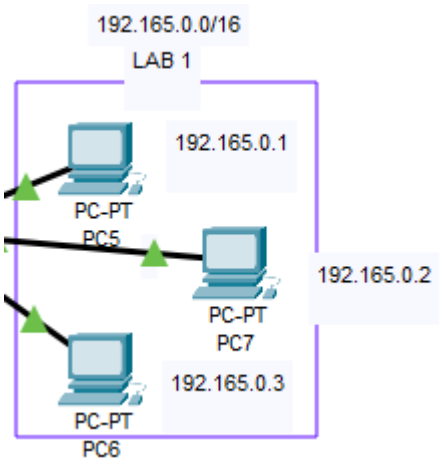
As you can see the ping on the same network work.

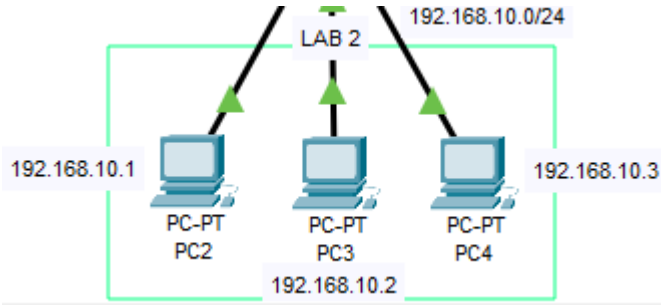
```
C:\>ping 192.165.0.1

Pinging 192.165.0.1 with 32 bytes of data:

Request timed out.
```

Here we tried pinging a PC on a different network address which resulted on fail.





The same goes with the two different Network Addresses.

```
Router>en
Router#show interfaces
GigabitEthernet0/0 is up, line protocol is up (connected)
  Hardware is CN Gigabit Ethernet, address is 0060.3e41.0d01 (bia 0060.3e41.0d01)
  Internet address is 10.255.255.254/8
  MTU 1500 bytes, BW 1000000 Kbit, DLY 10 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  Full-duplex, 100Mb/s, media type is RJ45
  output flow-control is unsupported, input flow-control is unsupported
  ARP type: ARPA, ARP Timeout 04:00:00,
  Last input 00:00:08, output 00:00:05, output hang never
  Last clearing of "show interface" counters never
  Input queue: 0/75/0 (size/max/drops); Total output drops: 0
  Queueing strategy: fifo
  Output queue :0/40 (size/max)
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
     0 packets input, 0 bytes, 0 no buffer
     Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
     0 watchdog, 1017 multicast, 0 pause input
     0 input packets with dribble condition detected
 --More--
```

Here is the further interface information.