Q5) Given an IP address range of 192.168.1.0/24, divide the network into 4 subnets.

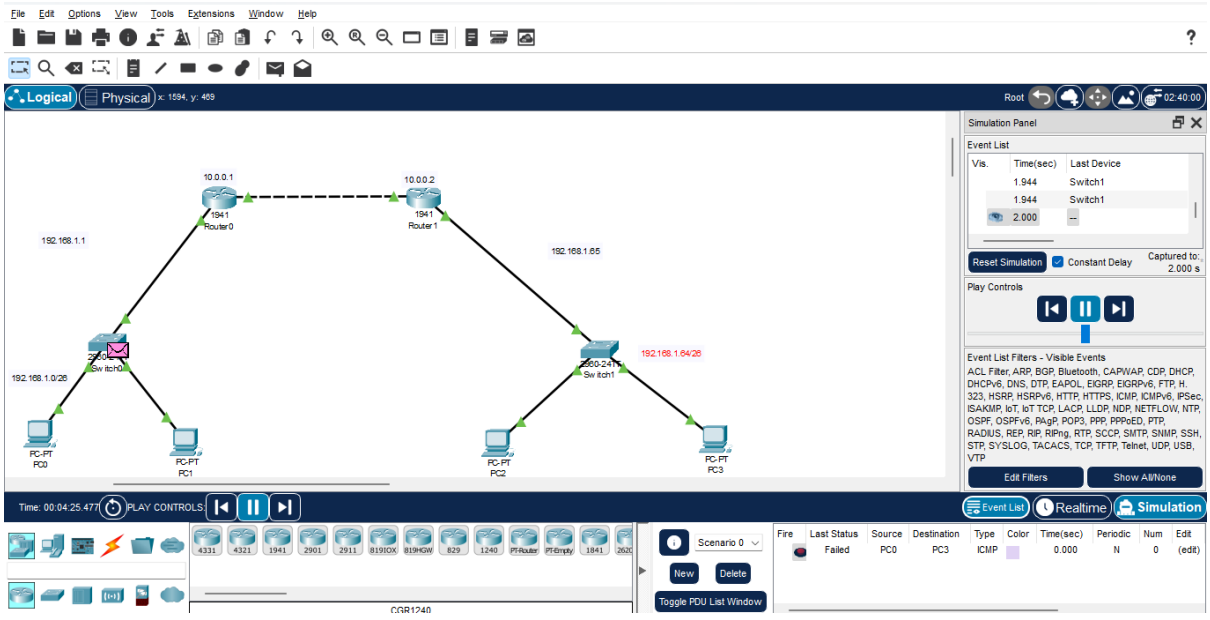
Task: Manually calculate the new subnet mask and the range of valid IP addresses for each subnet.

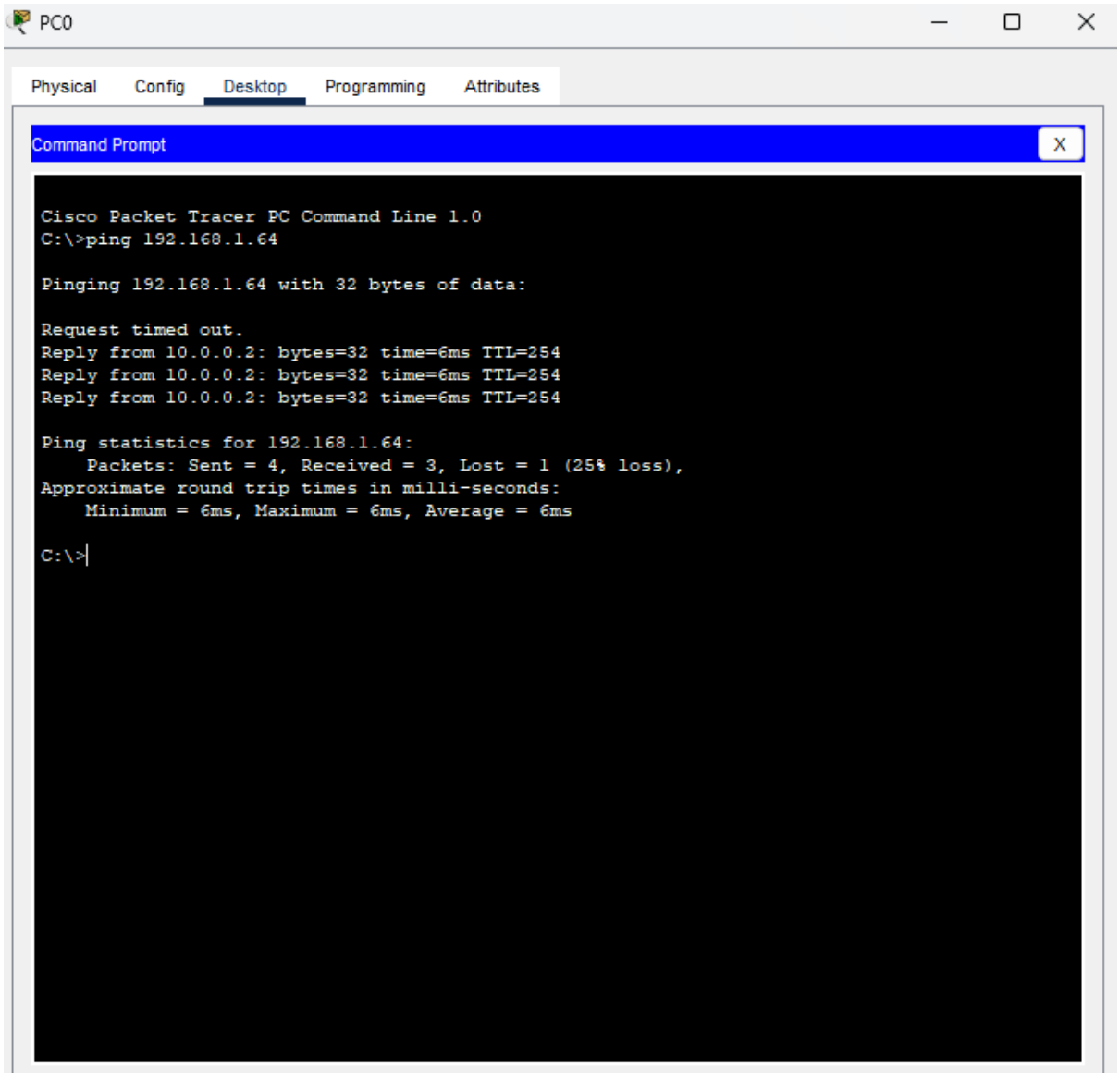
Assign IP addresses from these subnets to devices in Cisco Packet Tracer and verify connectivity using ping between them.

To divide the **192.168.1.0/24** network into four subnets, we borrow **2 bits** from the host portion, resulting in a new subnet mask of **255.255.255.192 (/26)**. This creates **four subnets**, each with **64 total addresses**, including network and broadcast addresses.

The four subnet ranges are as follows:

- **Subnet 1**: **192.168.1.0/26** (Usable IPs: **192.168.1.1 - 192.168.1.62**, Broadcast: **192.168.1.63**)
- **Subnet 2**: **192.168.1.64/26** (Usable IPs: **192.168.1.65 - 192.168.1.126**, Broadcast: **192.168.1.127**)
- **Subnet 3**: **192.168.1.128/26** (Usable IPs: **192.168.1.129 - 192.168.1.190**, Broadcast: **192.168.1.191**)
- **Subnet 4**: **192.168.1.192/26** (Usable IPs: **192.168.1.193 - 192.168.1.254**, Broadcast: **192.168.1.255**)




PC0
Physical
Config
Desktop
Programming
Attributes
Command Prompt
X
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.1.64
Pinging 192.168.1.64 with 32 bytes of data:
Request timed out.
Reply from 10.0.0.2: bytes=32 time=6ms TTL=254
Reply from 10.0.0.2: bytes=32 time=6ms TTL=254
Reply from 10.0.0.2: bytes=32 time=6ms TTL=254
Ping statistics for 192.168.1.64:
Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
Minimum = 6ms, Maximum = 6ms, Average = 6ms
C:\>