Department of Computer Science and Engineering

Experiment Name: VLAN Configuration

Experiment No: 4

Date of perform: Nov 29, 2023
Date of submission: May 13, 2024

Submitted to:
Md. Imdadul Islam
Professor of CSE, Jahangirnagar University
Mohammad Ashraful Islam
Assistant Professor of CSE,Jahangirnagar University

Submitted by:
Name: Sudipta Singha
Exam Roll: 202220
Class Roll: 408

Jahangirnagar University,Savar, Dhaka

1 Objective

The objective of this experiment is to implement VLAN using switch and router. Then we will simulate it in packet tracer. For real life simulation we will taste and trace it in command prompt.

2 Network Diagram

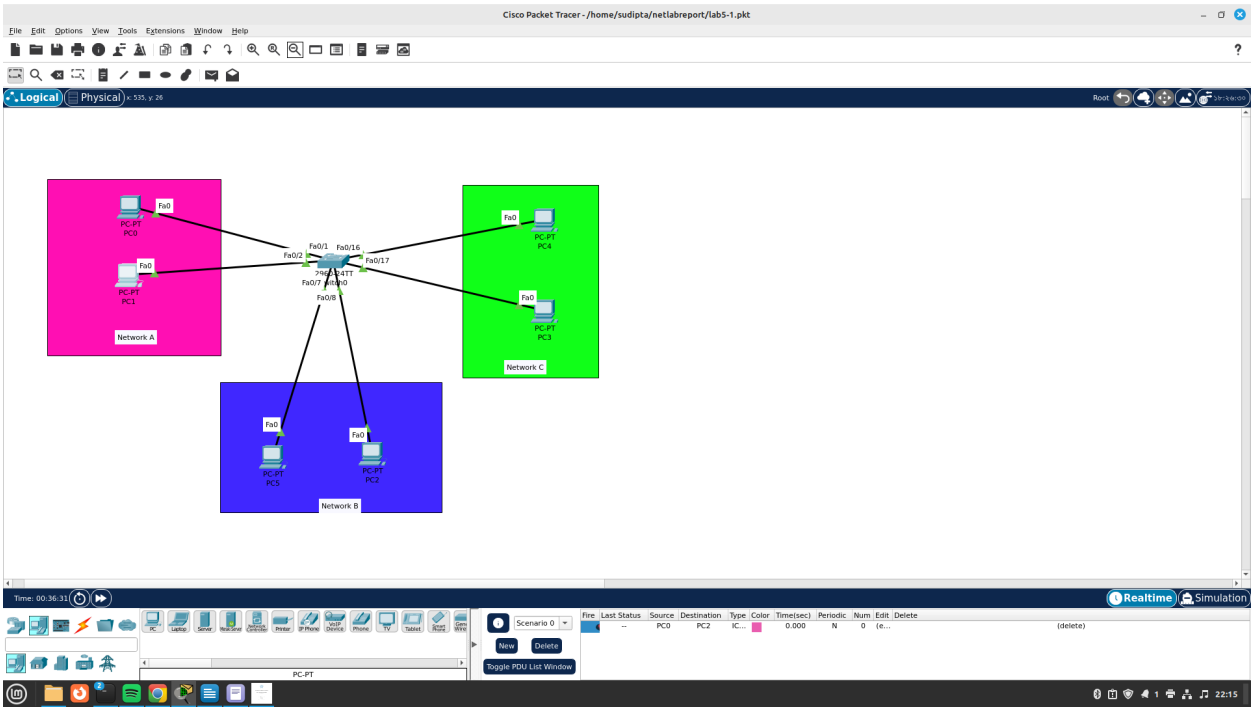

Figure 1: VLAN using A switch

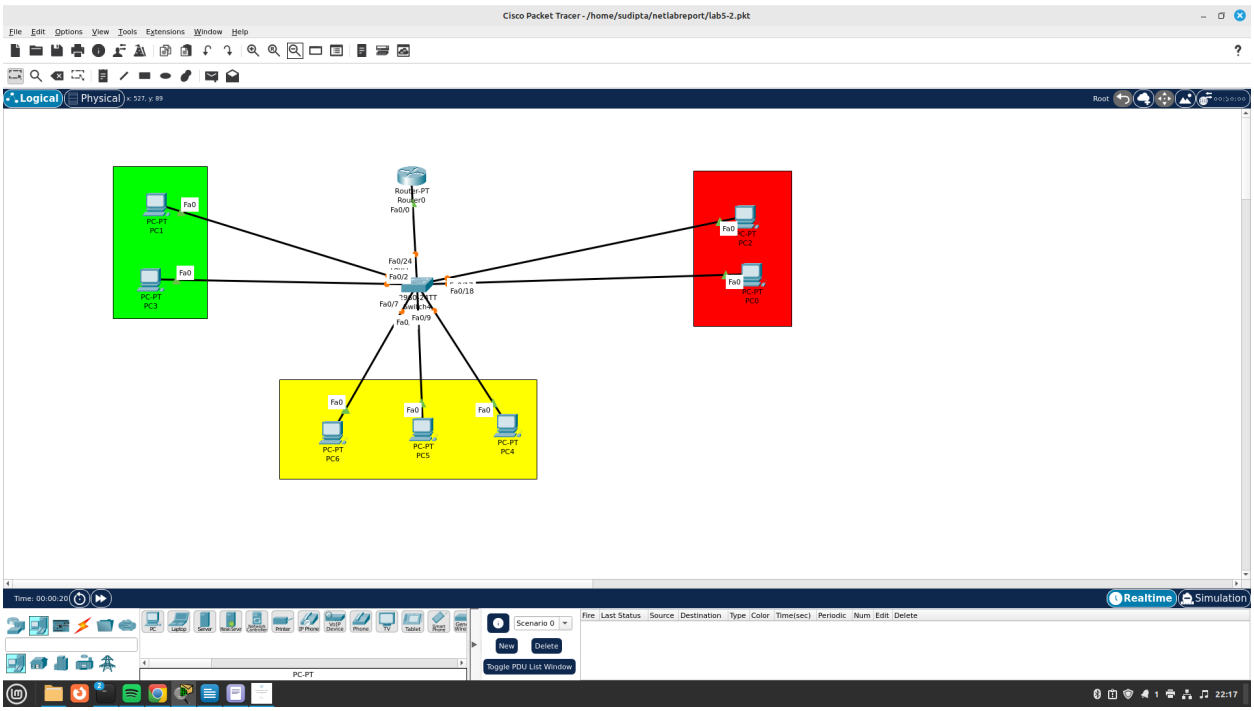

Figure 2: VLAN under sub-interface

3 Procedure

We take pc, switch and router from the cisco packet tracer device pan.The commands for router is written below.

3.1 Router Configuration using CLI

```
Switch>en
Switch#conf t
Switch(config)#vlan 10
Switch(config-vlan)#name A
Switch(config-vlan)#exit
Switch(config)#vlan 20
Switch(config-vlan)#name B
Switch(config-vlan)#exit
Switch(config)#vlan 30
Switch(config-vlan)#name C
Switch(config-vlan)#exit
Switch(config)#int range fa0/1-6
Switch(config-if-range)#switchport access vlan 10
Switch(config-if-range)#exit
Switch(config)#int range fa0/7-14
Switch(config-if-range)#switchport access vlan 20
Switch(config-if-range)#exit
Switch(config)#int range fa0/15-23
Switch(config-if-range)#switchport access vlan 30
Switch(config-if-range)#exit
Switch(config)#int fa0/24
```

```
Switch(config-if)#switchport mode trunk
Switch(config-if)#end
Router>en
Router#conf t
Router(config)#int fa0/0
Router(config-if)#no shut
Router(config-if)#int fa0/0.1
Router(config-subif)#encapsulation dot1q 1
Router(config-subif)#ip add 192.168.1.1 255.255.255.0
Router(config-subif)#int fa0/0.2
Router(config-subif)#encapsulation dot1q 10
Router(config-subif)#ip add 192.168.10.1 255.255.255.0
Router(config-subif)#int fa0/0.3
Router(config-subif)#encapsulation dot1q 20
Router(config-subif)#ip add 192.168.20.1 255.255.255.0
Router(config-subif)#int fa0/0.4
Router(config-subif)#encapsulation dot1q 30
Router(config-subif)#ip add 192.168.30.1 255.255.255.0
Router(config-subif)#end
```

4 Result

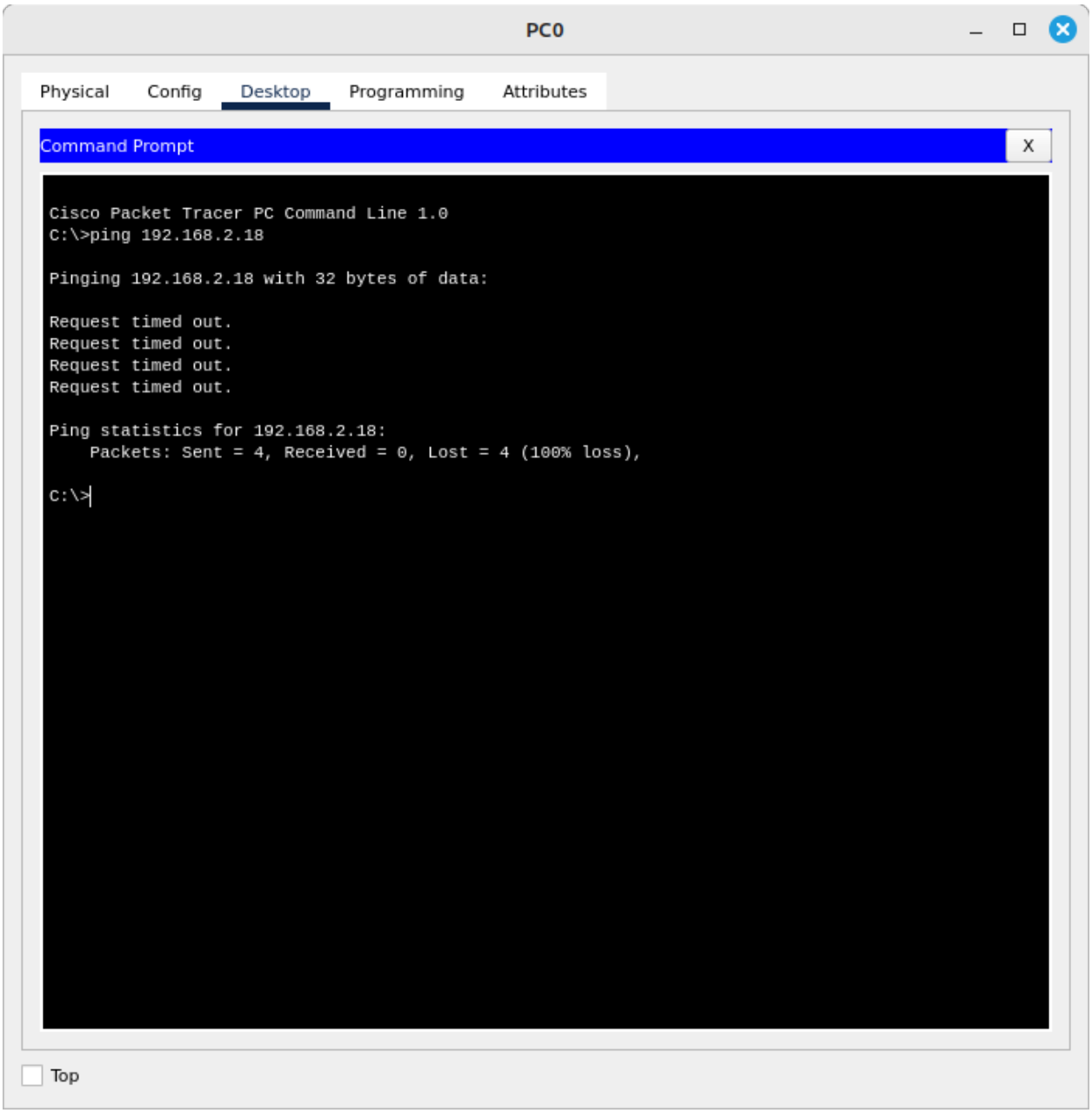

Figure 3: The packets will not reach the destination in this Configuration

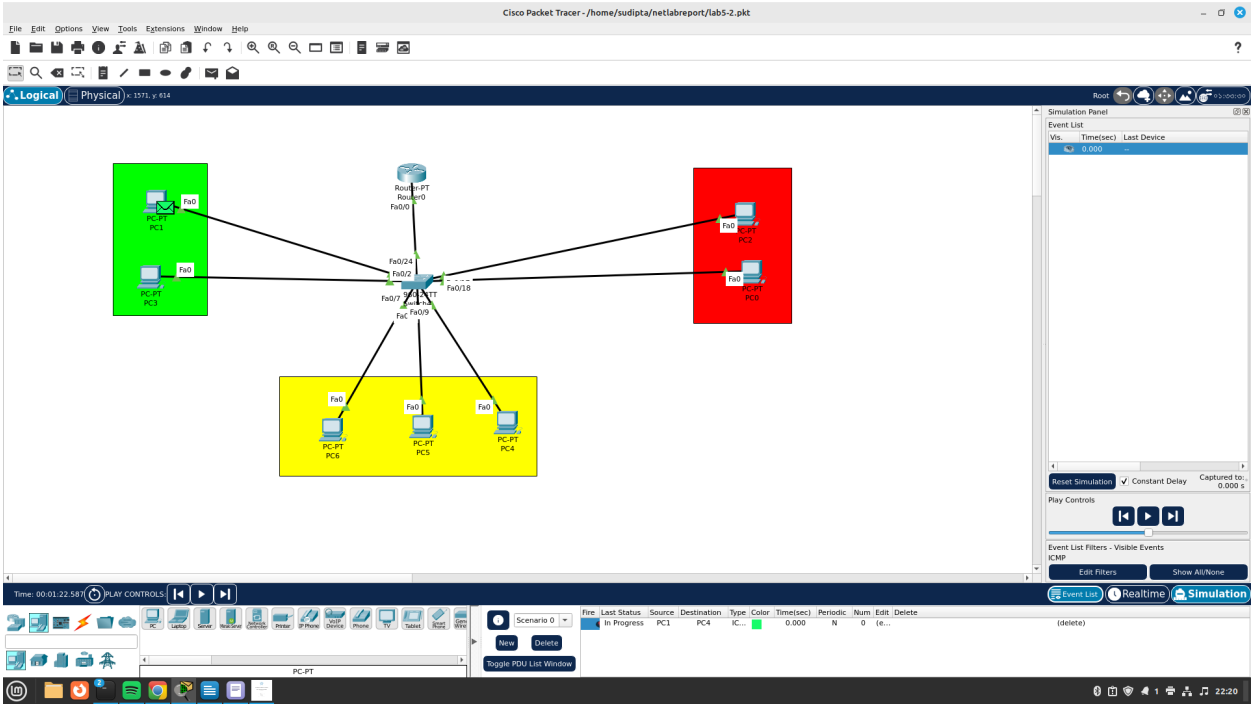

Figure 4: The packet is now leaving the source pc

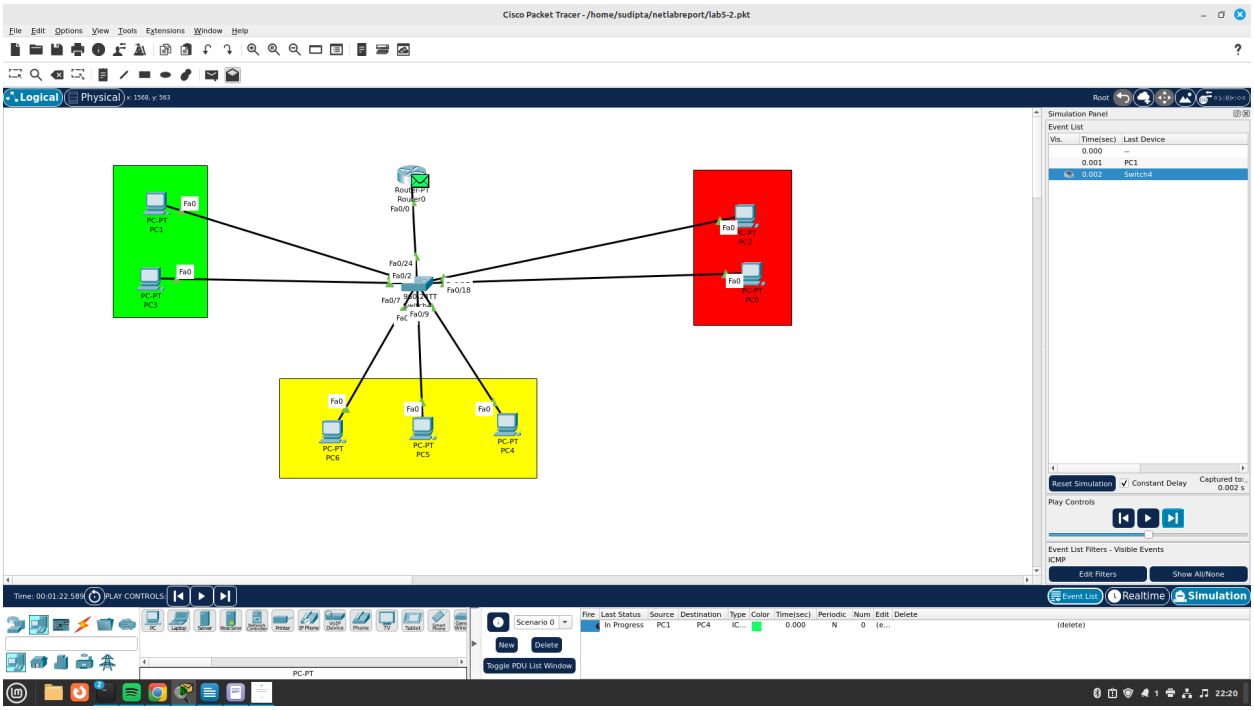

Figure 5: The ICMP packet reached the router

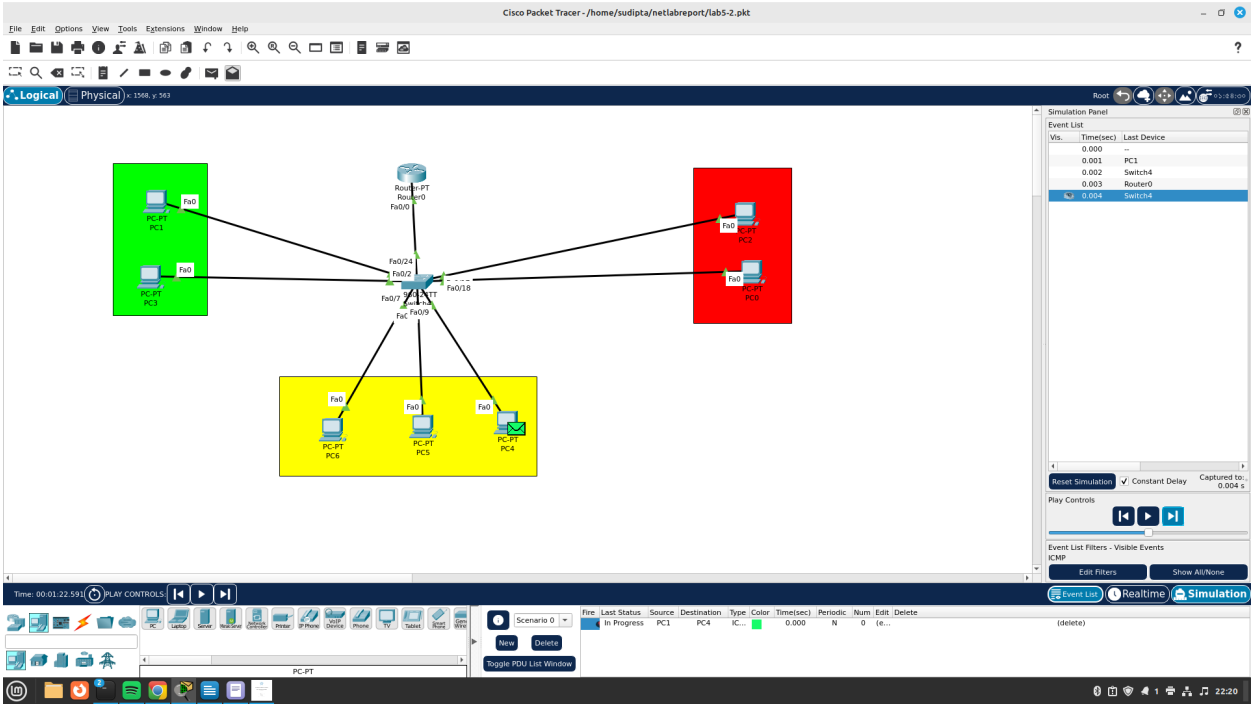

Figure 6: The ICMP packet reached the destination node

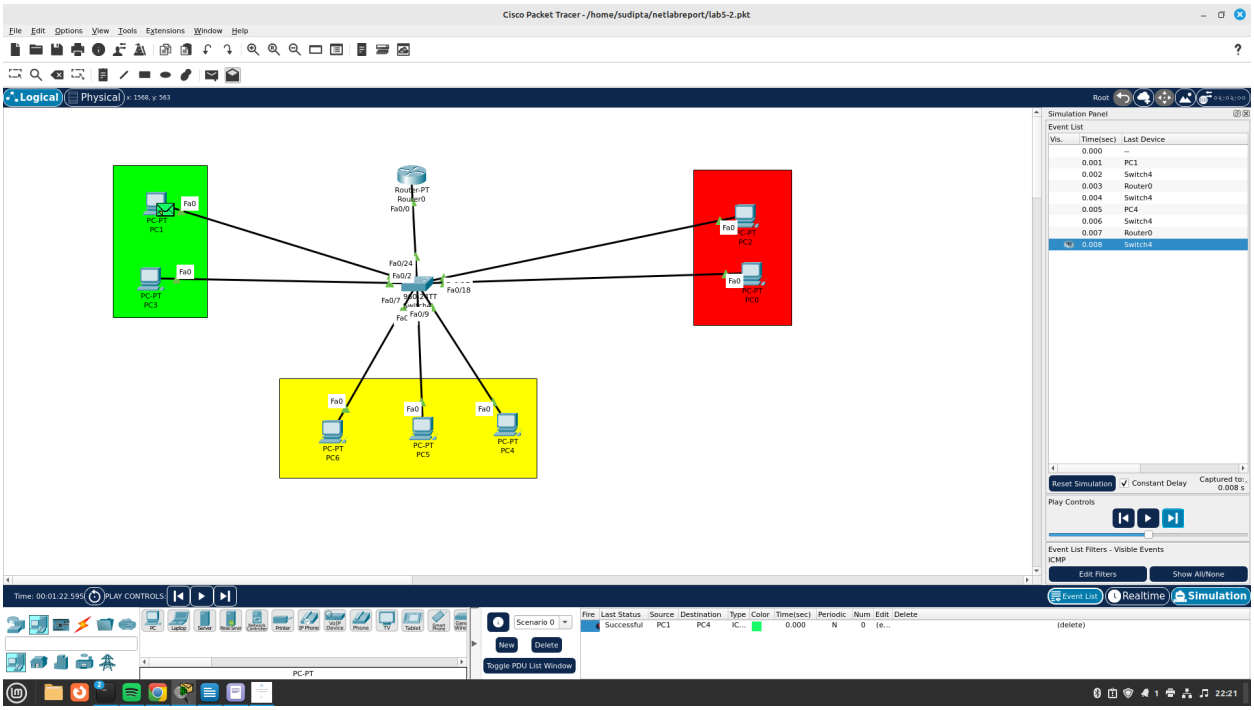

Figure 7: The ACK reached the source

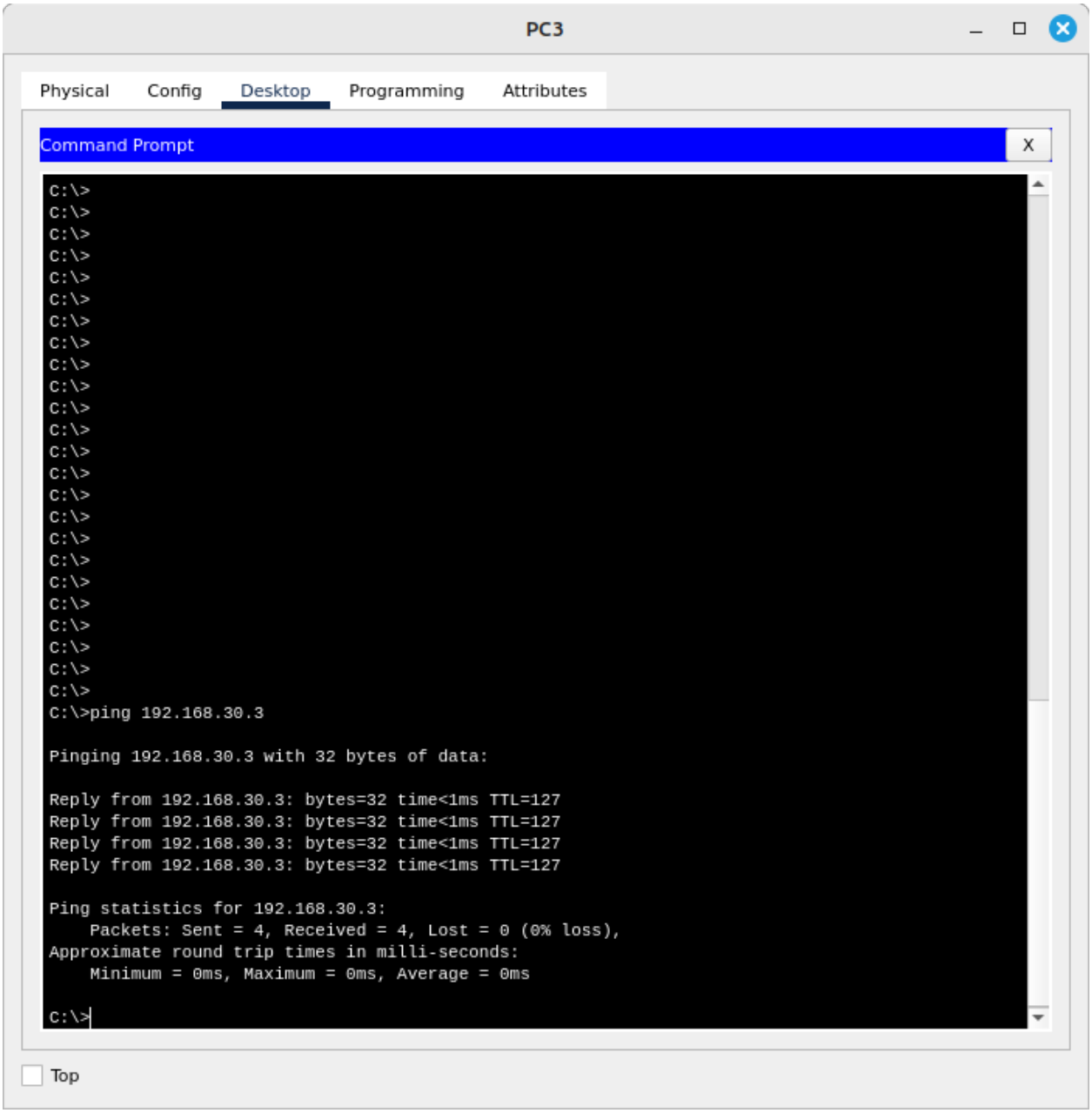

Figure 8: Ping is successful