

Date: 13 / 09 / 2024

Lab Practical #11:

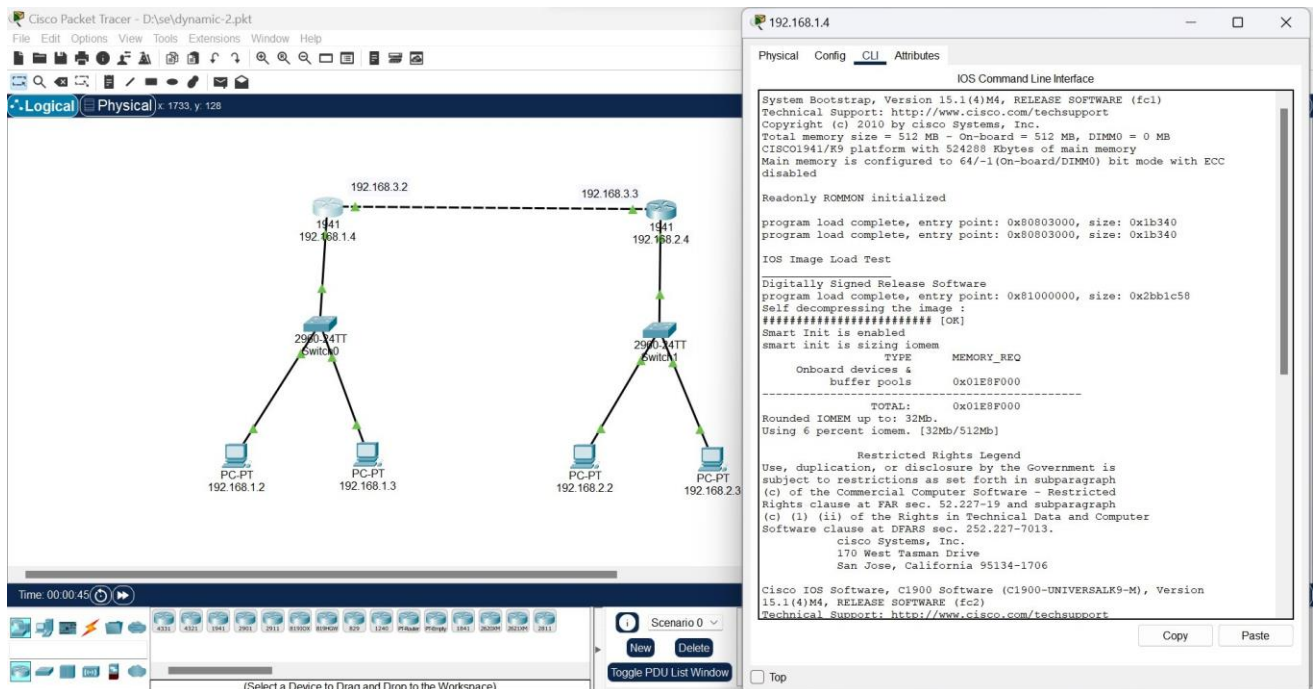
Study the concept of routing using packet tracer. (Dynamic Routing)

Practical Assignment #11:

1. Connect the two different networks based on the calculated IP addresses and subnet using a packet tracer.

Instructions:

1. RIP routing screenshot with routing table. (Take two or more different networks)
2. Mention IP address of each node and network ID of each network as label.
3. Ping command / Packet transfer screenshot between two different network nodes.



The screenshot displays the Cisco Packet Tracer interface. On the left, a network topology is shown in the Physical tab. It consists of two routers, R1 and R2, connected via their serial interfaces. R1 has IP 192.168.3.2 on its serial interface and is connected to a switch (2950-24TT) which is connected to two PCs (192.168.1.2 and 192.168.1.3). R2 has IP 192.168.3.3 on its serial interface and is connected to another switch (2950-24TT) which is connected to two PCs (192.168.2.2 and 192.168.2.3). The right pane shows the CLI of router 192.168.1.4. The output of the 'show version' command is visible, including system bootstrap, program load, IOS image load, and memory information.

```
System Bootstrap, Version 15.1(4)M4, RELEASE SOFTWARE (fc1)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 2010 by Cisco Systems, Inc.
Total memory size = 512 MB - On-board = 512 MB, DIMM0 = 0 MB
CISCO1941/K9 platform with 524288 Kbytes of main memory
Main memory is configured to 64/-1 (On-board/DIMM0) bit mode with ECC
disabled

Readonly ROMMON initialized

program load complete, entry point: 0x80803000, size: 0x1b340
program load complete, entry point: 0x80803000, size: 0x1b340

IOS Image Load Test

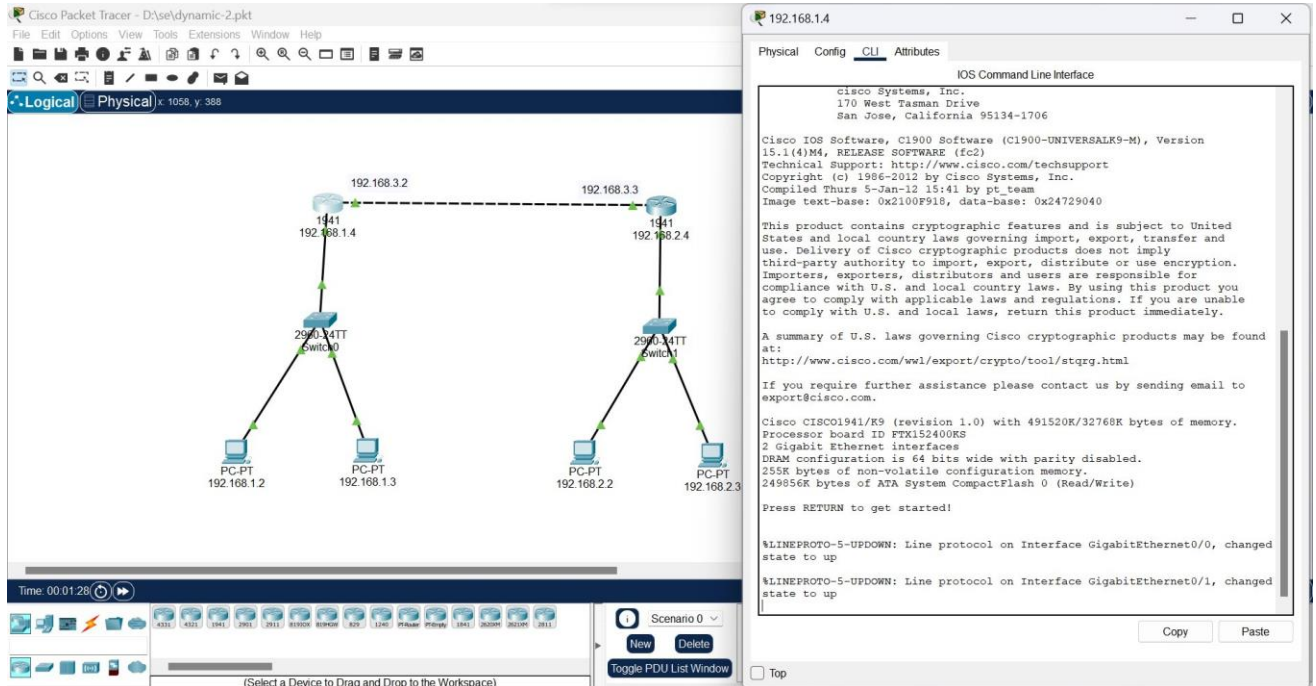
Digitally Signed Release Software
program load complete, entry point: 0x81000000, size: 0x2bb1c58
Self decompressing the image :
##### [OK]
Smart Init is enabled
smart init is sizing iomem

Onboard devices &
buffer pools
-----
TOTAL: 0x01E8F000
Rounded IOMEM up to: 32Mb.
Using 6 percent iomem. [32Mb/512Mb]

Restricted Rights Legend
Use, duplication, or disclosure by the Government is
subject to restrictions as set forth in subparagraph
(c) of the Commercial Computer Software - Restricted
Rights clause at FAR sec. 52.227-19 and subparagraph
(c) (1) (ii) of the Rights in Technical Data and Computer
Software clause at DFARS sec. 252.227-7013.
Cisco Systems, Inc.
170 West Tasman Drive
San Jose, California 95134-1706

Cisco IOS Software, C1900 Software (C1900-UNIVERSALK9-M), Version
15.1(4)M4, RELEASE SOFTWARE (fc2)
Technical Support: http://www.cisco.com/techsupport
```

Date: 13 / 09 / 2024



This screenshot shows the Cisco Packet Tracer interface with a network diagram and the CLI of a router (192.168.1.4). The network diagram shows two routers connected via their serial interfaces (192.168.3.2 and 192.168.3.3). Each router is connected to two PCs via its Ethernet interfaces (192.168.1.4 and 192.168.2.4). The CLI window displays the following information:

```

IOS Command Line Interface

cisco Systems, Inc.
170 West Tasman Drive
San Jose, California 95134-1706

Cisco IOS Software, C1900 Software (C1900-UNIVERSALK9-M), Version
15.1(4)M4, RELEASE SOFTWARE (fc2)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2012 by Cisco Systems, Inc.
Compiled Thurs 5-Jan-12 15:41 by pt_team
Image text-base: 0x2100F918, data-base: 0x24729040

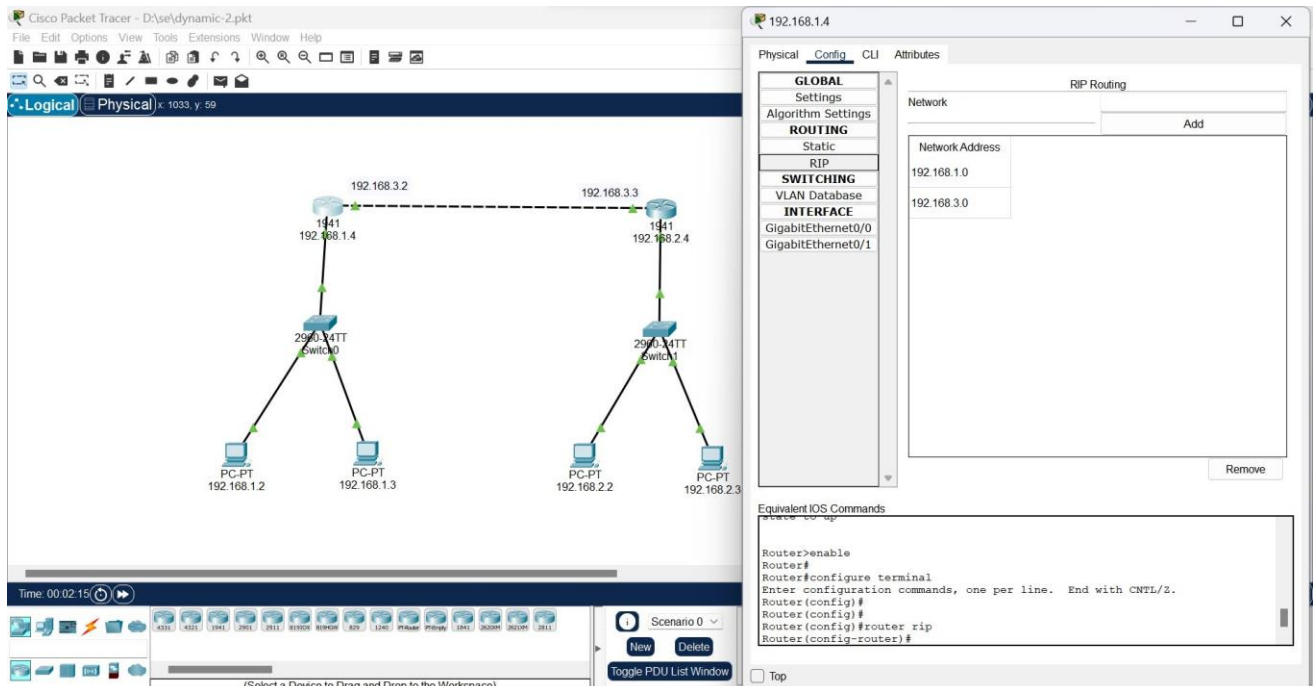
This product contains cryptographic features and is subject to United
States and local country laws governing import, export, transfer and
use. Delivery of Cisco cryptographic products does not imply
third-party authority to import, export, distribute or use encryption.
Importers, exporters, distributors and users are responsible for
compliance with U.S. and local country laws. By using this product you
agree to comply with applicable laws and regulations. If you are unable
to comply with U.S. and local laws, return this product immediately.

A summary of U.S. laws governing Cisco cryptographic products may be found
at:
http://www.cisco.com/wvl/export/crypto/tool/stqrg.html
If you require further assistance please contact us by sending email to
export@cisco.com.

Cisco C1900-1941/K9 (revision 1.0) with 491520R/32768R bytes of memory.
Processor board ID FTX152400R8
2 Gigabit Ethernet interfaces
DRAM configuration is 64 bits wide with parity disabled.
255K bytes of non-volatile configuration memory.
249956K bytes of ATA System CompactFlash 0 (Read/Write)

Press RETURN to get started!

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0, changed
state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed
state to up
  
```



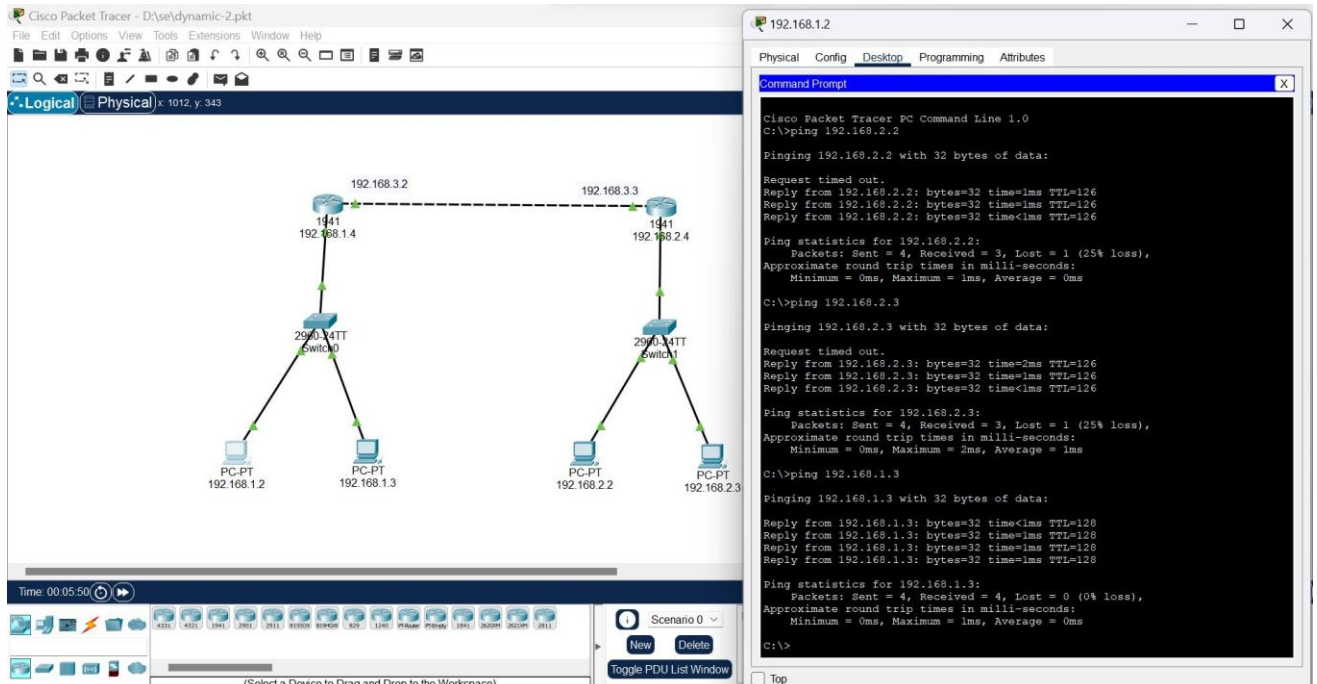
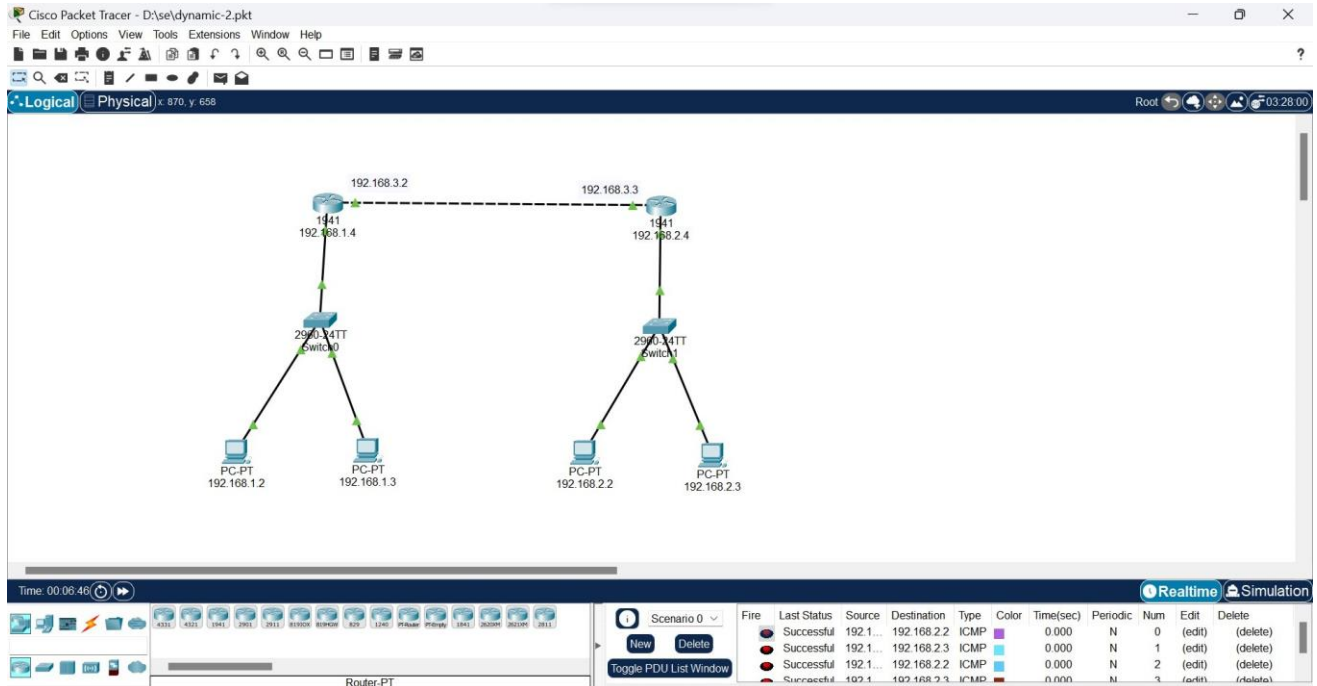
This screenshot shows the Cisco Packet Tracer interface with the same network diagram and the configuration window of a router (192.168.1.4). The configuration window displays the following settings:

- GLOBAL Settings:**
 - ROUTING:** Static
 - SWITCHING:** VLAN Database
 - INTERFACE:** GigabitEthernet0/0, GigabitEthernet0/1
- RIP Routing:**
 - Network Address:** 192.168.1.0, 192.168.3.0
- Equivalent IOS Commands:**

```

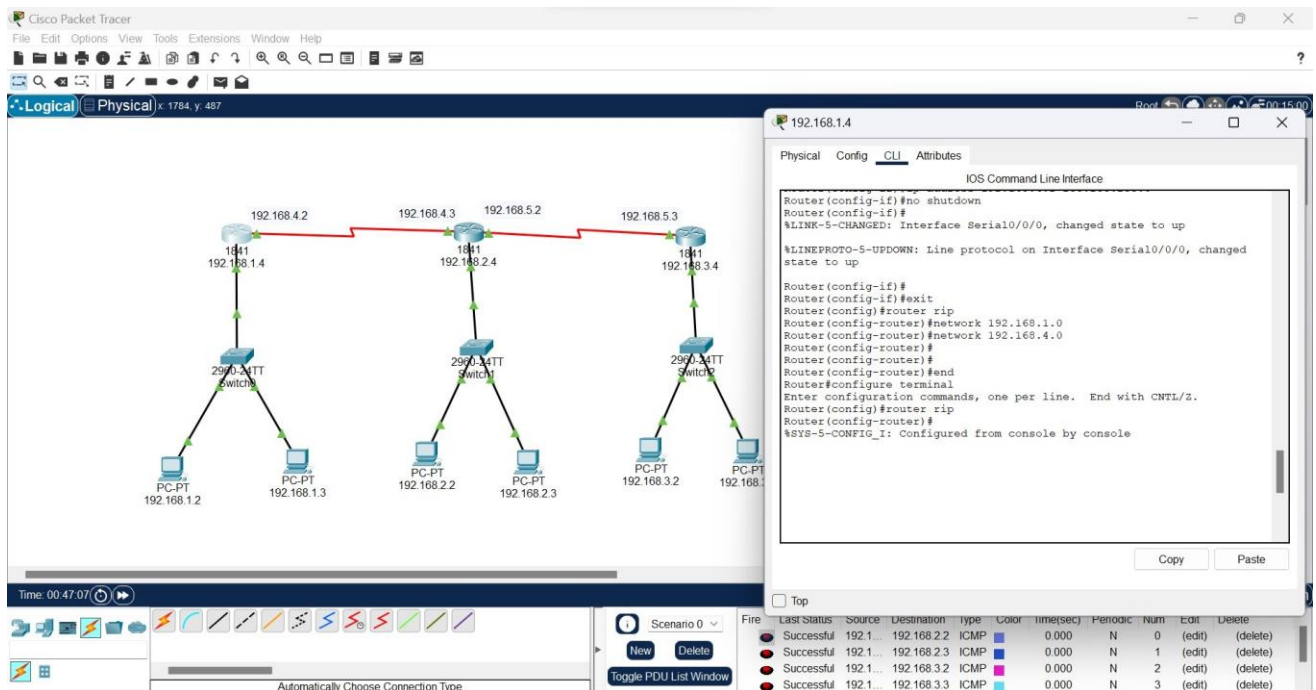
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#
Router(config)#router rip
Router(config-router)#
  
```

Date: 13 / 09 / 2024

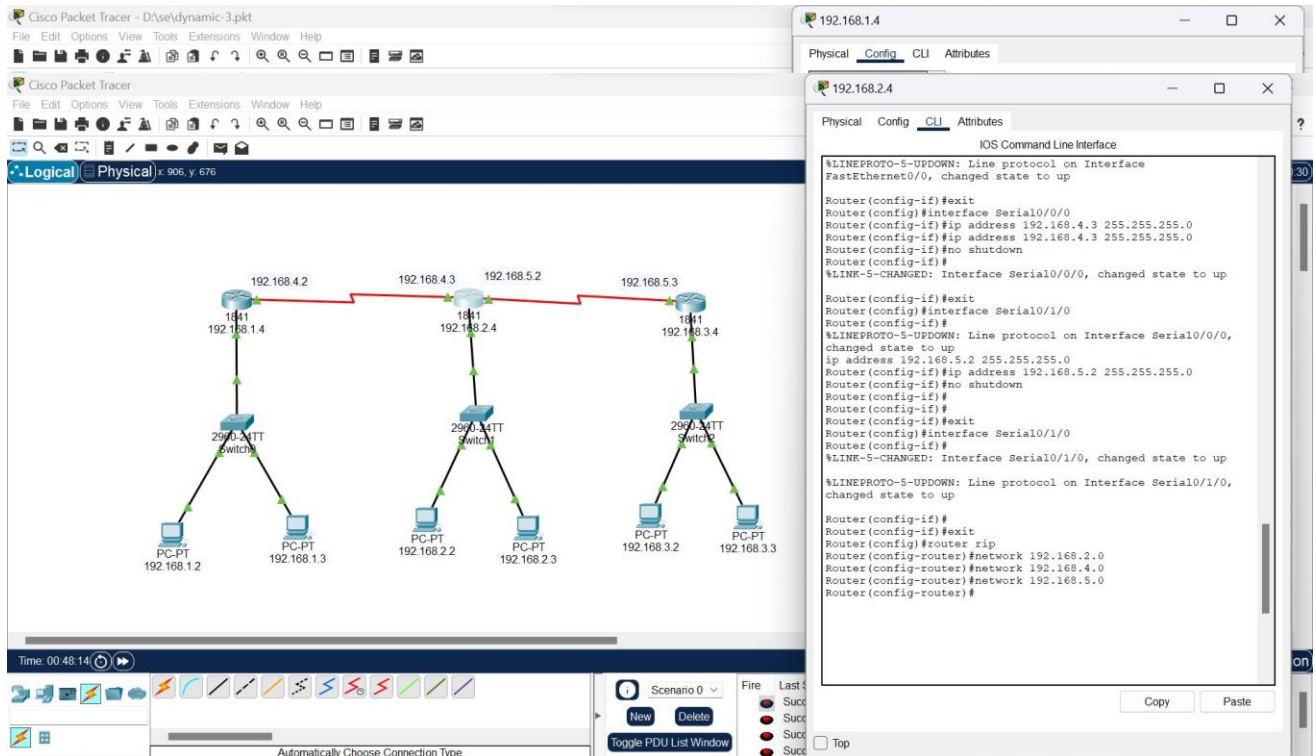


Date: 13 / 09 / 2024

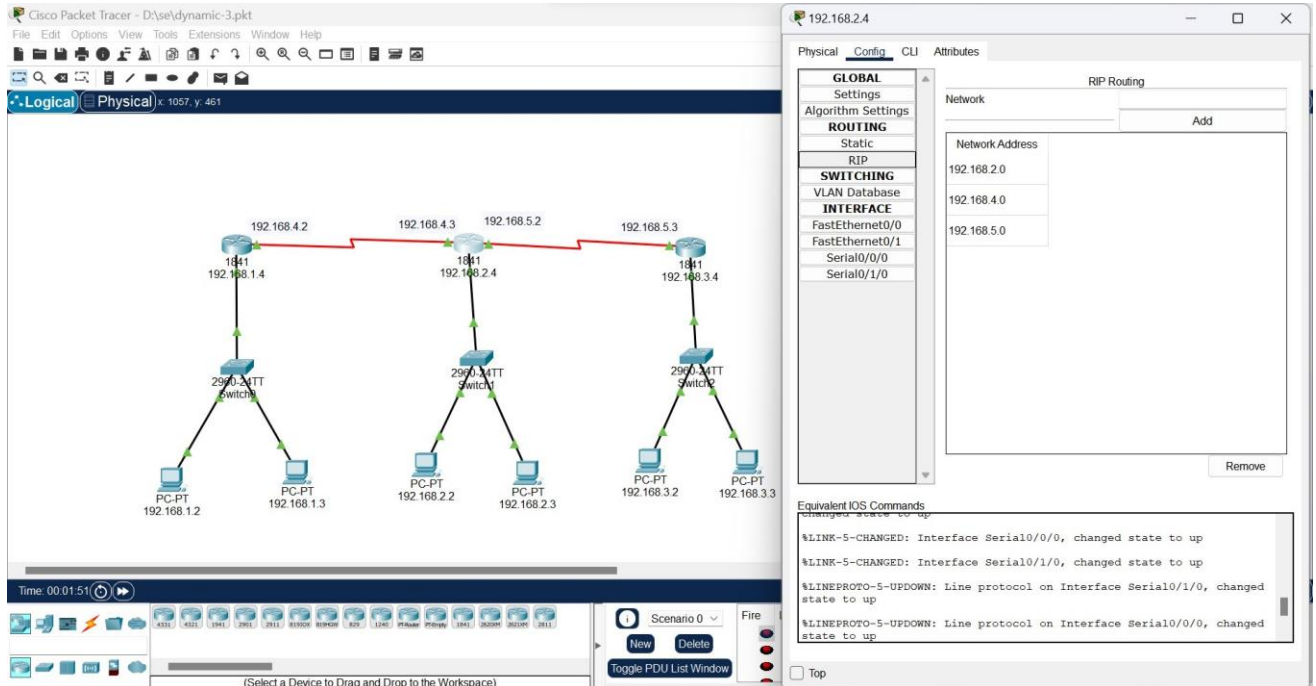
2. Connect the three different networks based on the calculated IP addresses and subnet using a packet tracer.



Date: 13 / 09 / 2024



Date: 13 / 09 / 2024



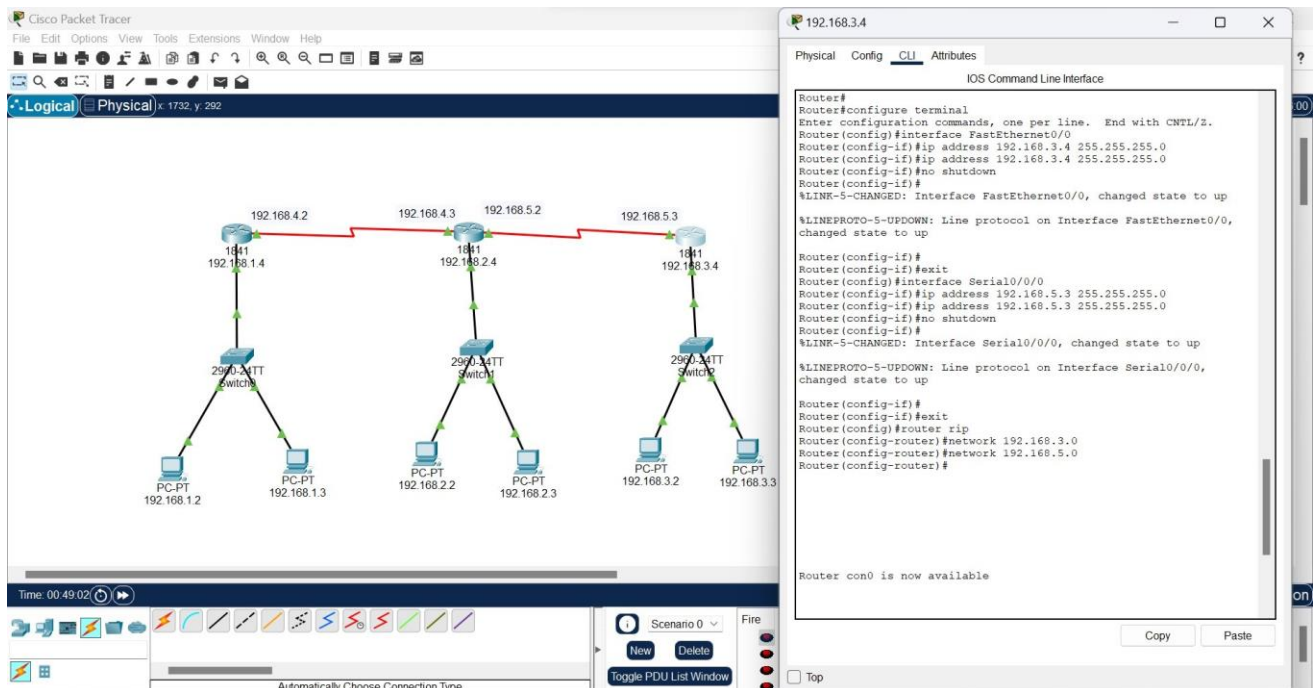
The screenshot shows a Cisco Packet Tracer workspace with a network diagram. Three routers (1841) are connected in a line. The first router has IP 192.168.1.4, the second 192.168.2.4, and the third 192.168.3.4. Each router is connected to two switches (2950), which are in turn connected to four PCs each. The PCs have IP addresses ranging from 192.168.1.2 to 192.168.3.3. The configuration window for the second router (192.168.2.4) is open, showing the 'Config' tab. The 'RIP Routing' section is active, and the 'Network' list contains the following addresses:

Network Address
192.168.2.0
192.168.4.0
192.168.5.0

The 'Equivalent IOS Commands' section shows the following commands:

```

changed state to up
%LINK-5-CHANGED: Interface Serial0/0/0, changed state to up
%LINK-5-CHANGED: Interface Serial0/1/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/1/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/0, changed state to up
  
```



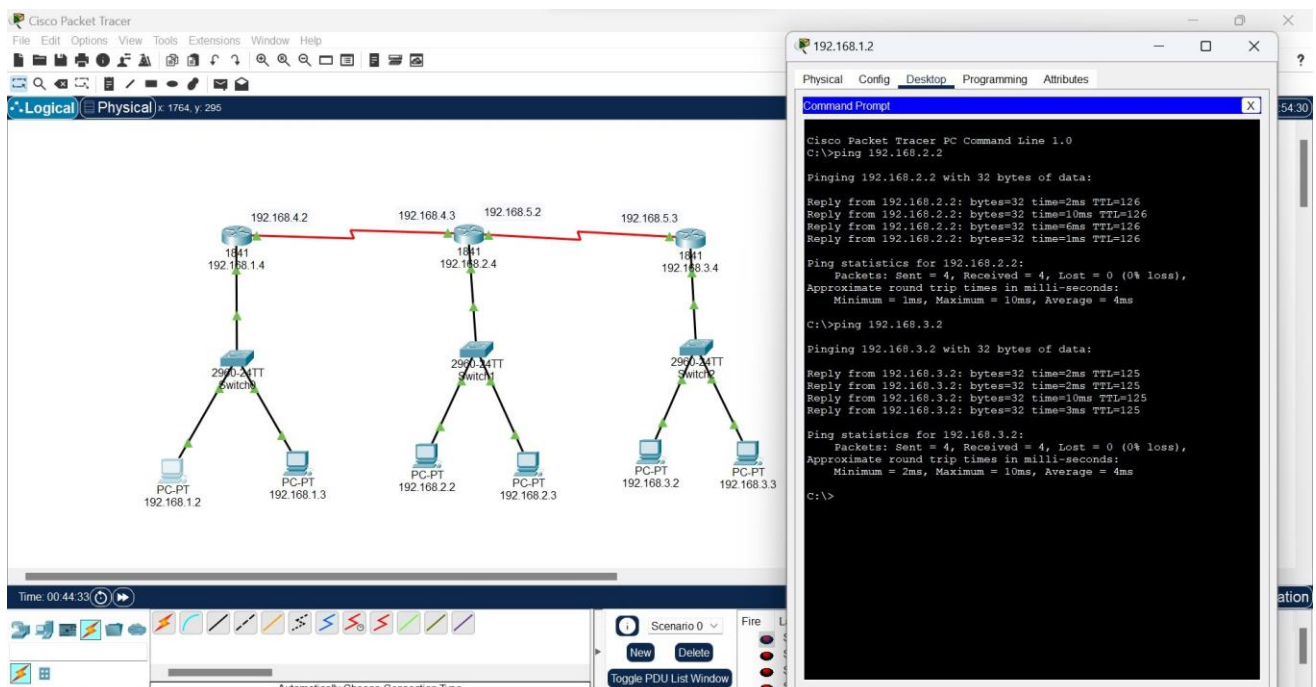
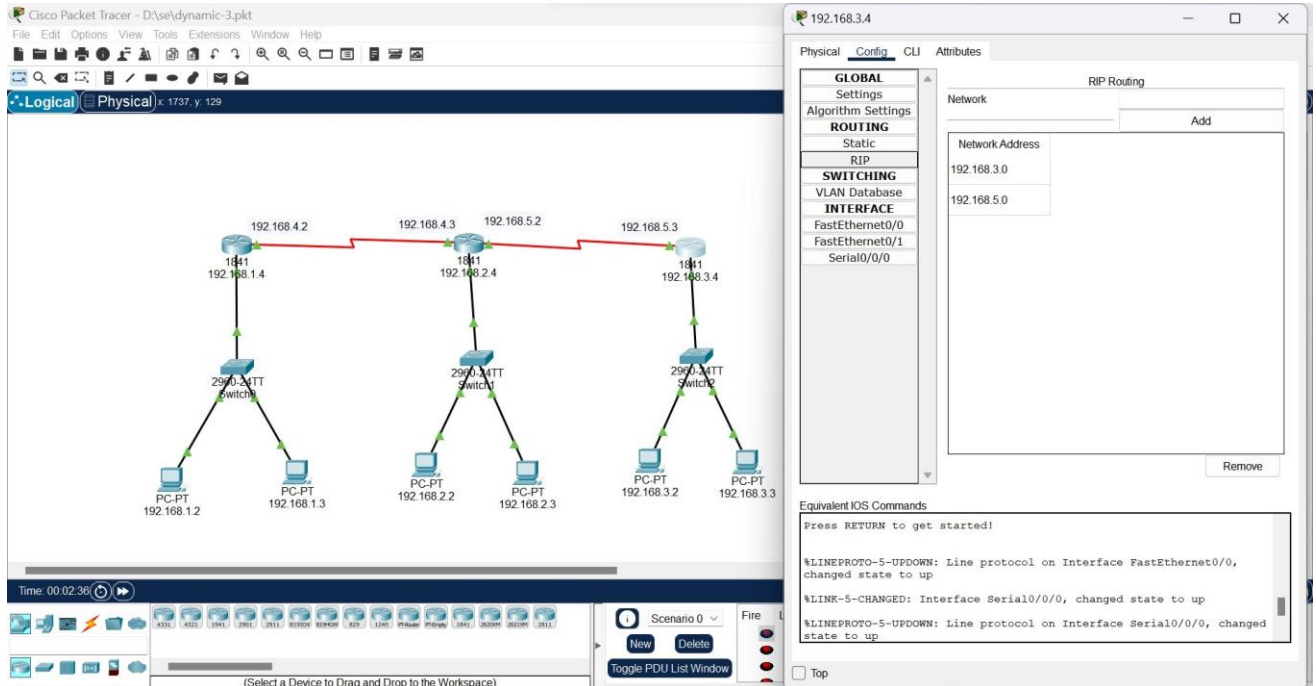
The screenshot shows the same network diagram as the previous one. The configuration window for the third router (192.168.3.4) is open, showing the 'Config' tab. The 'CLI' section is active, and the 'IOS Command Line Interface' shows the following commands:

```

Router#
Router(config)#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#ip address 192.168.3.4 255.255.255.0
Router(config-if)#ip address 192.168.3.4 255.255.255.0
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
Router(config-if)#
Router(config-if)#exit
Router(config)#interface Serial0/0/0
Router(config-if)#ip address 192.168.5.3 255.255.255.0
Router(config-if)#ip address 192.168.5.3 255.255.255.0
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface Serial0/0/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/0, changed state to up
Router(config-if)#
Router(config-if)#exit
Router(config)#router rip
Router(config-router)#network 192.168.3.0
Router(config-router)#network 192.168.5.0
Router(config-router)#
  
```

The status message at the bottom of the CLI window reads: "Router con0 is now available".

Date: 13 / 09 / 2024



Date: 13 / 09 / 2024

