CST 235 Network and System Administration

Getting Started with Packet Tracer

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1. Goal

Getting familiar with Packet Tracer.

2. Software: Packet Tracer

2.1 Packet Tracer

Cisco Packet Tracer is an innovative network simulation and visualization tool, which will help you practice your configuration skills and see the results from your desktop or mobile devices. You can use the Packet Tracer to:

- Sharpen your skills for a job interview
- Prepare for a certification exam (CCNA)
- Practice what you learn in networking courses
- Build your skills for Internet of Things jobs

2.2 Installation

Packet Tracer is only available for two operating systems: Windows or Linux. You need to register as a Cisco Network Academy students in order to download the Packet Tracer.

Step 1: Go to Cisco webpage: https://www.netacad.com/about-networking-academy/packet-tracer/

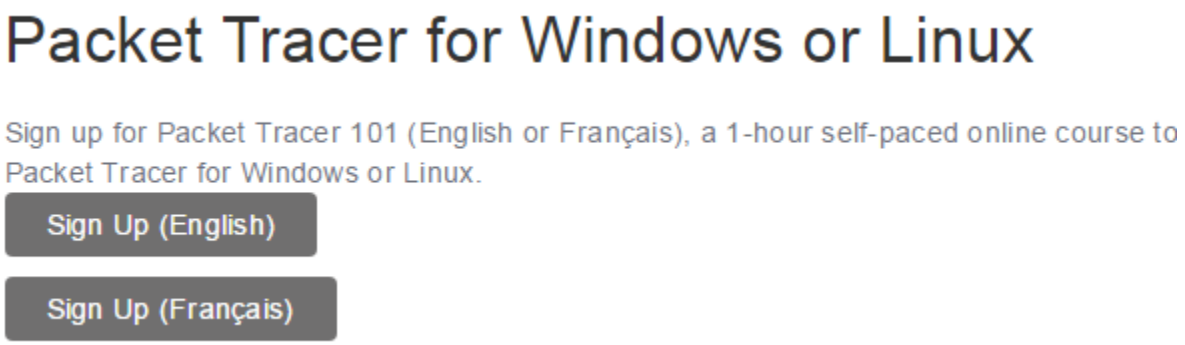
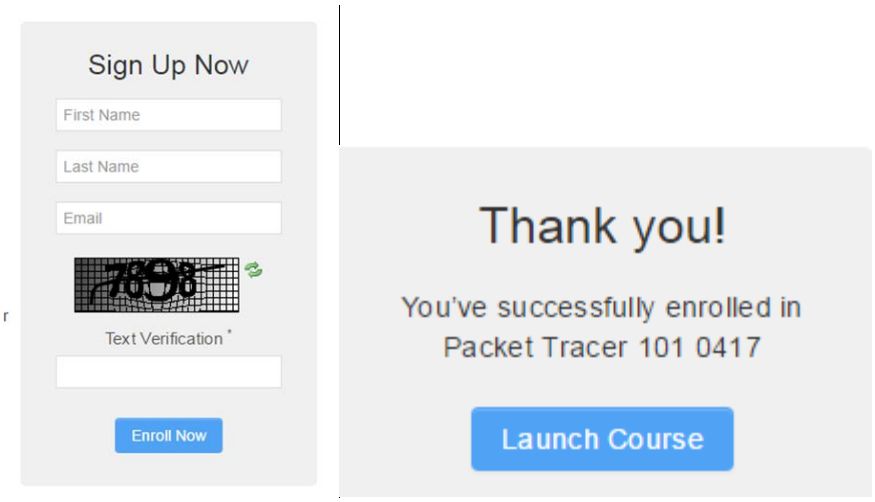


Figure 1. Packet Tracer for Windows or Linux

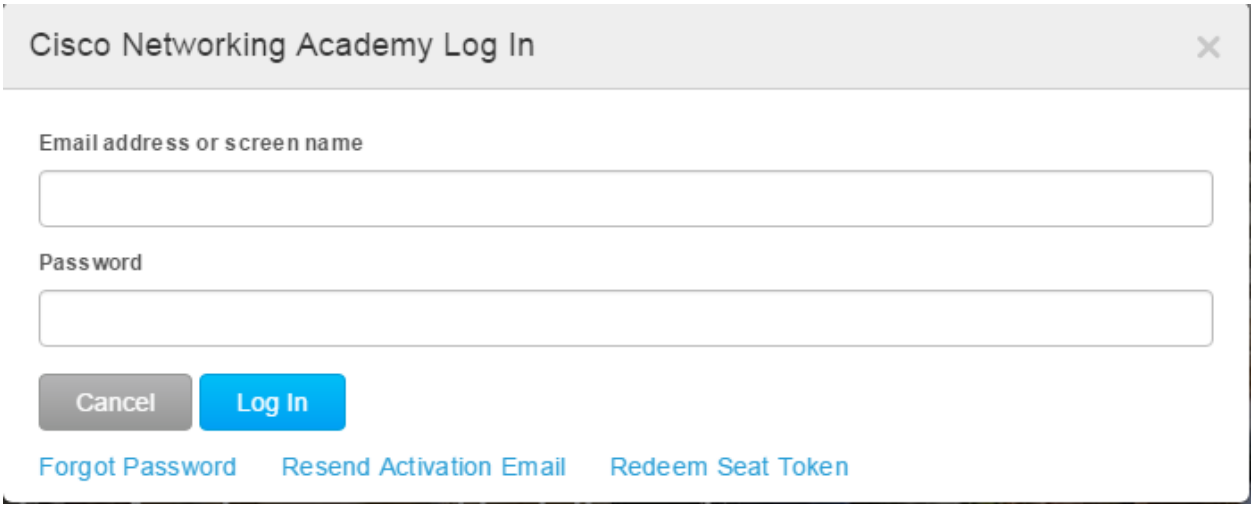
Step 2: Click Sign Up (English) if French is not your preferred language.

Then, you will see a sign up window on the right hand side that requires First Name, Last Name, Email, and a Text Verification code (4 digits).

After you successfully entered all fields, you will see the following window.



Step 3: click Launch Course, then you will see the following pop-up window



Step 4: Enter your email address with password, and then click Log in. You will see the following page

Get ready to learn how to make the most of Cisco Packet Tracer!

After you download Cisco Packet Tracer, return to the course to dive into the chapters and activities. Be sure to take the final quiz and test your skills. And don't forget to send your feedback in the final survey.

Launch the Course
Download Packet Tracer

- Chapter 1: User Interface Navigation
- Chapter 2: Working in Physical View
- Chapter 3: Completing a Packet Tracer Activity
- My First Packet Tracer Lab

After you finish, join us on Facebook , a global community of Networking Academy members share insights, tips, and resources about networking, certification, studies, and more.

Step 5: Download Packet Tracer and install it as instructed.

2.3 Get Started with Packet Tracer

I would recommend you to download Packet Tracer first and then Launch the Course. The Couse is a one hour self-paced course that gives you a tour on how to use packet tracer.

Read the first two chapters:

- Chapter 1: User Interface Navigation
- Chapter 2: Working in Physical View

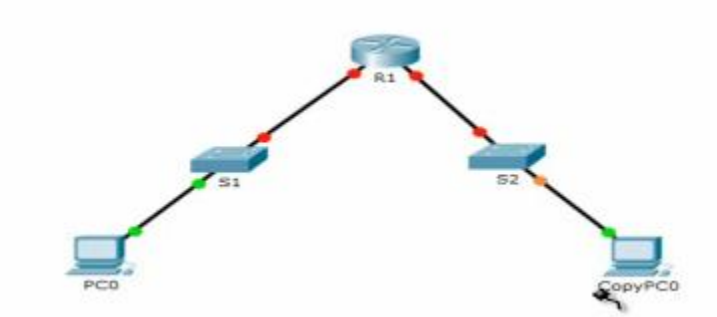
The third chapter, Completing a Packet Tracer Activity, will help you get familiar with Packet Tracer.

2.4 Test your Packet Tracer with a small experiment

2.4.1 Goal

The goal for this small experiment is to create a network with one router, two switches, and two PCs. Each PC sits behind one switch, correspondingly. The Router connected the switches together. Eventually, those two PCs should be able to send and receive messages to and from each other.

2.4.2 Topology



2.4.2 Procedures

Step 1: choose a 1941 Router, one 2960 switch, and two PCs

Step 2: select the switch and copy one

Step 3: rename the switch display name to S1 and S2. You can do so by

(1) click the display name of the switch; or

(2) click the switch, and then go to the Config tab, change the Display Name)

Step 4: change the Hostname to S1 and S2. You can do so by

(1) click the switch and go to Config tab, change Hostname to S1 and then Save the change. At the bottom part there is a window called “Equivalent IOS Commands”, which show you how to change the host name in the command line. Please use those commands for the other swtich.

(2) use command to change host name. Click the switch, go to CLI tab, click Enter in the IOS Command Line Interface window. Then, typing in following commands:

```
Switch>enable
Switch#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#hostname S2
S2(config)#
```

Step 5: Change the display name of the router to R1

Step 6: Configure the first PC. Click the PC and then go to Config tab

Under the Global setting, enter the Gateway IP address 192.168.1.1

Go to the FastEthernet0 (the interface), enter the IP address 192.168.1.2 and use the default mask: 255.255.255.0

Step 7: Configure the second PC. Click the PC and then go to the Desktop tab, click IP Configuration

Enter IP address: 192.168.2.2, use default mask 255.255.255.0

Default Gateway: 192.168.2.1

Step 8: Connect PC0 to S1

Click Connections, then choose Copper Straight-Through

Connect PC0 FastEthernet0 to S1 FastEthernet 0/1

Step 9: Connect switches and Router (S1 and R1, R1 and S2)

Click Connections, then choose Copper Straight-Through

Use S1 GigbitEthernet 0/1 to connect R1 GigbitEthernet 0/0

Use R1 GigbitEthernet 0/1 to connect S2 GigbitEthernet 0/2

Step 10: Connect PC1 to S2

Click Connections, then choose Copper Straight-Through

Connect PC1 FastEthernet0 to S2 FastEthernet 0/1

Step 11: Go to the router, CLI tab

Change hostname to R1 by using commands

```
Router>ena
Router#conf t
Enter configuration commands, one per line.  End with
CNTL/Z.
Router(config)#host
Router(config)#hostname R1
```

Configure the IP address for GigbitEthernet 0/0 to 192.168.1.1 by using following commands:

```
R1(config)#int g0/0
R1(config-if)#ip address 192.168.1.1 255.255.255.0
R1(config-if)#no shutdown
```

Configure the IP address for GigbitEthernet 0.1 to 192.168.2.1 by using similar setting

Step 12 (FINAL STEP): Checking whether the network is established correctly or not. If the network is successfully built up, PC0 and send and receive messages to and from PC2. ping is a command to test whether to end devices can talk to each other or not. Therefore,

go back to PC0, go to the Desktop tab, and click Command Prompt

enter ping 192.168.2.2

if you get following figure, everything WORKS!

```
PC>ping 192.168.2.2

Pinging 192.168.2.2 with 32 bytes of data:

Request timed out.
Reply from 192.168.2.2: bytes=32 time=0ms TTL=127
Reply from 192.168.2.2: bytes=32 time=0ms TTL=127
Reply from 192.168.2.2: bytes=32 time=0ms TTL=127

Ping statistics for 192.168.2.2:
    Packets: Sent = 4, Received = 3, Lost = 1 (25%
loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

A little bit explanation, the first “request timed out” is due to the resolving of ARP. If you typing in the command ping 192.168.2.2 for the second time, no “request timed out” will be displayed, since ARP is already resolved.

3. Lab

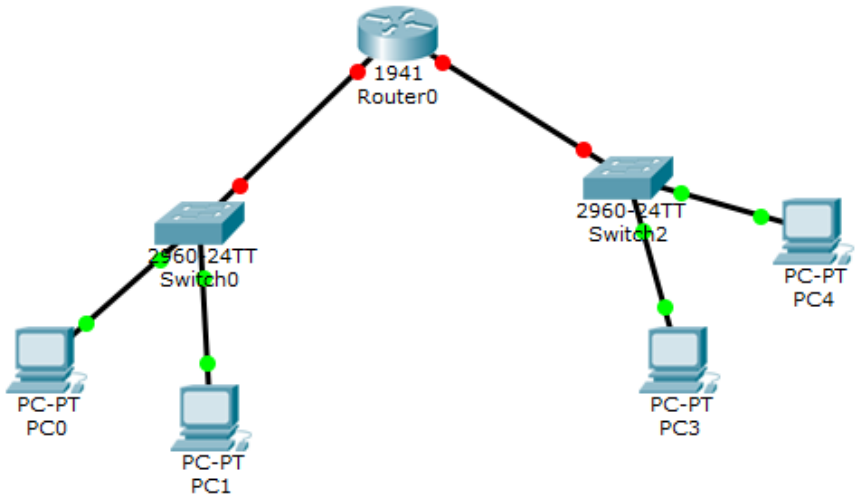
Step 1: Build up a topology with one router, two switches, four PCs. See figure below.

PC0 FastEthernet0 connect Switch0 FastEthernet 0/1

PC1 FastEthernet0 connect to Switch0 FastEthernet 0/2

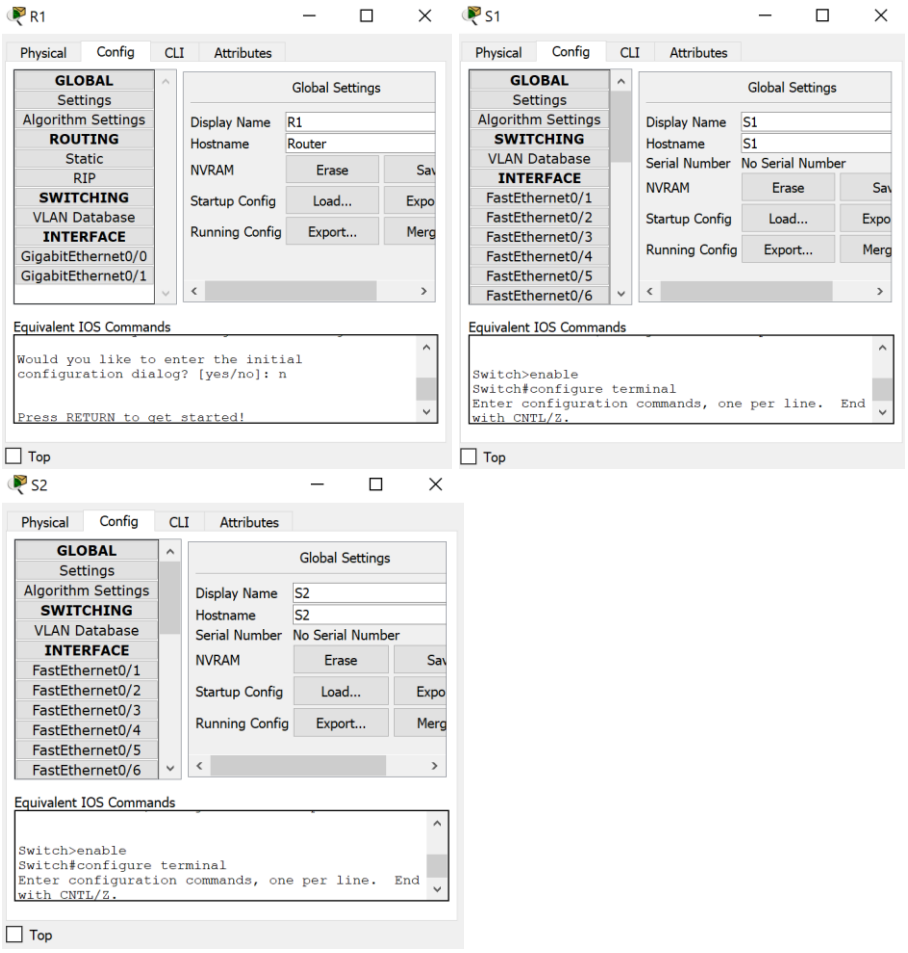
PC2 FastEthernet0 connect Switch1 FastEthernet 0/1

PC3 FastEthernet0 connect to Switch1 FastEthernet 0/2

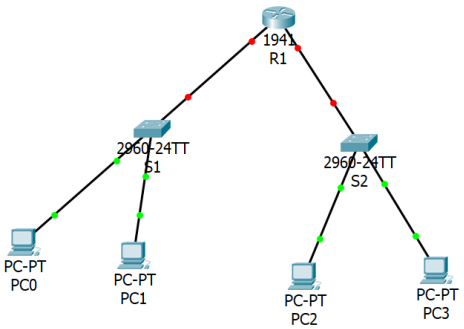


Step 2. Name Router0 to R1, Switch0 to S1 (both display and host name), Switch2 to S2 (both display and host name).

Show the configuration in Global setting for the router and two switches.



Show the topology with correct display name



Step 3: Configure IP addresses and default gateway

PC0:

IP address: 192.168.1.2, mask: 255.255.255.0

Default gateway: 192.168.1.1

PC1:

IP address: 192.168.1.3, mask: 255.255.255.0

Default gateway: 192.168.2.1

PC3:

IP address: 192.168.2.2, mask: 255.255.255.0

Default gateway: 192.168.3.1

PC4:

IP address: 192.168.2.3, mask: 255.255.255.0

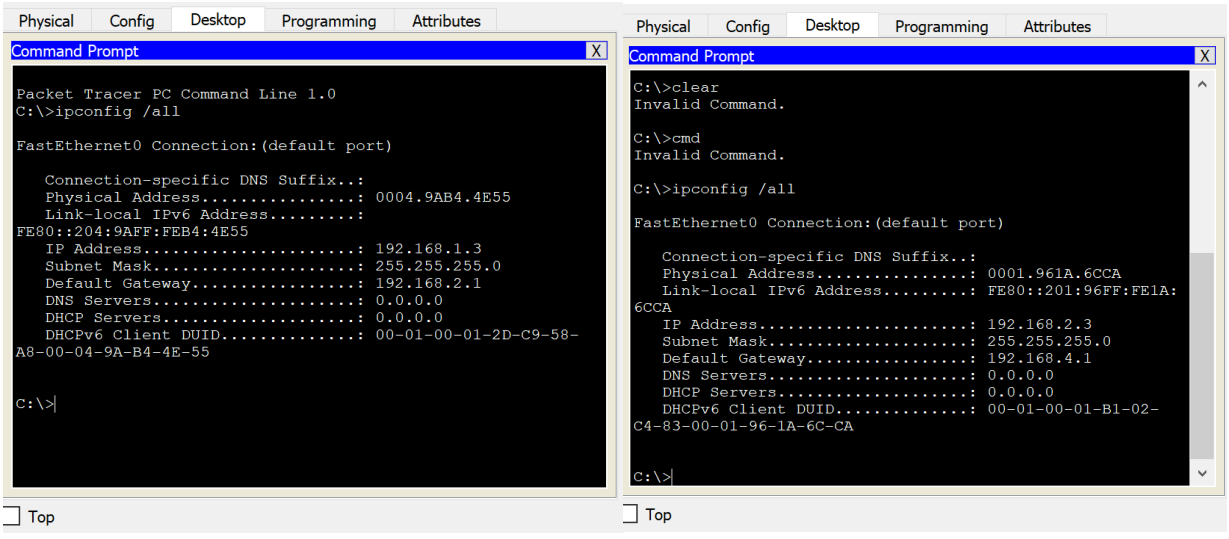
Default gateway: 192.168.4.1

R1:

IP address on GigbitEthernet 0/0: 192.168.1.1

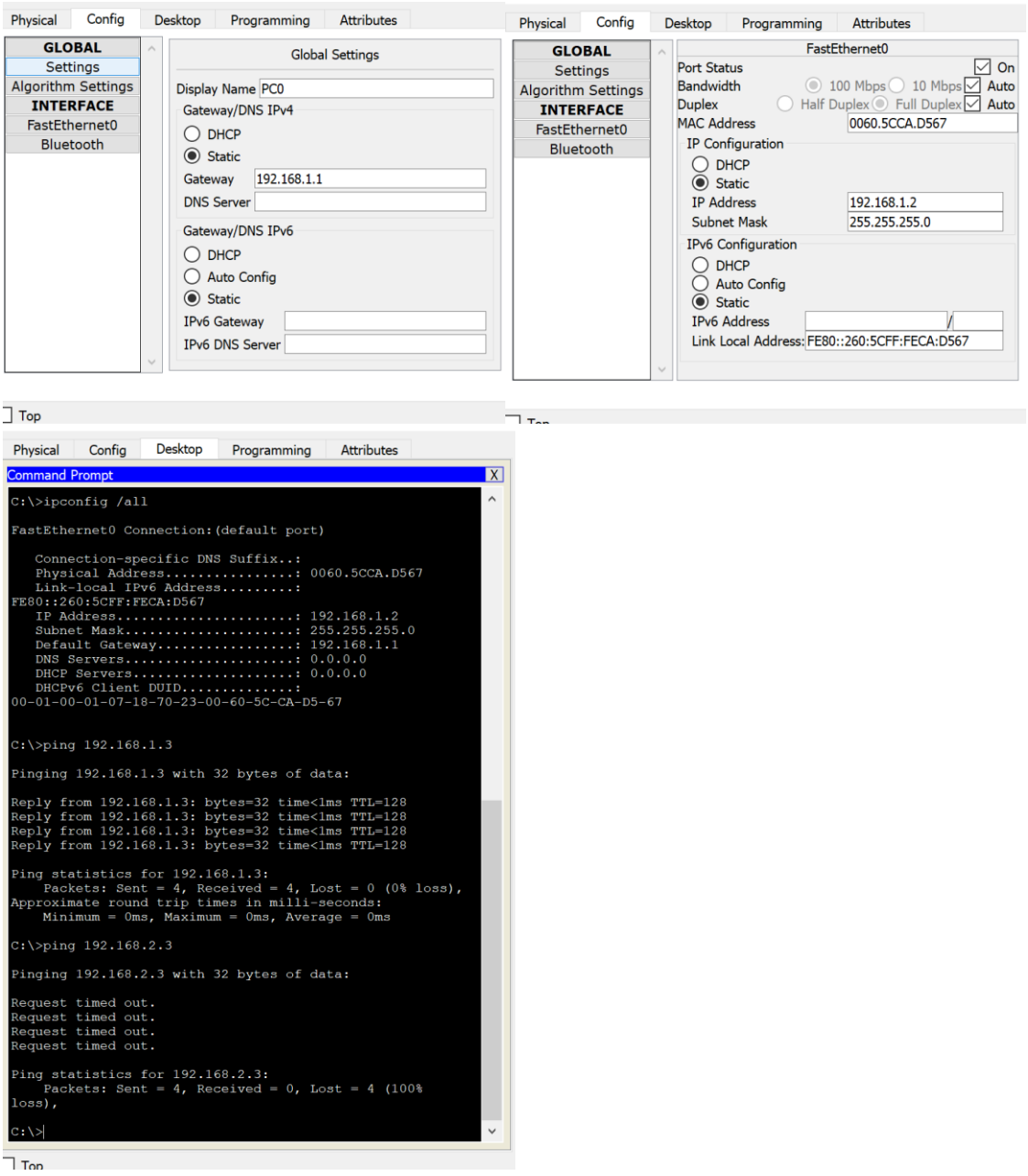
IP address on GigbitEthernet 0/1: 192.168.2.1

Show the ip address of PC1 and PC4 by using ipconfig /all command in Command Prompt

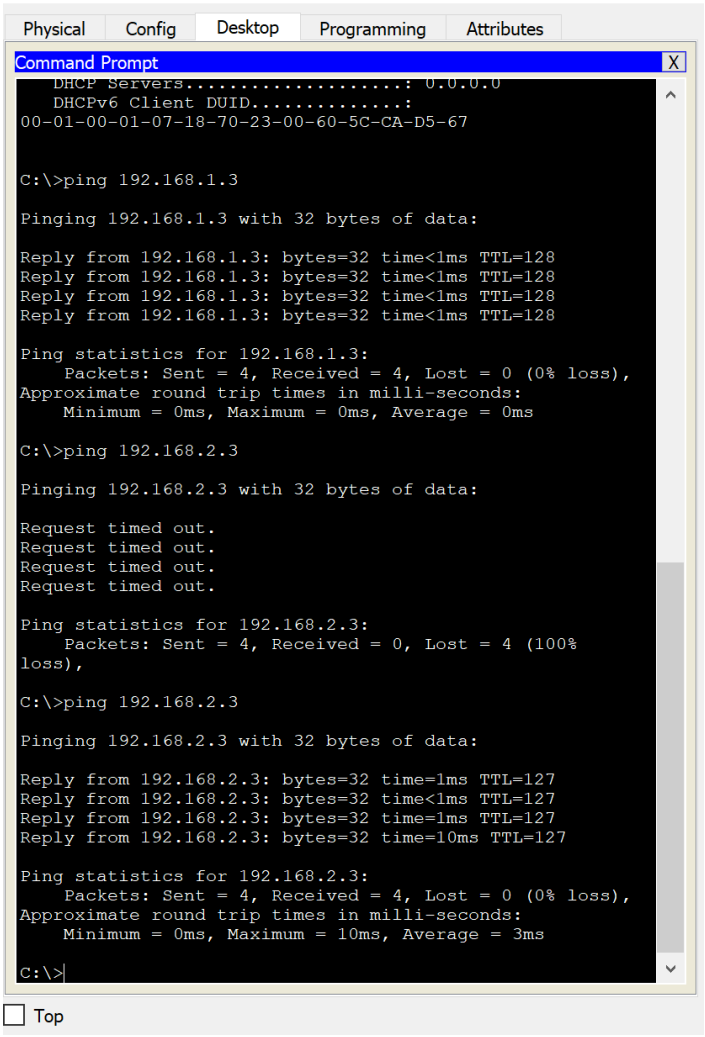


Step 4: Verification.

Show PC0 and send and receive messages from PC1 and PC4.



At this point I changed the default gateway for PC3/4 to 192.168.2.1 to allow for communication.


Physical
Config
Desktop
Programming
Attributes
Command Prompt
X
DHCP Servers.....: 0.0.0.0
DHCPv6 Client DUID.....:
00-01-00-01-07-18-70-23-00-60-5C-CA-D5-67
C:\>ping 192.168.1.3
Pinging 192.168.1.3 with 32 bytes of data:
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Ping statistics for 192.168.1.3:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
C:\>ping 192.168.2.3
Pinging 192.168.2.3 with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.
Request timed out.
Ping statistics for 192.168.2.3:
Packets: Sent = 4, Received = 0, Lost = 4 (100%
loss),
C:\>ping 192.168.2.3
Pinging 192.168.2.3 with 32 bytes of data:
Reply from 192.168.2.3: bytes=32 time=1ms TTL=127
Reply from 192.168.2.3: bytes=32 time<1ms TTL=127
Reply from 192.168.2.3: bytes=32 time=1ms TTL=127
Reply from 192.168.2.3: bytes=32 time=10ms TTL=127
Ping statistics for 192.168.2.3:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 10ms, Average = 3ms
C:\>
Top