

Creating a Simple Network With Packet Tracer

By:

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Objectives

In this activity, you will build a simple network in Packet Tracer in the Logical Workspace.

Part 1: Build a Simple Network

Part 2: Configure the End Devices and Verify Connectivity

Instructions

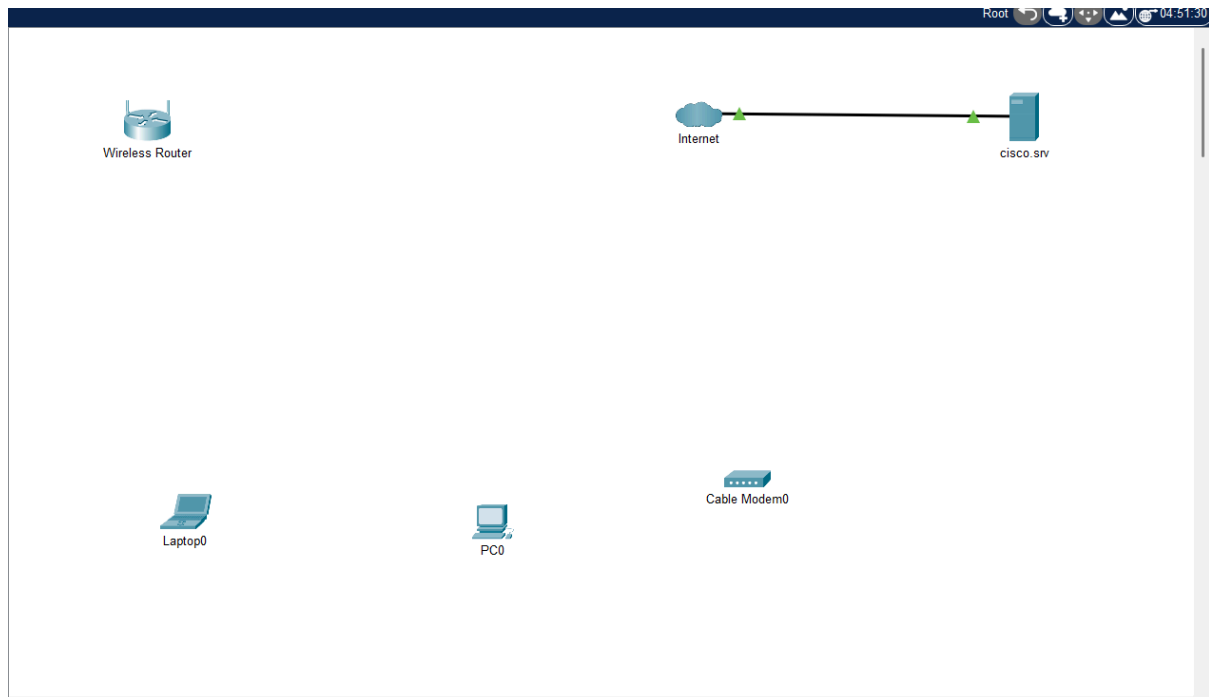
Part 1: Build a Simple Network

In this part, you will build a simple network by deploying and connecting the network devices in the Logical Workspace.

Step 1: Add network devices to the workspace.

In this step, you will add a PC, a laptop, and a cable modem to the Logical Workspace.

A cable modem is a hardware device that allows communications with an Internet Service Provider (ISP). The coaxial cable from the ISP is connected to the cable modem, and an Ethernet cable from the local network is also connected. The cable modem converts the coaxial connection to an Ethernet connection.



Using the Device-Type Selection Box, add the following devices to the workspace. The category and sub-category associated with the device are listed below:

= **PC: End Devices > End Devices > PC**

= **Laptop: End Devices > End Devices > Laptop**

= **Cable Modem: Network Devices > WAN Emulation > Cable Modem**

Step 2: Change the display names of the network devices.

a. To change the display names of the network devices, click the device icon in the Logical Workspace.

b. Click the Config tab in the device configuration window.

c. Enter the new name of the newly added device into the Display Name field: PC, Laptop, and Cable Modem.

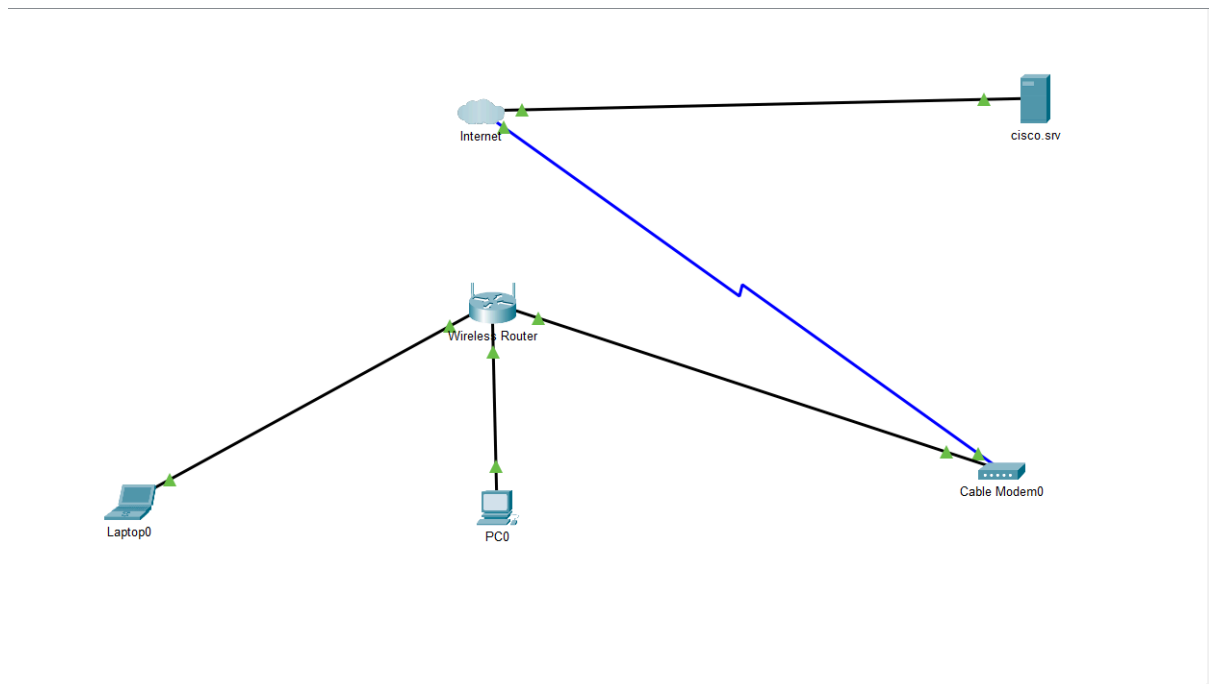
Step 3: Add the physical cabling between devices on the workspace.

Using the Device-Type Selection Box, add the physical cabling between devices on the workspace.

a. The PC will require a copper straight-through cable to connect to the wireless router. Using the Device-Type Selection Box, click Connections (represented by a lightning bolt icon). Select the copper straight-through cable in the Device-Specific Selection Box and attach it to the Fast Ethernet 0 interface of the PC and the Ethernet 1 interface of the wireless router.

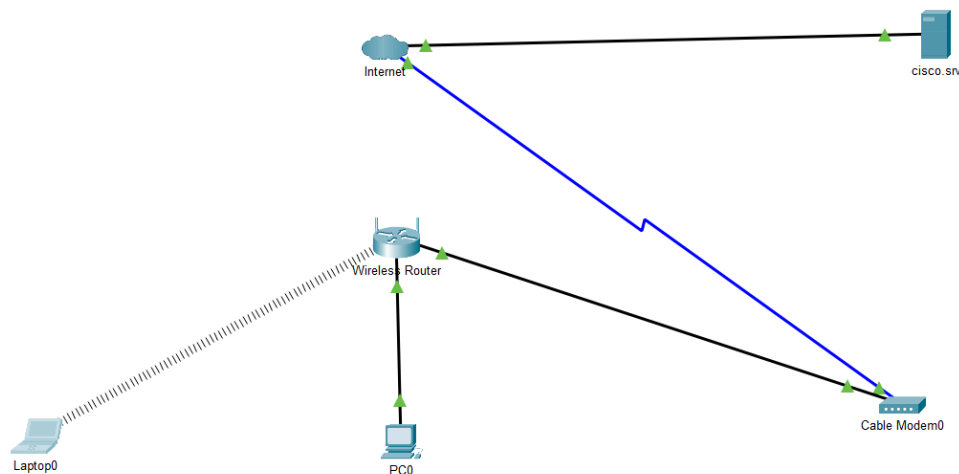
b. The wireless router will need a copper straight-through cable to connect to the cable modem. Select the copper straight-through cable in the Device-Specific Selection Box and attach it to the internet interface of the wireless router and the Port 1 interface of the cable modem.

c. The cable modem will need a Coaxial cable to connect to the internet cloud. Select the Coaxial cable in the Device-Specific Selection Box and attach it to the Port 0 interface of the cable modem and the Coaxial 7 interface of the internet cloud.



Part 2: Configure the End Devices and Verify Connectivity

In this part, you will connect a PC and a laptop to the Wireless router. The PC will be connected to the network using an Ethernet cable. For the Laptop, you will replace the wired Ethernet network interface card (NIC) with a wireless NIC and connect the Laptop to the router wirelessly.



After both end devices are connected to the network, you will verify connectivity to Cisco.srv. The PC and the Laptop will each be assigned an IP (Internet Protocol) address. The Internet Protocol is a set of rules for routing and addressing data on the Internet. The IP addresses are used to identify the devices on a network and allow the devices to connect and transfer data on a network.

Step 1: Configure the PC.

You will configure the PC for the wired network in this step.

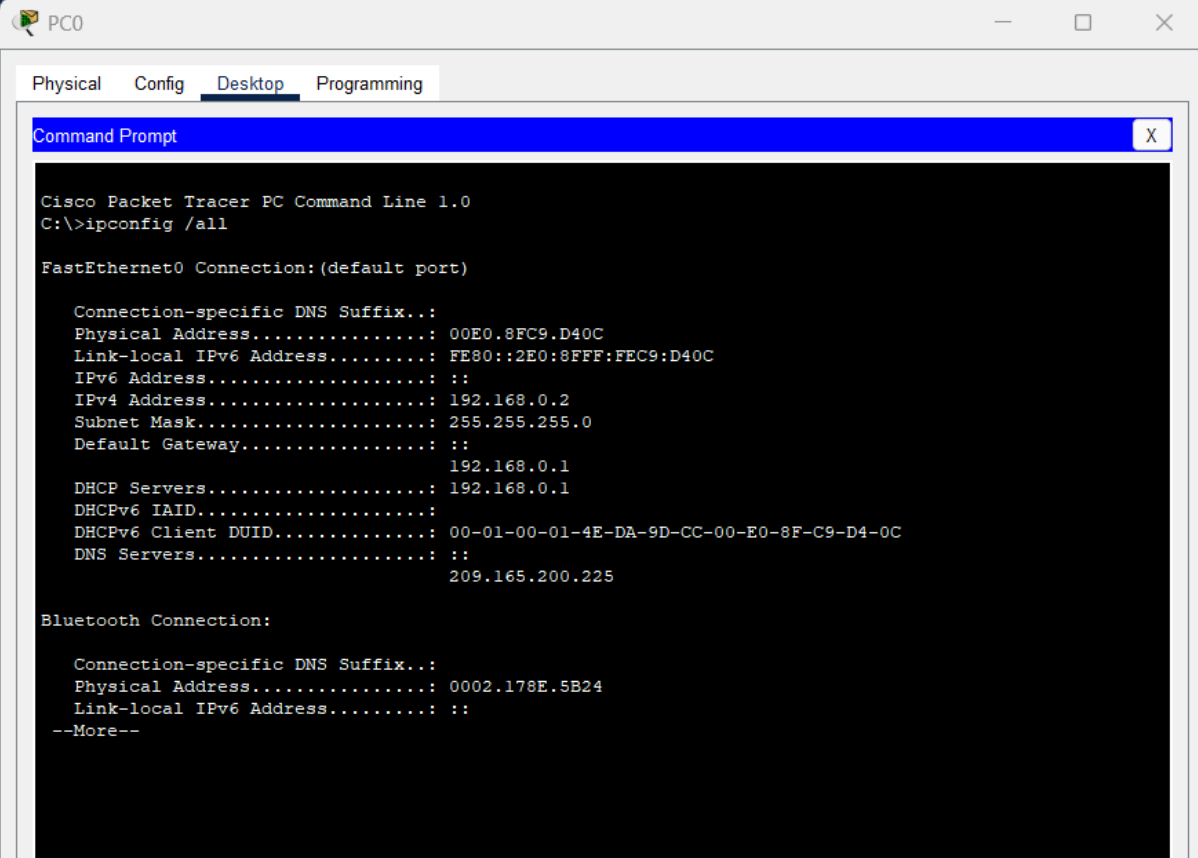
- a. Click the PC. In the Desktop tab, navigate to IP Configuration to verify that DHCP is enabled and the PC has received an IP address.

Select DHCP for the IP Configuration heading if you do not see an IP address for the IPv4 Address field. Observe the process as the PC is receiving an IP address from the DHCP server.

DHCP stands for **Dynamic Host Configuration Protocol**. This protocol assigns IP addresses to devices dynamically. In this simple network, the Wireless Router is configured to assign IP addresses to devices that request IP addresses. If DHCP is disabled, you will need to assign an IP address and configure all the necessary information to communicate with other devices on the network and the internet.

- b. Close IP Configuration. In the Desktop tab, click Command Prompt.

- c. At the prompt, enter `ipconfig /all` to review the IPv4 addressing information from the DHCP server. The PC should have received an IPv4 address in the 192.168.0.x Range.



```
PC0
Physical Config Desktop Programming
Command Prompt X
Cisco Packet Tracer PC Command Line 1.0
C:\>ipconfig /all

FastEthernet0 Connection:(default port)

Connection-specific DNS Suffix.:
Physical Address.....: 00E0.8FC9.D40C
Link-local IPv6 Address.....: FE80::2E0:8FFF:FEC9:D40C
IPv6 Address.....: ::
IPv4 Address.....: 192.168.0.2
Subnet Mask.....: 255.255.255.0
Default Gateway.....: ::
                        192.168.0.1
DHCP Servers.....: 192.168.0.1
DHCPv6 IAID.....:
DHCPv6 Client DUID.....: 00-01-00-01-4E-DA-9D-CC-00-E0-8F-C9-D4-0C
DNS Servers.....: ::
                        209.165.200.225

Bluetooth Connection:

Connection-specific DNS Suffix.:
Physical Address.....: 0002.178E.5B24
Link-local IPv6 Address.....: ::
--More--
```

Note: There are two types of IP addresses: IPv4 and IPv6. An IPv4 (Internet Protocol Version 4) address is a string of numbers in the form of x.x.x.x as you have been using in this lab. As the internet grew, the need for more IP addresses became necessary. So IPv6 (Internet Protocol Version 6) was introduced in the late 1990s to address the limitations of IPv4. The details of IPv6 addressing are beyond the scope of this activity.

- d. Test connectivity to the Cisco.srv from the PC. From the command prompt, issue the command `ping cisco.srv`. It may take a few seconds for the ping to return. Four replies should be received.

```
C:\>ping cisco.srv

Pinging 209.165.200.225 with 32 bytes of data:

Reply from 209.165.200.225: bytes=32 time=1ms TTL=127
Reply from 209.165.200.225: bytes=32 time=1ms TTL=127
Reply from 209.165.200.225: bytes=32 time=2ms TTL=127
Reply from 209.165.200.225: bytes=32 time=1ms TTL=127

Ping statistics for 209.165.200.225:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 2ms, Average = 1ms
```

Step 2: Configure the Laptop.

In this step, you will configure the Laptop to access the wireless network.

- a. Click Laptop, and select the Physical tab.
- b. In the Physical tab, you will need to remove the Ethernet copper module and replace it with the Wireless WPC300N module.
 - 1) Power off the Laptop by clicking the power button on the side of the laptop.
 - 2) Remove the currently installed Ethernet copper module by clicking on the module on the side of the laptop and dragging it to the MODULES pane on the left of the laptop window.



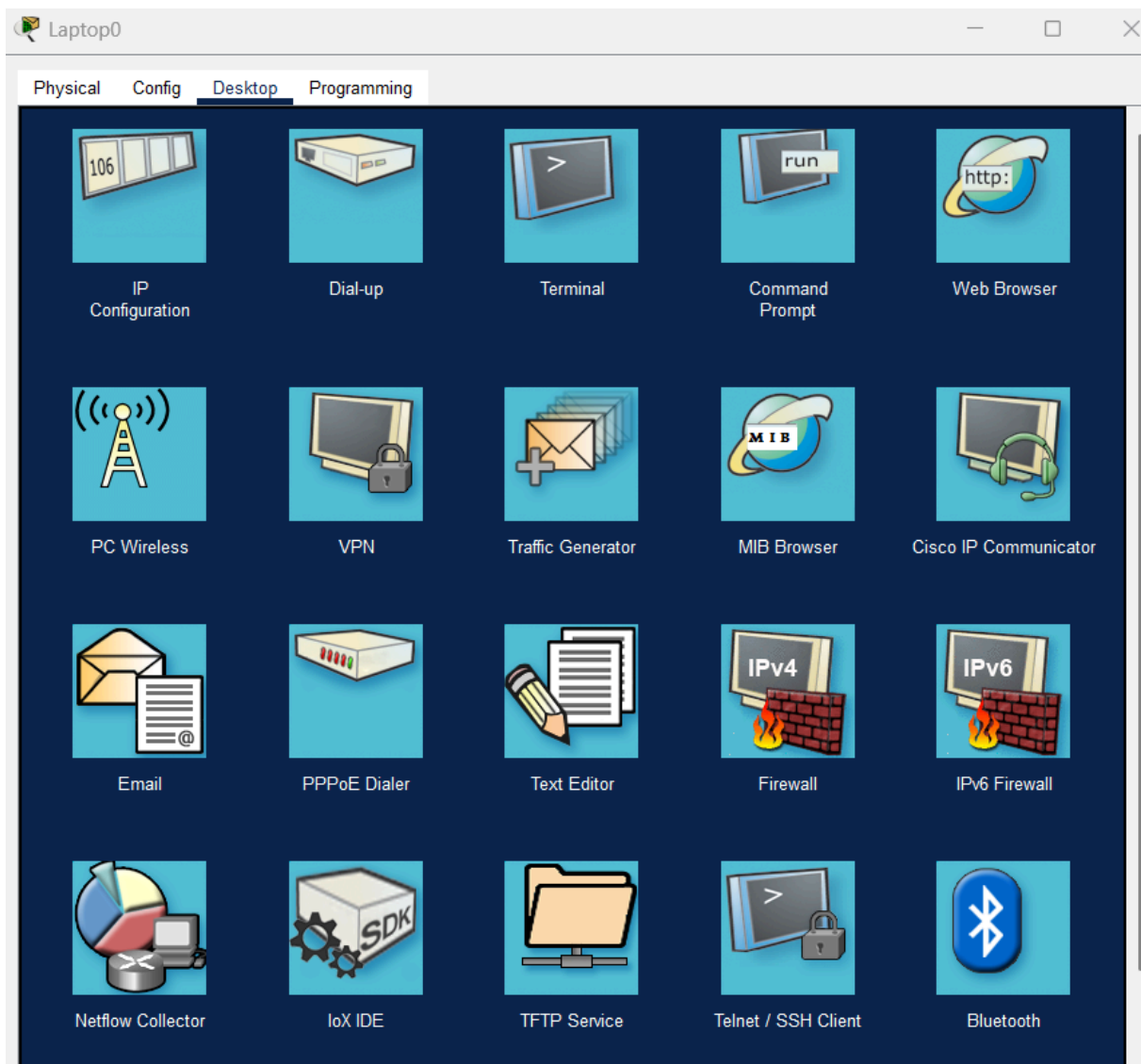
- 3) Install the wireless WPC300N module by clicking it in the MODULES pane and dragging it to the empty module port on the side of the Laptop.



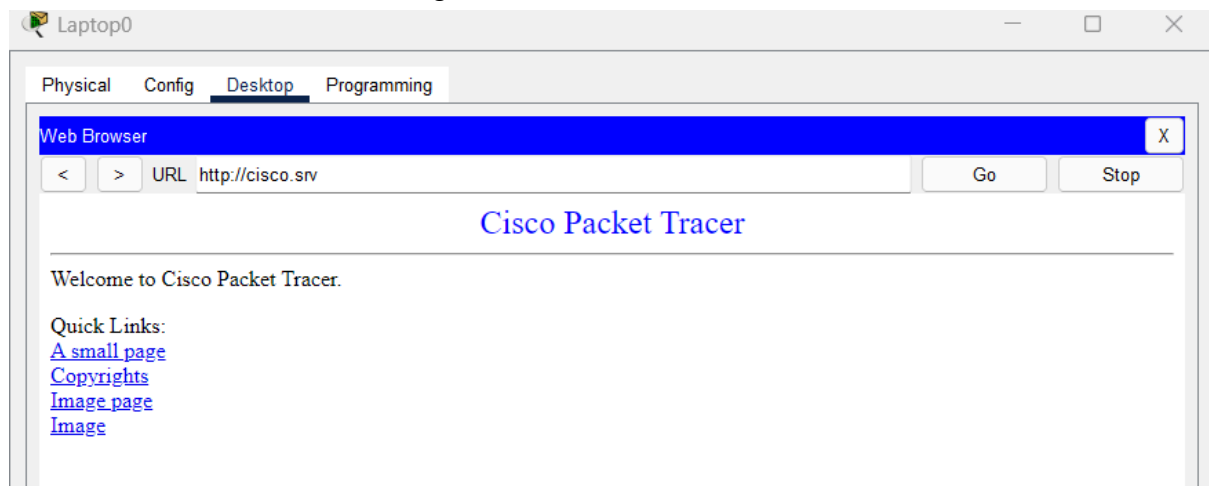
- 4) Power on the Laptop by clicking the Laptop power button again.
- c. With the wireless module installed, connect the Laptop to the wireless network. Click the Desktop tab and select the PC Wireless.
- d. Select the Connect tab. After a slight delay, the wireless network HomeNetwork will be visible in the list of wireless networks. Click Refresh if necessary to see the list of available networks. Select the Home Network. Click Connect.



e. Close PC Wireless. Select Web Browser in the Desktop tab.



f. In the Web Browser, navigate to **cisco.srv**.



Conclusion Summary

This Packet Tracer activity provided hands-on experience in designing and configuring a basic network. By completing the steps, I successfully set up end devices, connected them through appropriate networking hardware, and assigned IP addresses to ensure proper communication. I verified connectivity using the **ping** command and applied basic troubleshooting techniques when issues arose.

Through this exercise, I reinforced essential networking concepts such as **IP addressing, device interfacing, and network troubleshooting**. This foundational knowledge is crucial for understanding more advanced networking tasks and real-world configurations.

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