

Grace Stewart

Joseph Del Rosario

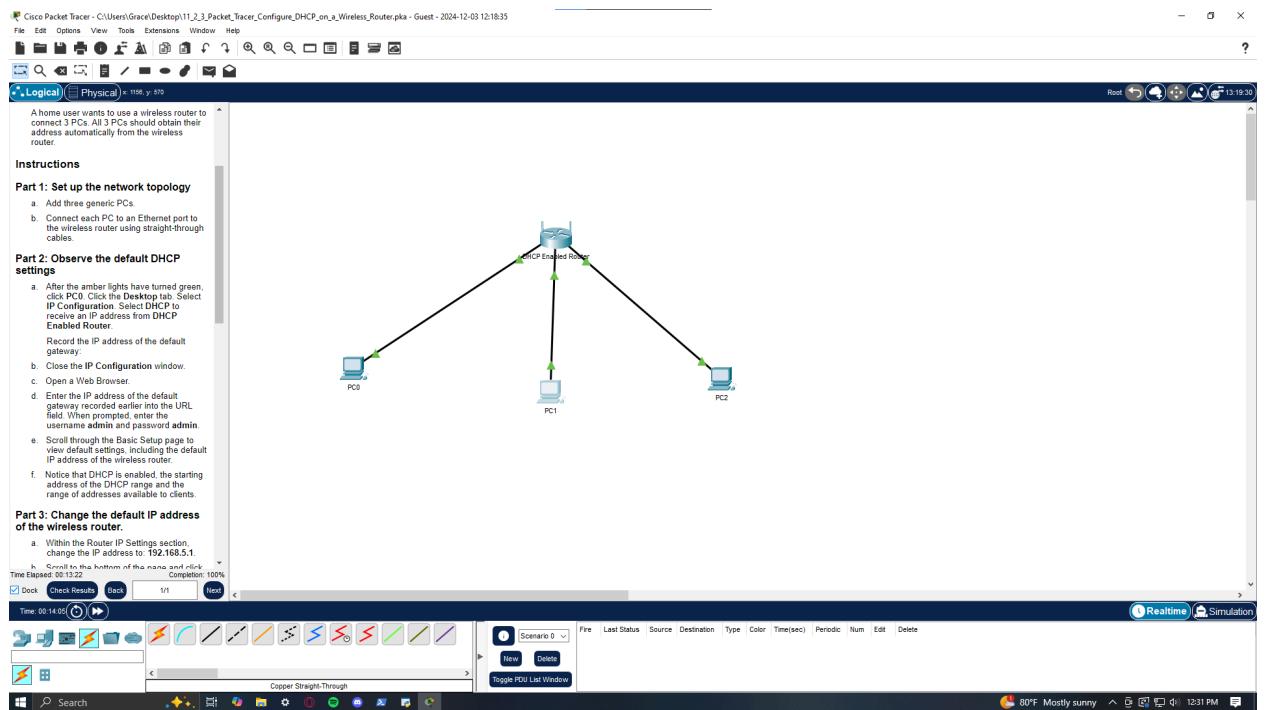
CS300

3 December 2024

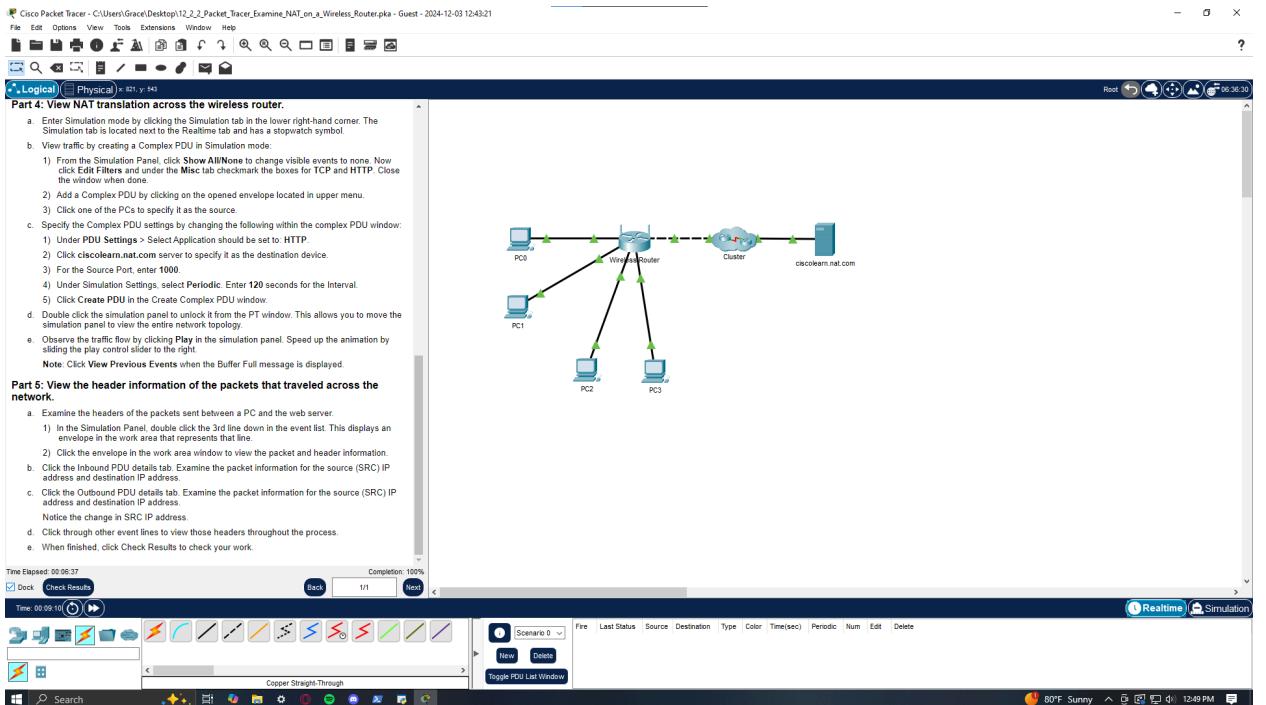
Final Project

Networking Basics:

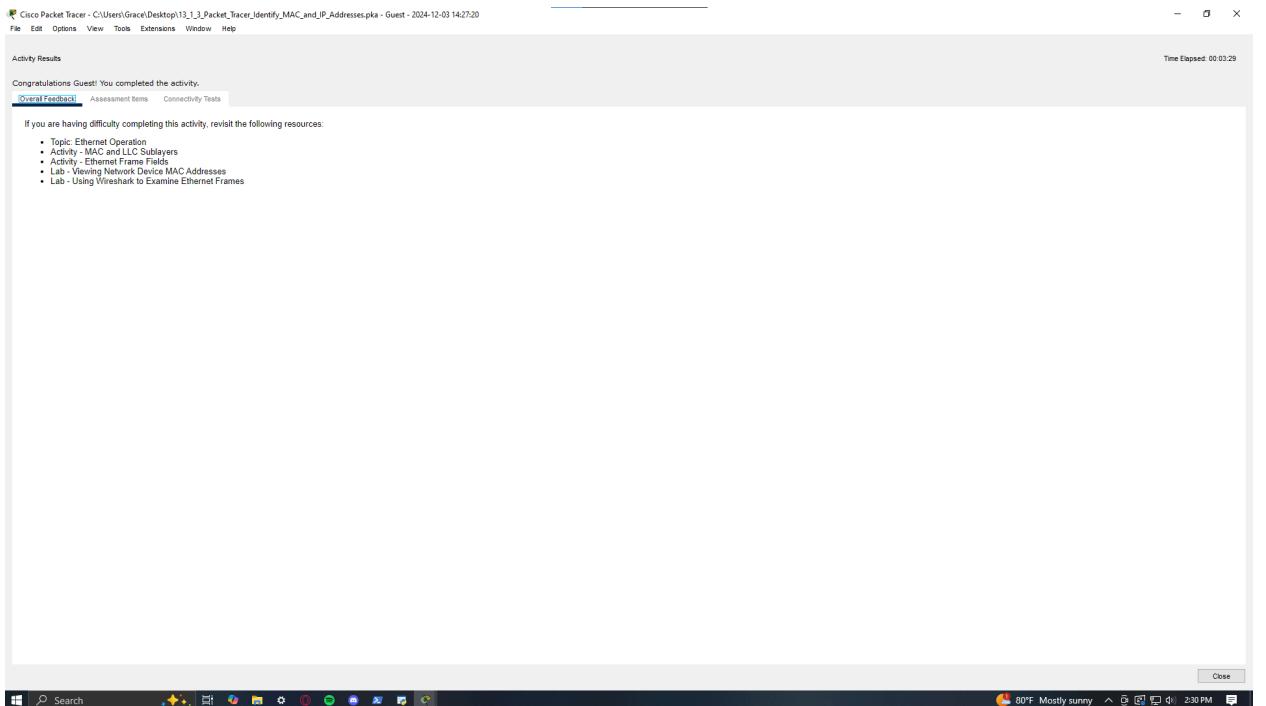
- 11.2.3:



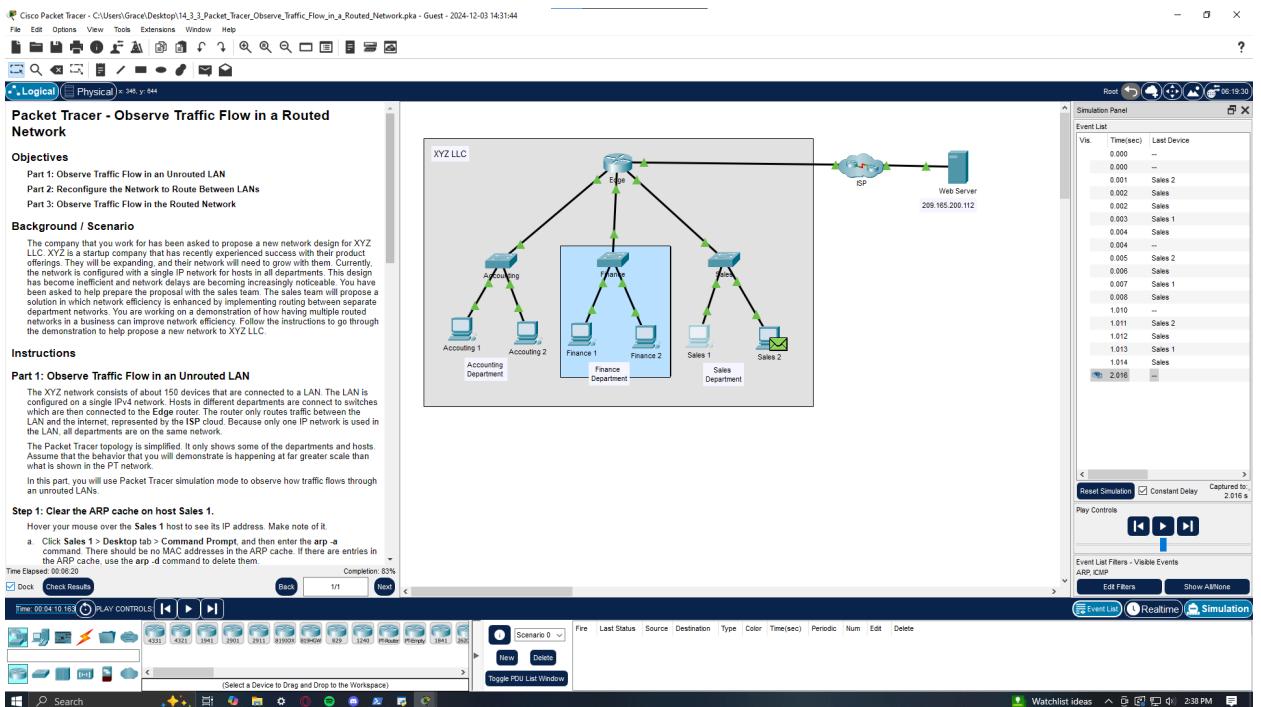
- 12.2.2:



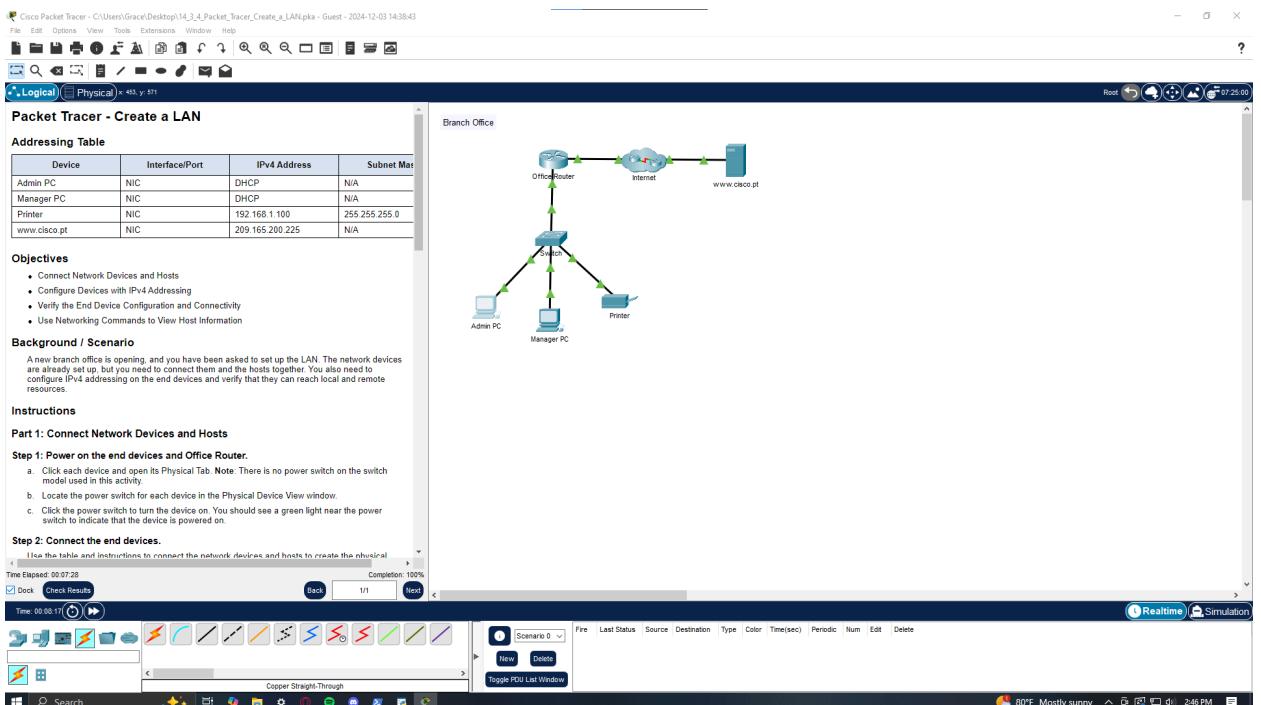
- 13.1.3:



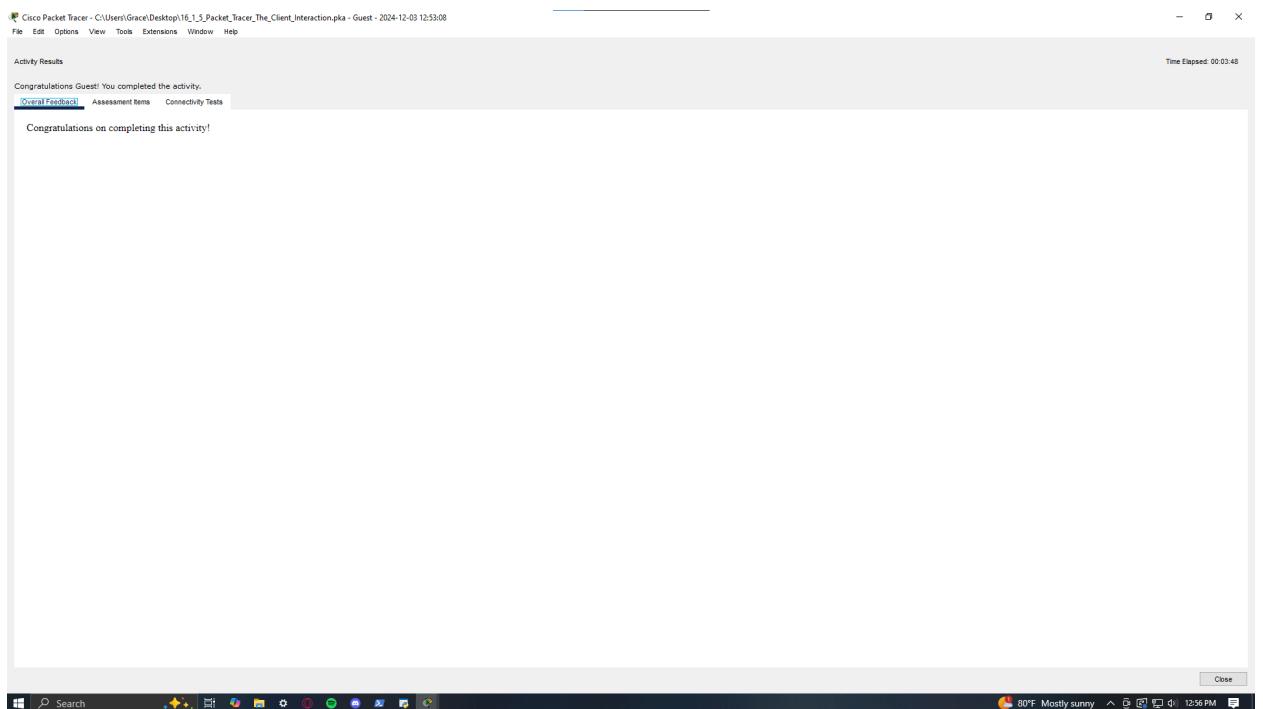
- 14.3.3:



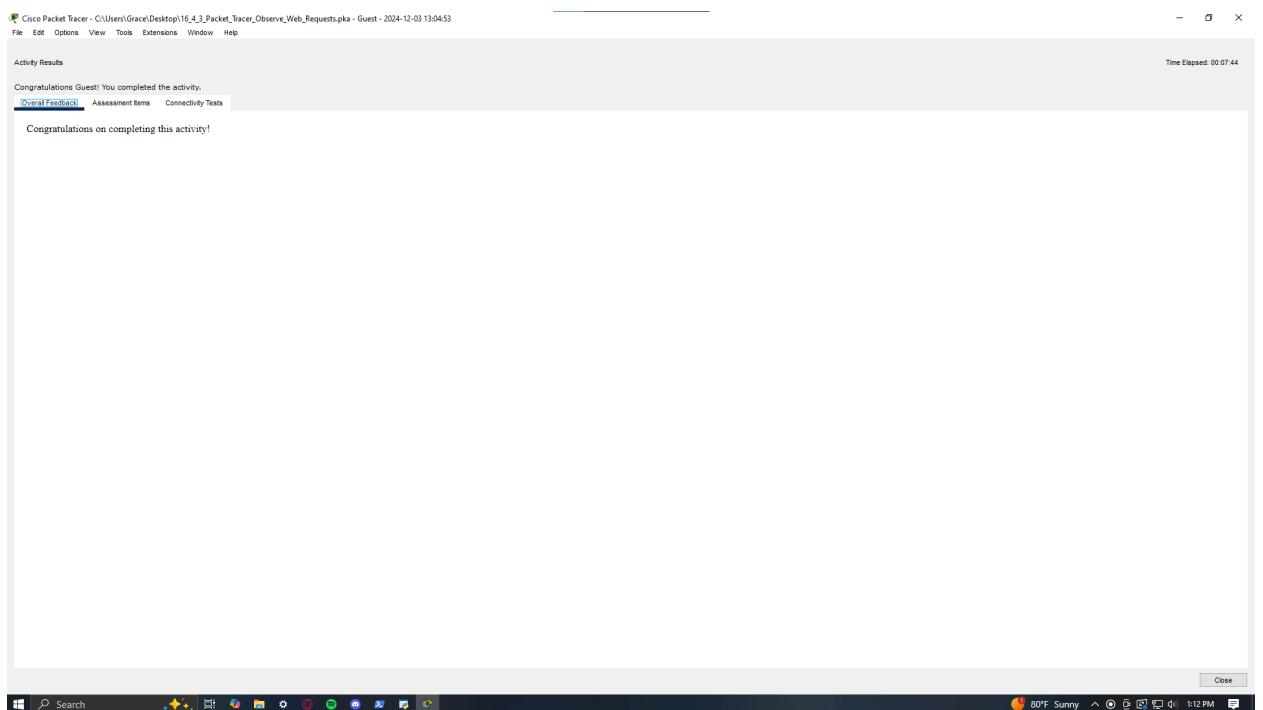
- 14.3.4:



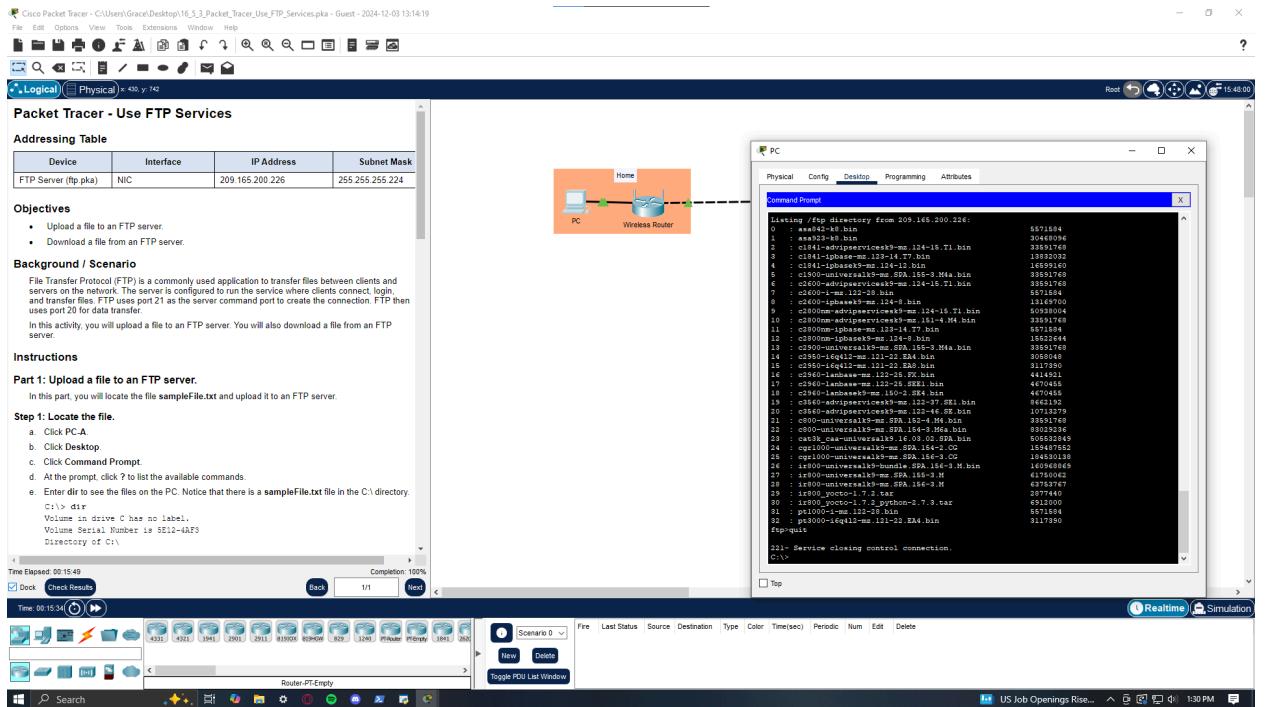
- 16.1.5:



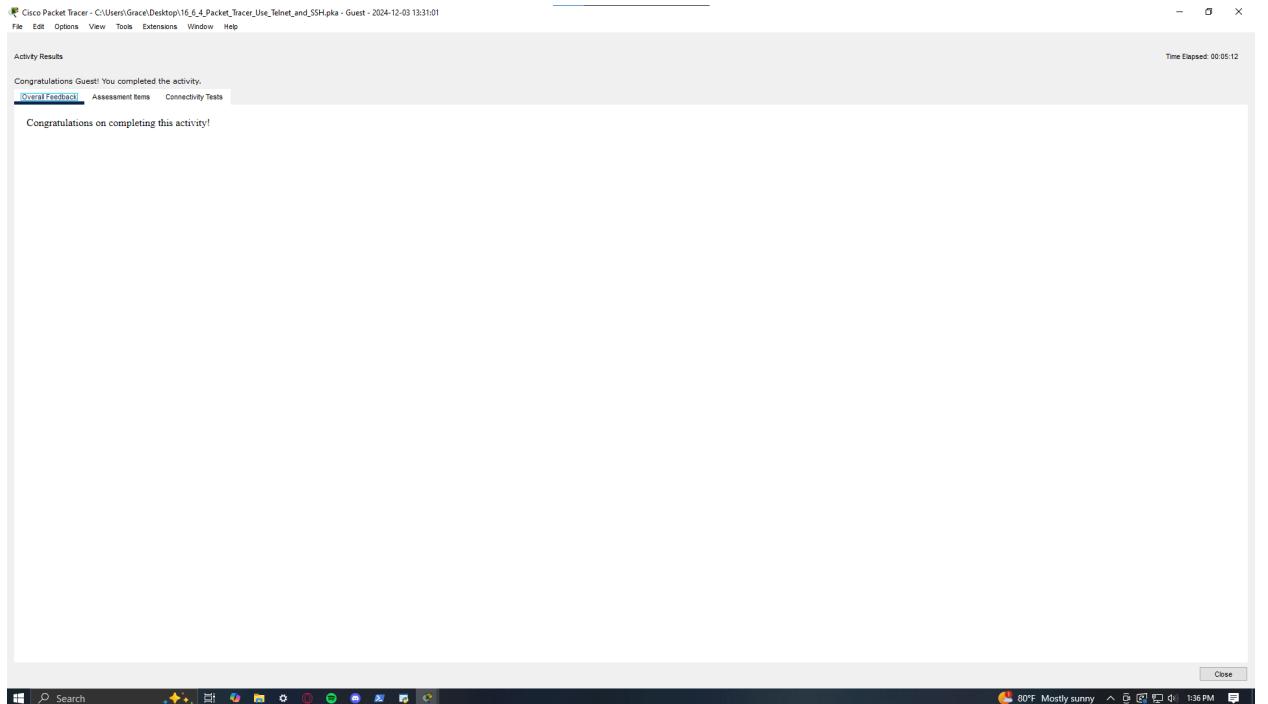
- 16.4.3:



- 16.5.3:



- 16.6.4:



- 17.1.3:

Cisco Packet Tracer - C:\Users\Grace\Desktop\17_1_3_Packet_Tracer_Use_the_ipconfig_Command.pka - Guest - 2024-12-03 13:42:51

File Edit Options View Tools Extensions Window Help

Logical Physical

Packet Tracer - Use the ipconfig Command

Objectives

- Use the ipconfig command to identify incorrect configuration on a PC.

Background / Scenario

In this business office, none can connect to the internet with one of the four PCs in the office. All the PCs are configured with static IP addressing using 192.168.1.0/24 network. The PCs should be able to access www.cisco.pka webserver. Use the ipconfig /all command to identify which PC is incorrectly configured.

Instructions

Part 1: Verify Configurations

- Access the Command Prompt on each PC and enter the command ipconfig /all at the prompt.
- Examine the IP address, subnet mask, and default gateway configuration for each PC. Be sure to record this IP configuration for each PC to help identify any PCs that are incorrectly configured.

Part 2: Correct Any Misconfigurations

- Select the PC that is incorrectly configured.
- Click the Desktop tab > IP Configuration tab to correct the misconfiguration.

Time Elapsed: 00:21:49

Dock Check Results

Completion: 100%

Back 1/1 Next

Time: 00:01:46

Realtime Simulation

Fire Last Status Source Destination Type Color Time(sec) Periodic Num Edit Delete

(Select a Device to Drag and Drop to the Workspace)

Toggle PDU List Window

80°F Mostly sunny 1:44 PM

- 17.1.6:

Cisco Packet Tracer - C:\Users\Grace\Desktop\17_1_6_Packet_Tracer_Use_the_ping_Command.pka - Guest - 2024-12-03 14:04:40

File Edit Options View Tools Extensions Window Help

Activity Results

Congratulations Guest! You completed the activity.

Overall Feedback Assessment Items Connectivity Tests

Congratulations on completing this activity!

Time Elapsed: 00:04:06

Earnings upcoming 2:08 PM

- Module completion:

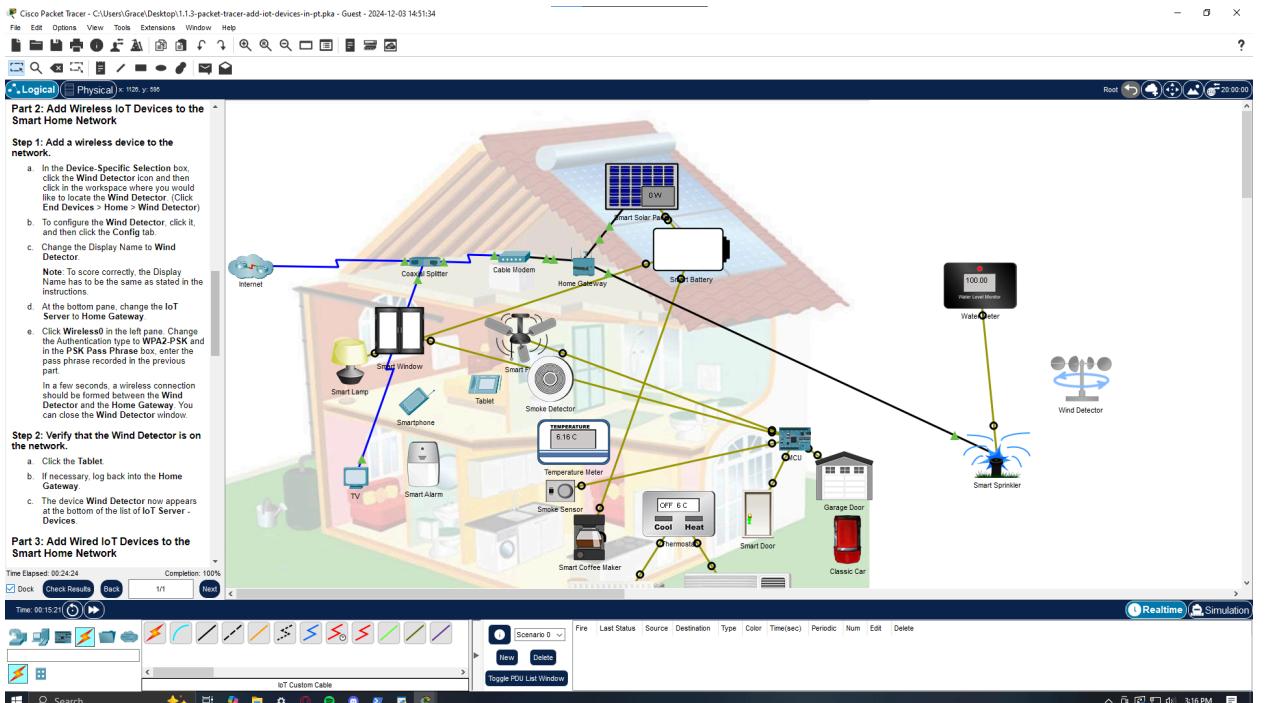
The screenshot shows a web browser window for Cisco Networking Academy. On the left, the 'Course Outline' sidebar lists modules from 11 to 17, each with a progress bar at 100%. To the right, the 'End of Course Survey' section displays 'Question 9'. The question asks, 'What could be improved most in Cisco Networking Academy? (select one)'. A blue button labeled 'Nothing - everything is great!' has a checked checkbox. Below it are other options: 'Types of courses offered', 'Course content', 'Course activities', 'Organization', 'Ease of use', 'Mobile experience', 'Performance', and 'Translation'. At the bottom right of the survey area, a message says 'You've submitted your answers!' next to a 'Submit' button with a checkmark icon.

- Completion certificate:

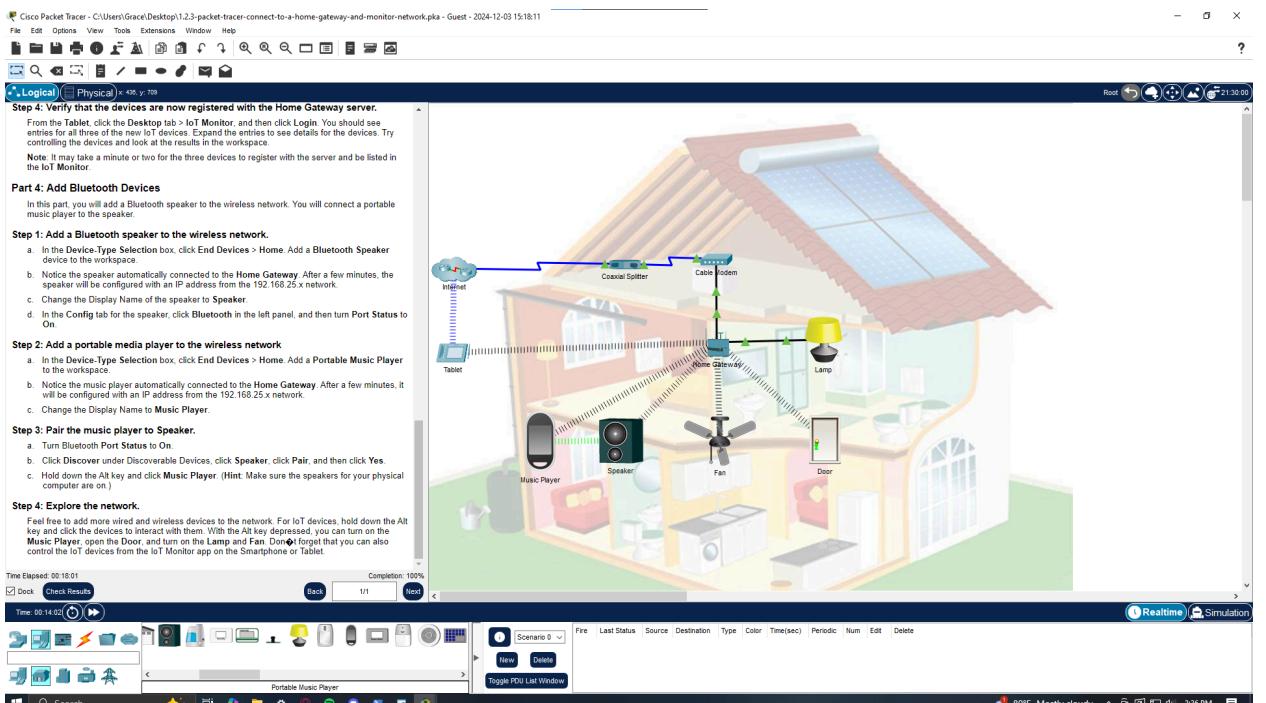


Exploring Internet of Things with Cisco Packet Tracer:

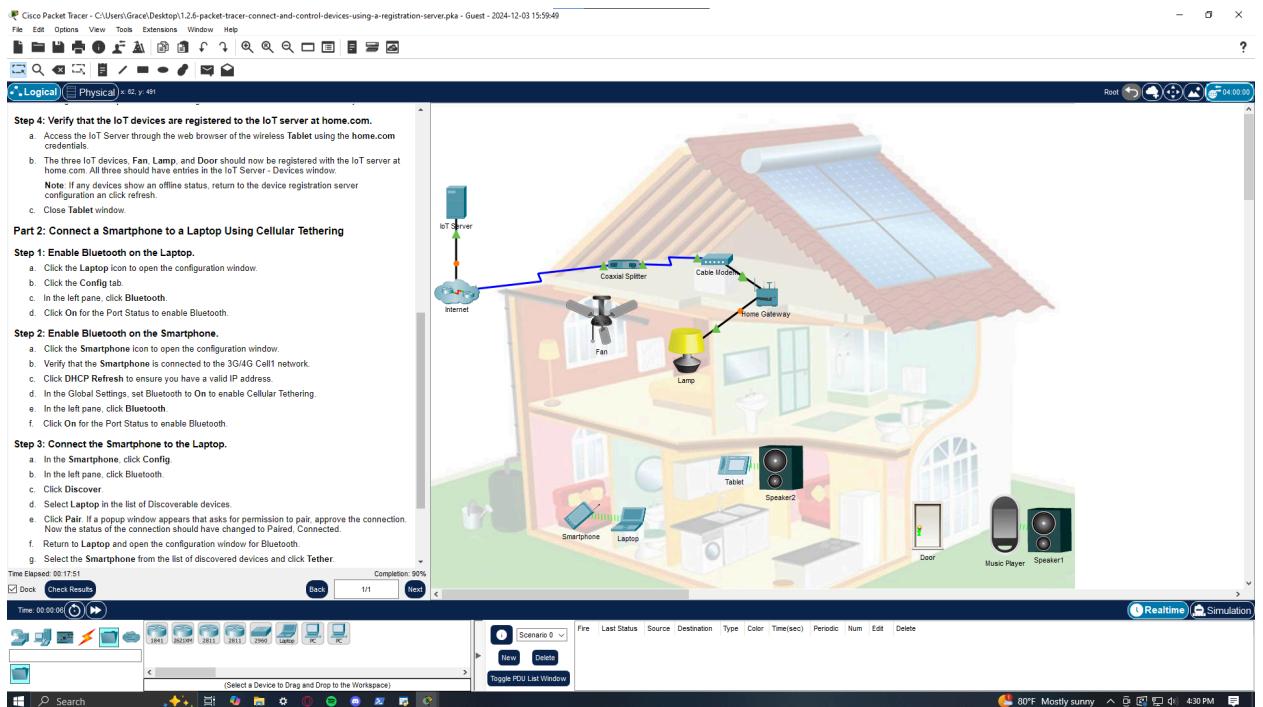
- 1.1.3:



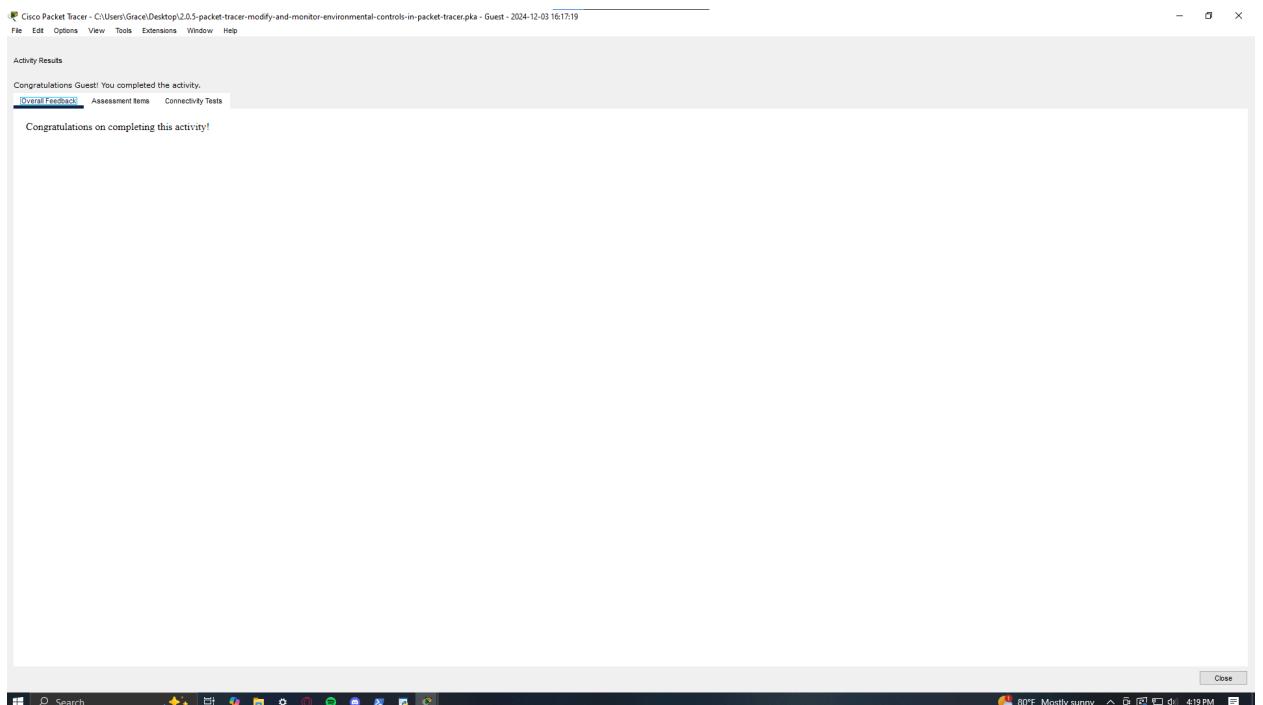
- 1.2.3:



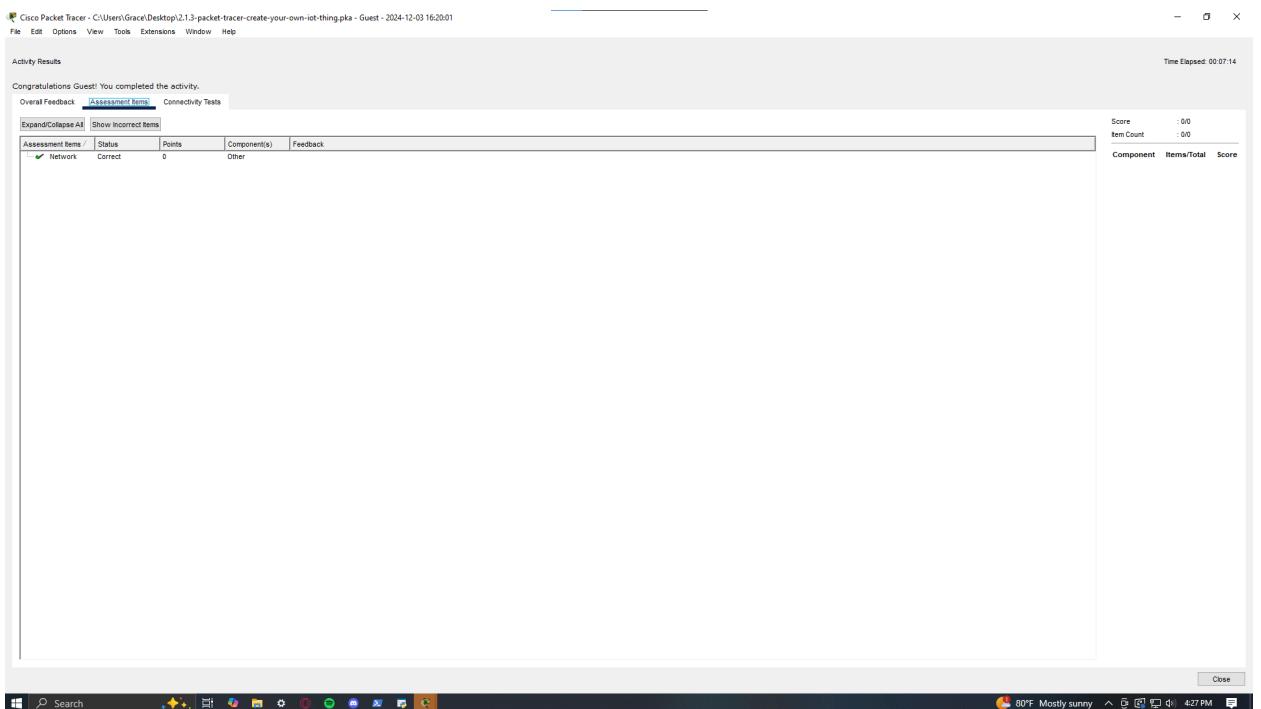
- 1.2.6:



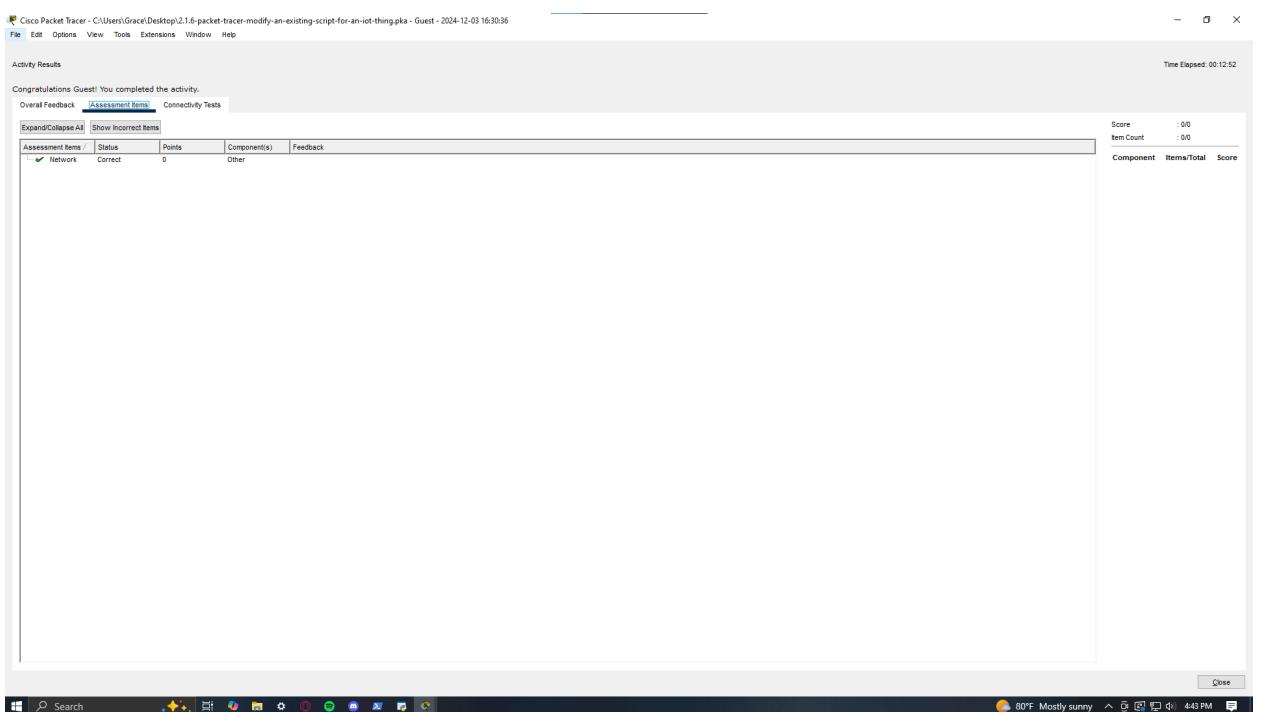
- 2.0.5:



- 2.1.3:



- 2.1.6:



- Module completion:

The screenshot shows a web browser window for Cisco Networking Academy. The main content area displays the 'End of Course Survey' titled 'Exploring Internet of Things with Cisco Packet Tracer'. On the left, there's a 'Course Outline' sidebar with sections like 'Module 1: Create Your Own Smart Home Network' and 'Exploring IoT with Cisco Packet Tracer Course Final Exam', both at 100% completion. The right side shows a survey form with a blue header 'Course content' containing six questions: 'Course activities', 'Organization', 'Ease of use', 'Mobile experience', 'Performance', and 'Translation'. Below the survey is a message: 'You've submitted your answers!' followed by a 'Submit' button with a checkmark icon.

- Completion certificate: *there is no certificate associated with this course, so I have the earnable badge attached*

The screenshot shows a web browser window for Cisco Networking Academy. The top navigation bar includes 'Explore', 'Search for courses, articles and resources', and 'Learner'. The main area is titled 'Welcome, Grace Stewart' and shows '22 Badges Earned' and '6 Courses Completed'. Below this, the 'Badges & Certificates' tab is selected. A search bar is present. The page lists eight badges arranged in two rows of four. Each badge includes an icon, the name, and the issue date (Dec 03, 2024). The badges are: 'Data Insights' (MODULE), 'Introduction to IoT' (COURSE), 'IoT Opportunities' (MODULE), 'Securing Things' (MODULE); 'Automating Things' (MODULE), 'Programming Things' (MODULE), 'Digital Transformation' (MODULE), and 'Exploring IoT with Cisco Packet Tracer' (MODULE).

Introduction to IoT and Digital Transformation:

- 1.2.7:

Cisco Packet Tracer - C:\Users\Grace\Desktop\1.2.7-packet-tracer-create-a-simple-network.pka - Guest - 2024-12-03 16:53:11

Logical **Physical** **Network** **Script** **File** **Edit** **Options** **View** **Tools** **Extensions** **Window** **Help**

Step 1: Set up the Network.

a. 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.

Note: There are two types of IP addresses: IPv4 and IPv6. An IPv6 (Internet Protocol version 6) address was added during the configuration of the PC as you may 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.

Step 2: Configure the Laptop.

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

- Click Laptop, and select the Physical tab.
- 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.
- Test connectivity to the cisco.srv from the Laptop. 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.

Reflection

Now that you have verified connectivity to cisco.srv, use the command ipconfig from the Command Prompt to fill out the IP addressing table below:

Device	IPv4 Address	Subnet Mask	Default Gateway
PC	192.168.0.10	255.255.255.0	192.168.0.1
Laptop	192.168.0.11	255.255.255.0	192.168.0.1
Cable Modem	192.168.0.1	255.255.255.0	192.168.0.1
Wireless Router	192.168.0.1	255.255.255.0	192.168.0.1
Internet	192.168.0.1	255.255.255.0	192.168.0.1
cisco.srv	192.168.0.100	255.255.255.0	192.168.0.1

Network Diagram:

- 1.4.2:

Cisco Packet Tracer - C:\Users\Grace\Desktop\add-iot-devices-in-pt.pka - Guest - 2024-12-03 17:01:07

Logical **Physical** **Network** **Script** **File** **Edit** **Options** **View** **Tools** **Extensions** **Window** **Help**

Step 3: Verify that the Lawn Sprinkler is on the network.

- In the Lawn Sprinkler window, click the Config tab to edit the device configuration settings.
- Set the Display Name to Smart Sprinkler.
- Set the IoT Server to Home Gateway.
- In the left panel, click FastTheHome0, and then click DHCP for the IP Configuration.

Step 4: Add a Water Level Monitor.

- In the Device-Specific Selection box, click the Water Level Monitor (End Devices > Home > Water Level Monitor), and then click in the workspace where you would like to place it.
- Click the Water Level Monitor, and then click Advanced to display more tabs.
- Click the Config tab and change the Display Name to Water Meter.
- Set the IoT Server to Home Gateway.
- Click Wireless0 and verify the Water Meter is using HomeGateway as the SSID.
- Configure the wireless network pass phrase.
- Verify that it is configured to receive an IP address from the DHCP server on Home Gateway.
- Click the I/O Config tab, and then change the number of Digital Slots to 1.
- For the Usage setting, change it to Component.
- Connect the Water Meter to the Smart Sprinkler.

Step 5: Verify that the Water Meter is on the network.

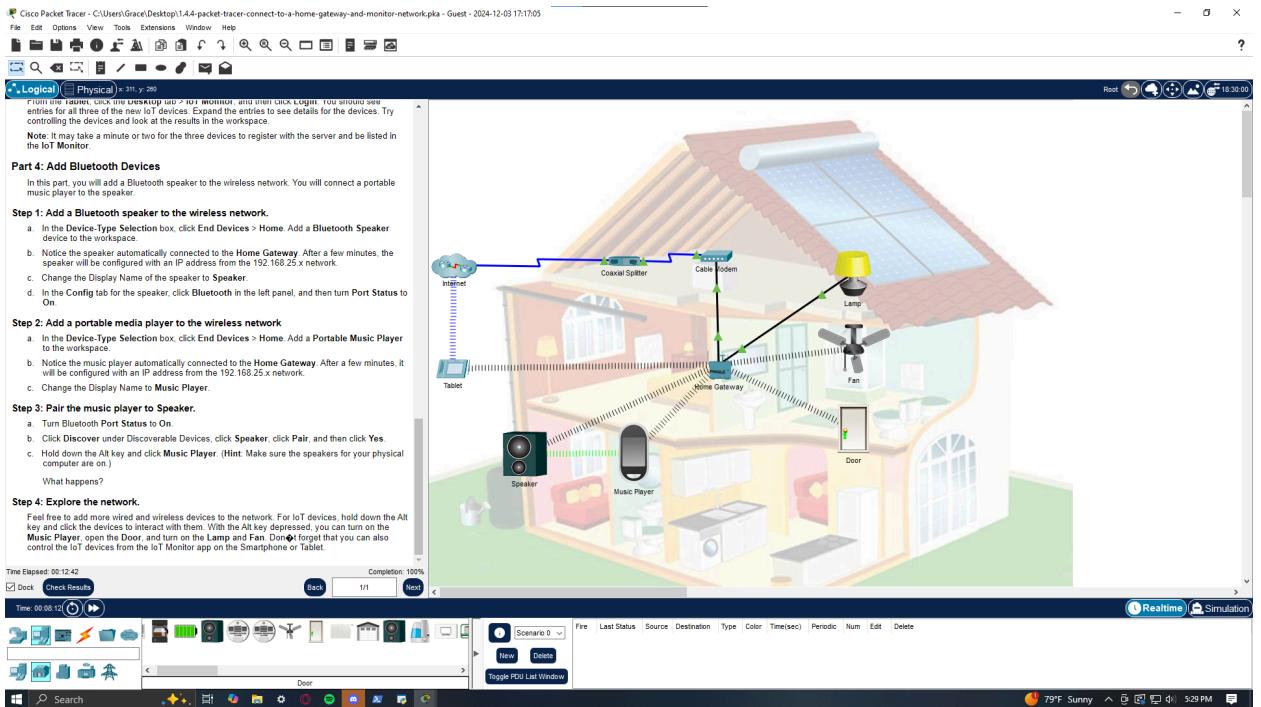
- Click the Smartphone, and then Desktop tab > Web Browser.
- Log into the Home Gateway.
- The device Water Meter now appears at the bottom of the list of IoT Server - Devices.

Step 6: Add other IoT devices.

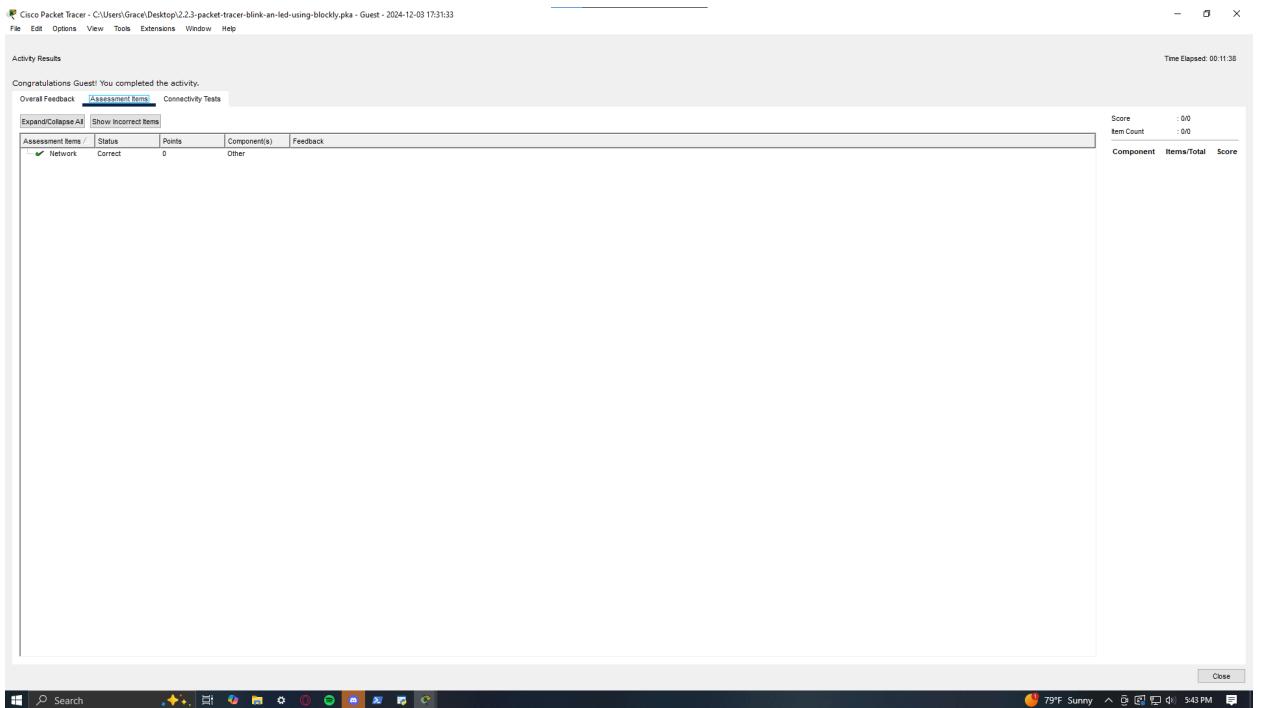
Experiment by adding other types of IoT devices to the smart home wireless network.

Network Diagram:

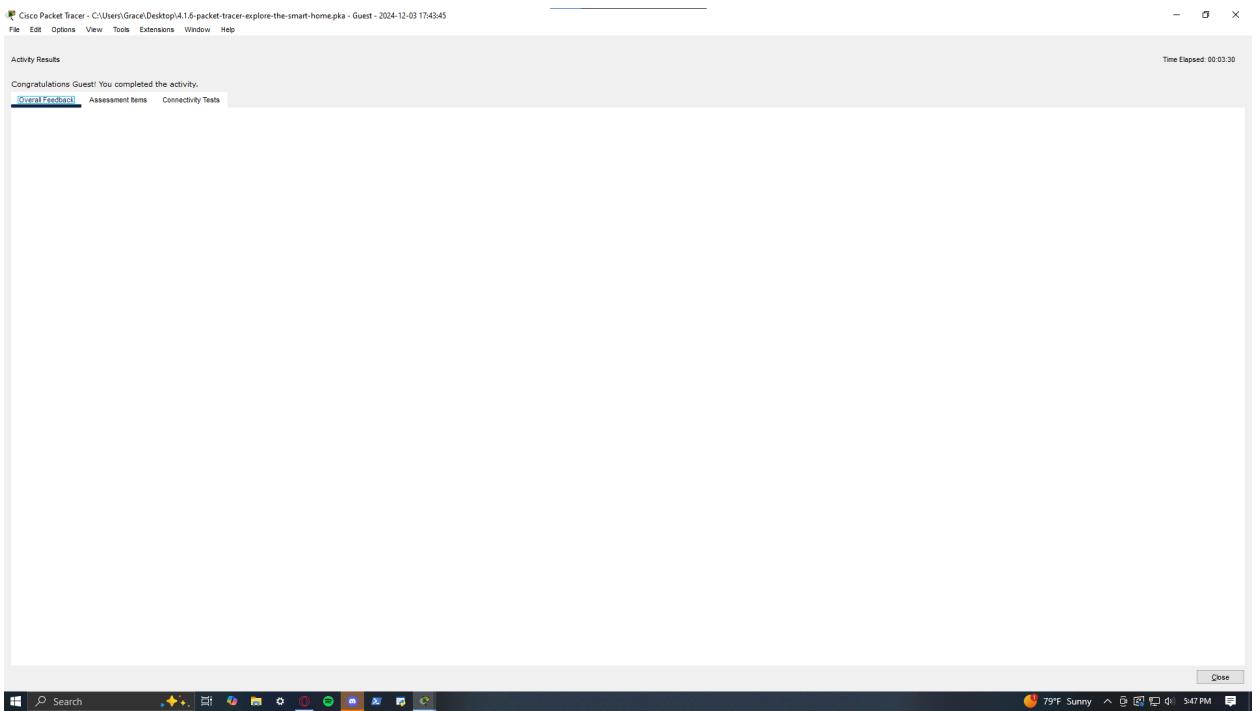
- 1.4.4:



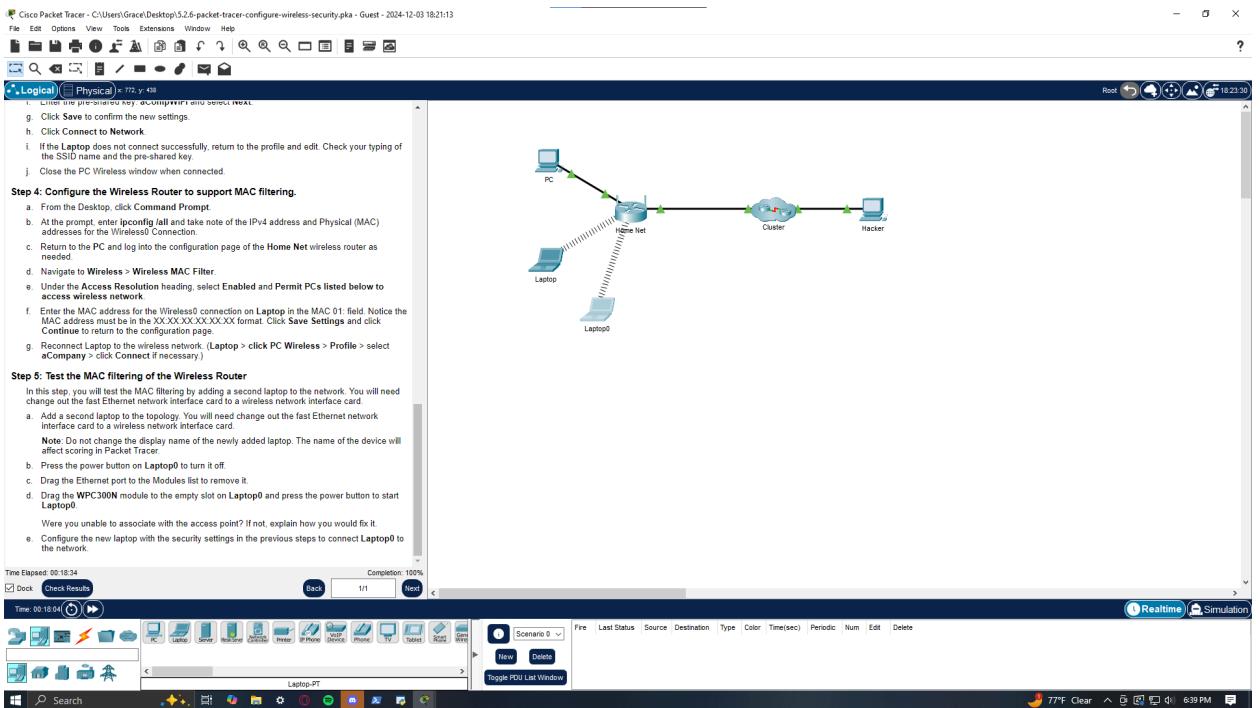
- 2.2.3:



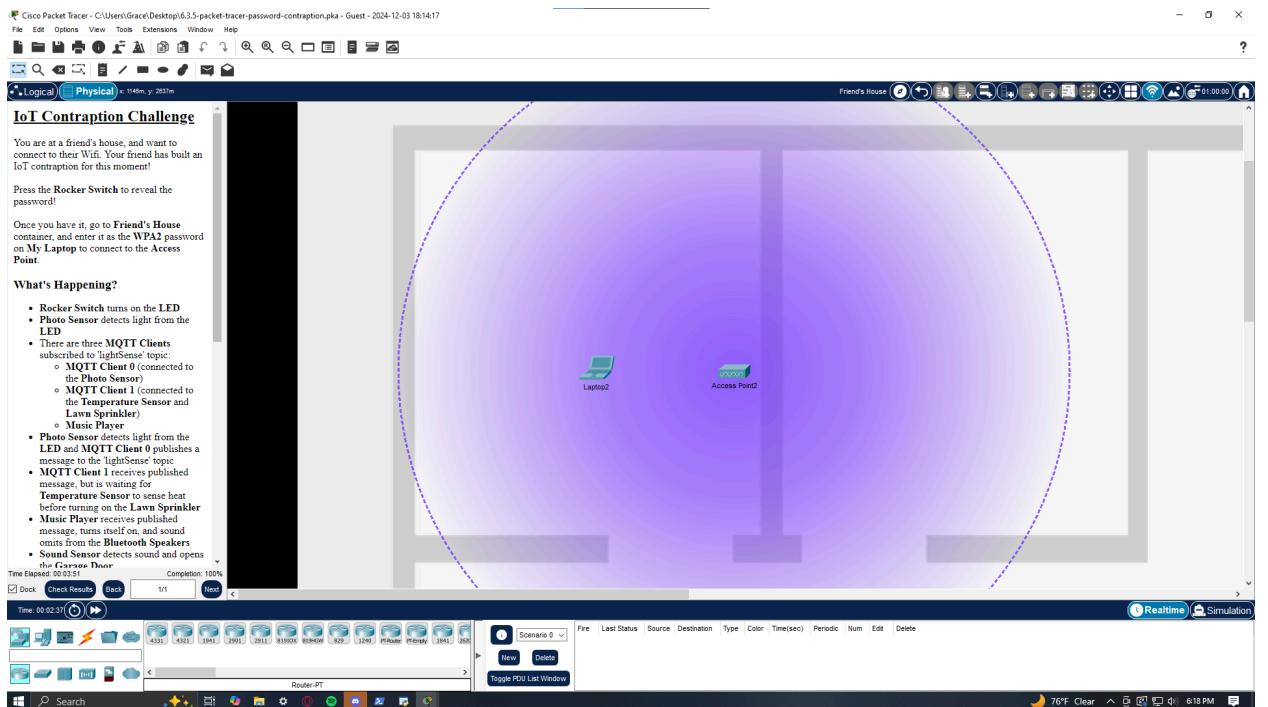
- 4.1.6:



- 5.2.6:



- 6.3.5:



- Module completion:

The screenshot shows the Cisco Networking Academy interface. On the left, the course outline is visible with several modules listed: Module 1: Everything is Connected, Module 2: Everything Becomes Programmable, Module 3: Everything Generates Data, Module 4: Everything Can be Automated, Module 5: Everything Needs to be Secured, Module 6: Educational and Business Opportunities, and the final module, Introduction to the Internet of Things and Digital Transformation Final Exam. Each module has a progress bar at 100%. On the right, there is a survey titled 'End of Course Survey' with several questions listed: Course activities, Organization, Ease of use, Mobile experience, Performance (which is checked), and Translation. Below the survey, a message says 'You've submitted your answers!' and there is a 'Submit' button. The status bar at the bottom of the screen shows the date as 12-03-2024 and time as 18:14:17.

- Completion certificate:

