

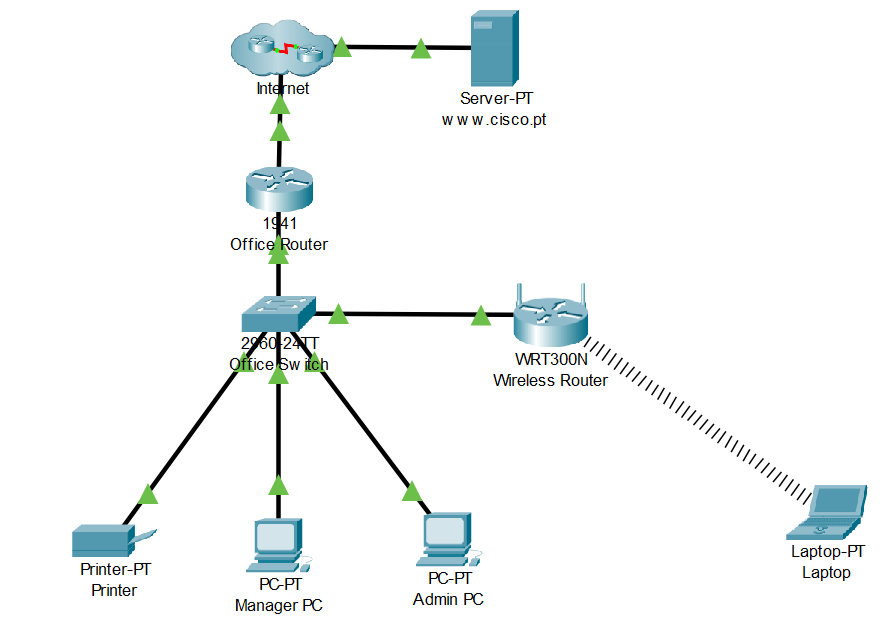
Computer Communications CPSC 471 Section 12

Spring 2025

**CPSC-471 Individual Project**

Create a Simple Network Using Packet Tracer

# Topology



**Device and Addressing Table**

| **Device** | **Interface/Port** | **IPv4 Address** | **Subnet Mask** | **Default Gateway** |
| --- | --- | --- | --- | --- |
| Office Router | GigabitEthernet 0/0 | 209.165.200.234 | 255.255.255.252 | N/A |
|  | GigabitEthernet 0/1 | 192.168.1.1 | 255.255.255.0 | N/A |
| Admin PC | NIC | DHCP | N/A |  |
| Manager PC | NIC | DHCP | N/A |  |
| Laptop | Wi-fi | DHCP | N/A |  |
| Printer | NIC | 192.168.1.100 | 255.255.255.0 |  |
| Server-PT | FastEthernet0 | 209.165.200.225 | 255.255.255.248 | 209.165.200.230 |
| DHCP |  | 192.168.1.1 | 255.255.255.0 |  |

DNS/Mail/Web server IP: 209.165.200.225

**Switch Port Table**

| **Interface/Port** | **Connected to Device** |
| --- | --- |
| GigabitEthernet 0/1 | Office Router GigabitEthernet 0/1 |
| FastEthernet 0/1 | Wireless Router Internet |
| FastEthernet 0/2 | Printer |
| FastEthernet 0/3 | Manager PC |
| FastEthernet 0/4 | Admin PC |

**Wireless Router Table**

| **Device** | **Interface/Port** | **IPv4 Address** | **Subnet Mask** | **Default Gateway** |
| --- | --- | --- | --- | --- |
| Wireless Router | Internet | 192.168.1.2 | 255.255.255.0 | 192.168.1.1 |
| LAN |  | 10.0.X.1 | 255.255.255.0 |  |
| LAN Starting IP |  | 10.0.X.100 |  |  |

| **Device** | **SSID** | **Authentication** | **Encryption** | **PSK Pass Phase** |
| --- | --- | --- | --- | --- |
| Wireless Router | CPSC471-T**X** | WPA2-PSK | AES | Titan123 |

Note: CPSC471-T**X** (replace X with your Assigned table number)

# Objectives

* Connect Network Devices and Hosts
* Configure Devices with IPv4 Addressing
* Configure DNS/Mail services
* Verify the End Device Configuration and Connectivity
* Use Networking Commands to View Host Information

# Background / Scenario

A new branch office is opening, and you have been tasked to set up the office LAN and services. The network devices (Office Router and Server) are partially configured; you need to add the required devices from theprovided device tables, connect them, and then complete the device configuration. You also need to configure IPv4 addressing on the end devices and verify that they can reach local and remote resources.

# Helpful Resources

1. <https://computernetworking747640215.wordpress.com/2018/07/05/how-to-configure-dhcp-server-in-packet-tracer/>
2. <https://www.computernetworkingnotes.com/ccna-study-guide/how-to-configure-dhcp-server-on-cisco-routers.html>
3. <https://www.cisco.com/E-Learning/bulk/public/tac/cim/cib/using_cisco_ios_software/02_cisco_ios_hierarchy.htm>
4. <https://www.pcwdld.com/cisco-commands-cheat-sheet/>

# Tasks

The task list contains the necessary tasks to complete this project. You must include screenshots to show the correct configuration for each network device.

## Part 1: Build a Simple Network in the Logical Topology Workspace

* 1. (5) Name your Workspace with the assigned table X number
  2. (5) Add and name the required devices
  3. (5) Connect devices

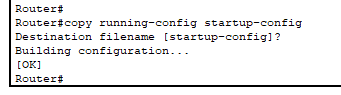
## Part 2: Configure the Network Devices

1. (5) Configure HTTP service
2. (5) Configure DNS service
   1. Add A record for the following domains
      1. Cisco.pt
      2. www.cisco.pt
      3. Cpsc471mail.edu
3. (10) Configure Email service
   1. Add the following domain

cpsc471mail.edu

* 1. Add two client users to both the server and client PC
     1. Manager PC  
        Username: client1  
        Password: client1111
     2. Admin PC  
        Username: client2  
        Password: client2222

1. (30) Configure the Office Router
   1. Configure IP address and subnet mask for the following interfaces
      1. GigabitEthernet0/0
      2. GigabitEthernet0/1
   2. Configure DHCP services
      1. Configure DHCP pool  
         Name: office
      2. Configure network  
         Use 192.168.1.0 255.255.255.0
      3. Configure the default router
      4. Configure DNS server
      5. Exclude the following IP addresses from the DHCP pool (static IPs)  
         192.168.1.1 (Router)  
         192.168.1.2 (Wireless Router)  
         192.168.1.100 (Printer)
   3. Extremely Important: Save your configuration  
      To copy your running configuration into the startup configuration, you must type the command ***copy running-config startup-config***.



1. (5) Configure Static IP address for the printer
2. (5) Configure DHCP and Email
   1. Manager PC
   2. Admin PC
3. (15) Configure WRT300N wireless router
   1. Configure the Internet interface with a static IP address
   2. Configure the LAN interface with assigned subnet
   3. Configure the wireless SSID with assigned settings

## Part 3: Test Connectivity Between Network Devices

(10) Use the ***ping*** command to test each device and ensure it is running.  
Note: Ping to the Internet interface of WRT300N wireless only works behind the NAT.

## Part 4: Troubleshoot Connectivity Issues

Troubleshoot any device or interface that is not up and running. Use the ***ping*** command and the provided **Device and IP Addressing Table**.

## Part 5: Save the File and Submit Your Project Files

Save and name your Pack Tracer project file as:

* 2024-CPSC471-03-Project-Firstname-Lastname-TX.pkt

Submit the following files by the deadline.

* This write-up
* 2024-CPSC471-03-Project-Firstname-Lastname-TX.pkt

# Grading Criteria

To receive full credits, you will need to meet the requirements below:

1. Submit the required files by the project deadline.
2. Correctly built the network according to the topology and services.
3. All devices, interfaces, and services are functioning correctly.
4. Include necessary screenshots for the Tasks list and show the correct configuration.