

Computer Networks Lab 1

Name: Haj Wali

Registration Number: SP23-BSE-064

Course: Computer Networks

Instructor: Ali Faisal

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Lab Title:

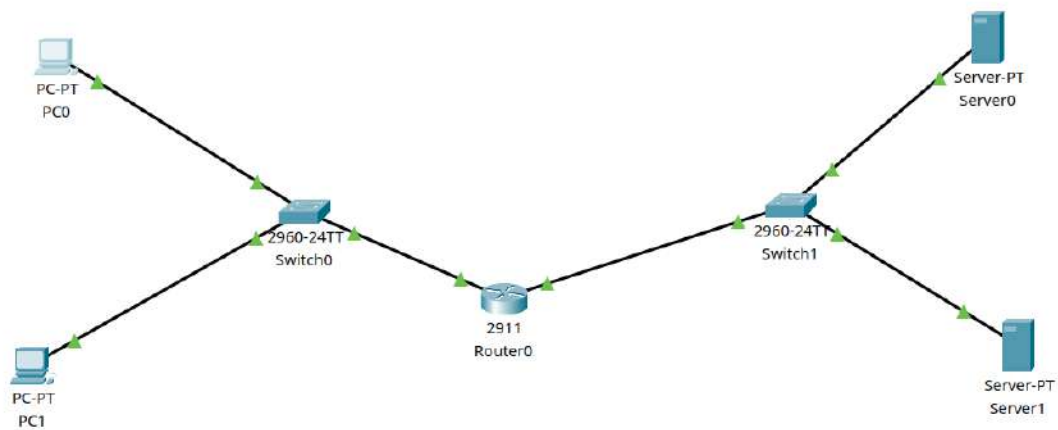
Website Hosting and DNS Configuration using Cisco Packet Tracer

Network Topology Overview

This setup includes **2 PCs**, a **switch**, a **router**, a **DNS server**, and a **Web server**.

- The PCs are connected to a switch, which links to the router.
- The DNS and Web servers are connected to the router via another switch.
- This allows the PCs to access a hosted webpage and resolve domain names through the DNS server.

Figure 1: Cisco Packet Tracer topology with PCs, switch, router, DNS, and Web server.



PC Configuration

The following screenshots show the **IP configuration for PC0 and PC1**.

Each PC is assigned a static IP address, subnet mask, default gateway (router IP), and the DNS server IP to enable proper network communication and access to the hosted website.

Configuration Details for PC0:

- IP Address: 192.64.1.1

- Subnet Mask: 255.255.255.0
- Default Gateway: 192.64.1.10
- DNS Server: 192.64.2.2

Configuration Details for P10:

- IP Address: 192.64.1.2
- Subnet Mask: 255.255.255.0
- Default Gateway: 192.64.1.10
- DNS Server: 192.64.2.2

Figure 2: IP and DNS configuration for PC0.

The image shows a configuration window for PC0 with tabs for Physical, Config, Desktop, Programming, and Attributes. The Desktop tab is active, displaying the IP Configuration section for the FastEthernet0 interface. The IP Configuration section has two radio buttons: DHCP (unselected) and Static (selected). Below these are five text input fields: IPv4 Address (192.64.1.1), Subnet Mask (255.255.255.0), Default Gateway (192.64.1.10), and DNS Server (192.64.2.2). The IPv6 Configuration section also has two radio buttons: Automatic (unselected) and Static (selected). It contains four text input fields: IPv6 Address (empty), Link Local Address (FE80::2D0:97FF:FE26:C8E4), Default Gateway (empty), and DNS Server (empty). At the bottom, there is a checkbox for 'Use 802.1X Security' which is unchecked, and a 'Top' button.

PC0

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.64.1.1

Subnet Mask 255.255.255.0

Default Gateway 192.64.1.10

DNS Server 192.64.2.2

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address /

Link Local Address FE80::2D0:97FF:FE26:C8E4

Default Gateway

DNS Server

802.1X

☐ Use 802.1X Security

☐ Top

Figure 3: IP and DNS configuration for PC1.

The screenshot shows the configuration window for PC0, specifically the Desktop tab. The 'Interface' dropdown is set to 'FastEthernet0'. Under 'IP Configuration', the 'Static' radio button is selected. The IPv4 Address is 192.64.1.1, Subnet Mask is 255.255.255.0, Default Gateway is 192.64.1.10, and DNS Server is 192.64.2.2. Under 'IPv6 Configuration', the 'Static' radio button is also selected. The IPv6 Address field is empty, followed by a slash and another empty field. The Link Local Address is FE80::2D0:97FF:FE26:C8E4. The Default Gateway and DNS Server fields for IPv6 are also empty. Under '802.1X', the 'Use 802.1X Security' checkbox is unchecked. A 'Top' button is at the bottom left.

| IP Configuration | |
|--|---|
| Interface | FastEthernet0 |
| IP Configuration | |
| <input type="radio"/> DHCP | <input checked="" type="radio"/> Static |
| IPv4 Address | 192.64.1.1 |
| Subnet Mask | 255.255.255.0 |
| Default Gateway | 192.64.1.10 |
| DNS Server | 192.64.2.2 |
| IPv6 Configuration | |
| <input type="radio"/> Automatic | <input checked="" type="radio"/> Static |
| IPv6 Address | / |
| Link Local Address | FE80::2D0:97FF:FE26:C8E4 |
| Default Gateway | |
| DNS Server | |
| 802.1X | |
| <input type="checkbox"/> Use 802.1X Security | |

☐ Top

Server Configuration

The following screenshots show the configuration of the **DNS Server** and **Web Server**.

Each server is manually configured with a **static IP address, subnet mask, default gateway**, and (for the web server) the DNS server IP as well.

Configuration Details:

- **DNS Server:**
 - IP Address: 192.168.1.10
 - Subnet Mask: 255.255.255.0
 - Default Gateway: 192.168.1.1
- **Web Server:**
 - IP Address: 192.168.1.20
 - Subnet Mask: 255.255.255.0
 - Default Gateway: 192.168.1.1
 - DNS Server: 192.168.1.10

These settings ensure the servers are reachable on the network, and the web server can resolve domain names through the DNS.

Figure 4: IP configuration of DNS Server.

The image shows a window titled "DNS Server" with a dark title bar and standard window controls. Inside, there are tabs for "Physical", "Config", "Services", "Desktop", "Programming", and "Attributes". The "Desktop" tab is selected and contains a sub-tab titled "IP Configuration" with a close button "X".

Under the "IP Configuration" sub-tab, there are two sections:

- IP Configuration:** This section has two radio buttons: "DHCP" (unselected) and "Static" (selected). Below the radio buttons are four text input fields:
 - IPv4 Address: 192.64.2.2
 - Subnet Mask: 255.255.255.0
 - Default Gateway: 192.64.2.10
 - DNS Server: 0.0.0.0
- IPv6 Configuration:** This section also has two radio buttons: "Automatic" (unselected) and "Static" (selected). Below the radio buttons are four text input fields:
 - IPv6 Address: (empty) / (empty)
 - Link Local Address: FE80::2D0:97FF:FE33:9B8D
 - Default Gateway: (empty)
 - DNS Server: (empty)

Below these sections is the **802.1X** section, which includes:

- A checkbox for "Use 802.1X Security" which is unchecked.
- An "Authentication" dropdown menu currently set to "MD5".

At the bottom left of the window, there is a "Top" button with a small square icon next to it.

Figure 5: IP configuration of Web Server.

The screenshot shows a 'Web Server' configuration window with a dark title bar and standard window controls. The 'Desktop' tab is selected, and the 'IP Configuration' sub-tab is active. The 'IP Configuration' section has a blue header bar with a close button. It contains two radio buttons: 'DHCP' (unselected) and 'Static' (selected). Below these are five text input fields: 'IPv4 Address' (192.64.2.1), 'Subnet Mask' (255.255.255.0), 'Default Gateway' (192.64.2.10), and 'DNS Server' (0.0.0.0). The 'IPv6 Configuration' section follows, with 'Automatic' (unselected) and 'Static' (selected) radio buttons. It includes four text input fields: 'IPv6 Address' (empty), 'Link Local Address' (FE80::20A:41FF:FE7C:D415), 'Default Gateway' (empty), and 'DNS Server' (empty). The '802.1X' section has a 'Use 802.1X Security' checkbox (unchecked) and an 'Authentication' dropdown menu set to 'MD5'. A 'Top' button is at the bottom left.

Web Server

Physical Config Services **Desktop** Programming Attributes

IP Configuration X

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.64.2.1

Subnet Mask 255.255.255.0

Default Gateway 192.64.2.10

DNS Server 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address /

Link Local Address FE80::20A:41FF:FE7C:D415

Default Gateway

DNS Server

802.1X

☐ Use 802.1X Security

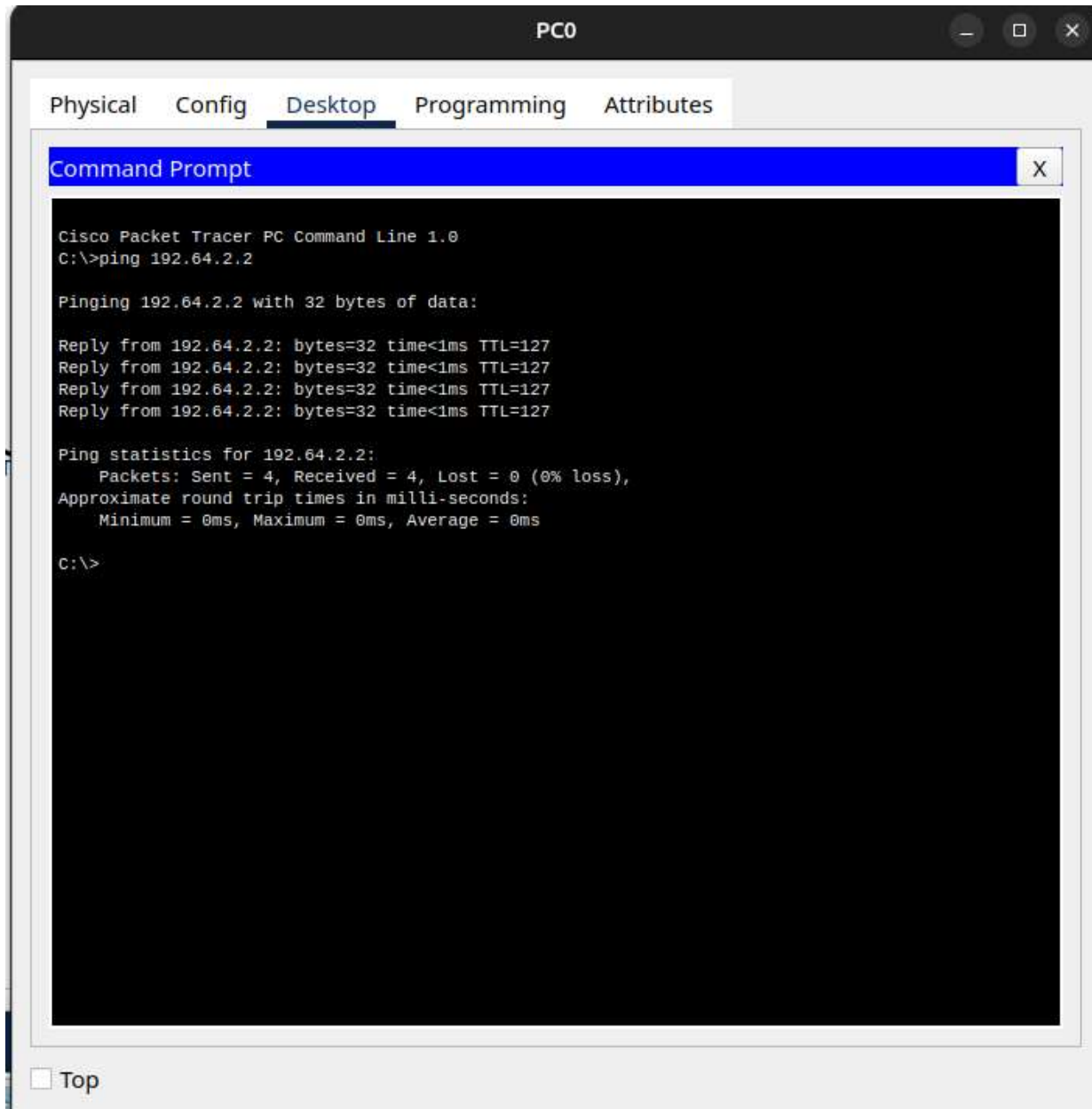
Authentication MD5

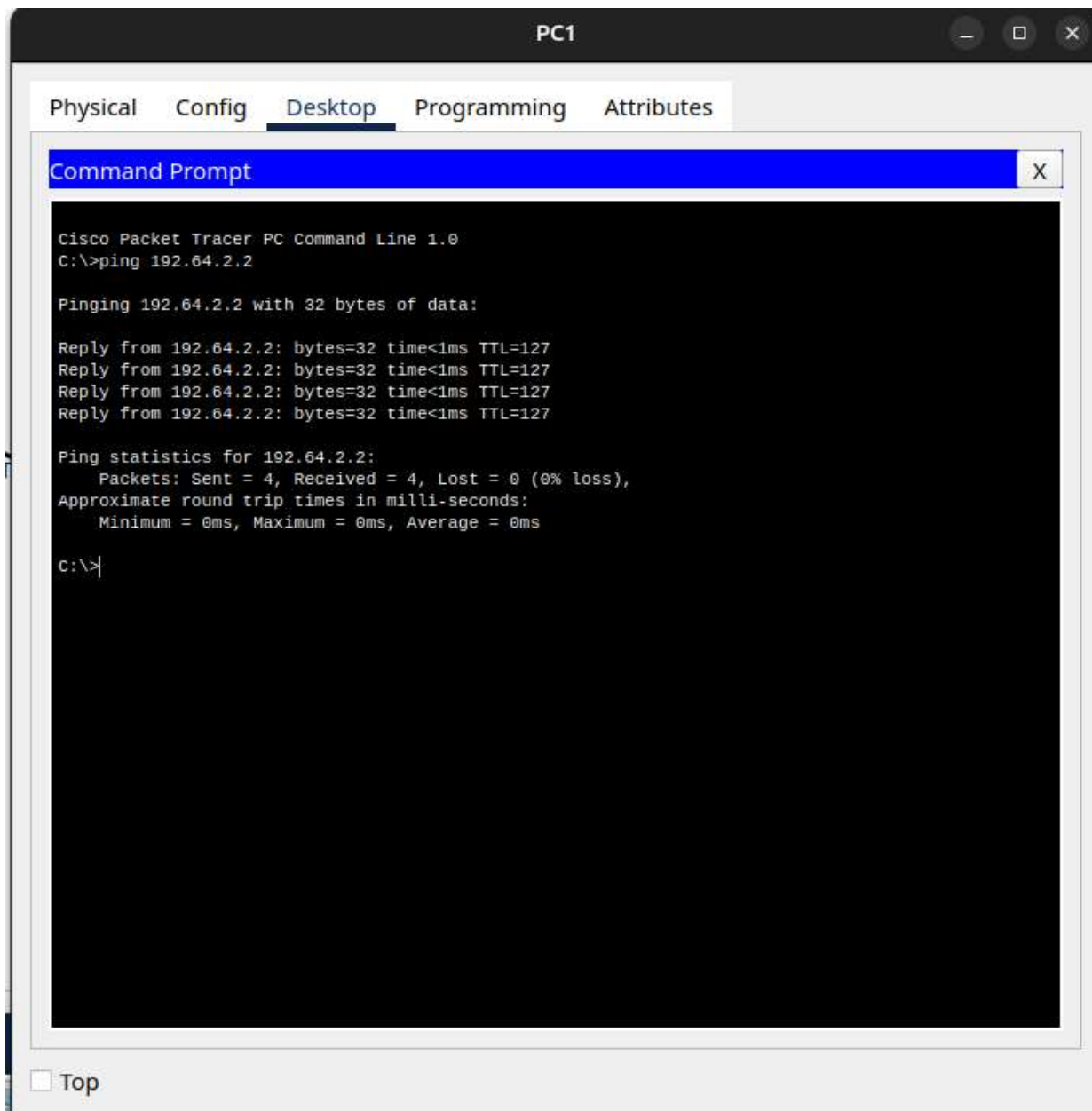
☐ Top

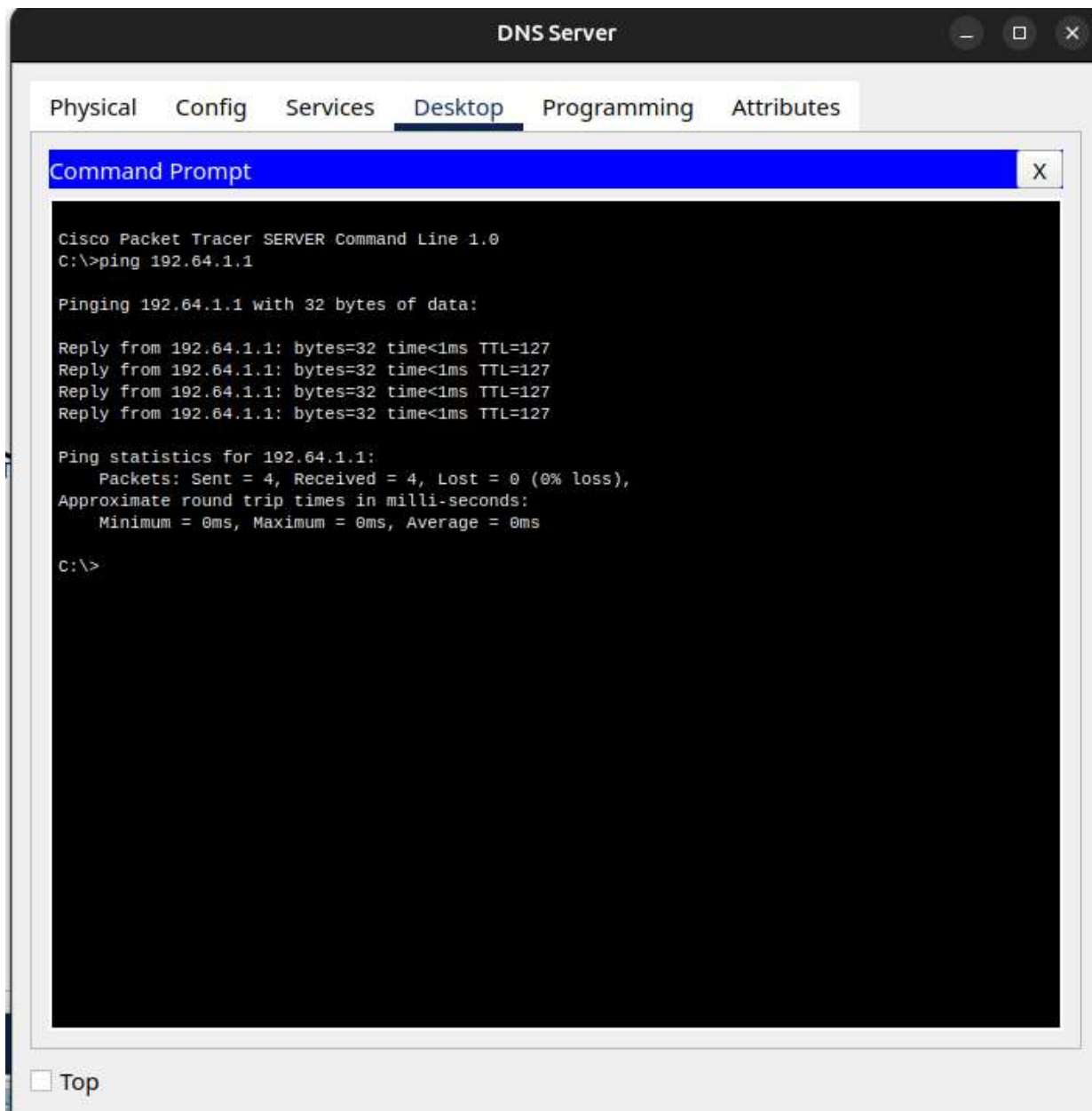
Connectivity Test using Ping

The following screenshots show **successful ping tests** from **PC0**, **PC1**, and the **DNS Server** to verify that all devices are properly connected and communicating over the network.

Figure 6: Ping results from PC0, PC1, and DNS Server showing successful connectivity.







Website Hosting & DNS Resolution

The following screenshots demonstrate the successful **hosting and DNS resolution** of a custom website:

1. **DNS Server - DNS Records (Services > DNS):**
2. **Web Server - HTML Files (Services > HTTP > File Manager):**
3. **PC0 - Web Browser Access:**

Figure 5: DNS record setup, hosted HTML files, and web page opened via domain name.

