Lab 11: DNS and Web Server Configuration using Packet Tracer

Theory

DNS (Domain Name System): DNS is a system that translates human-readable domain names (like google.com) into numeric IP addresses (such as 192.168.1.1) that computers use to communicate. By converting these domain names into IP addresses, DNS simplifies how users navigate the internet, eliminating the need to remember complex numeric addresses. When a user types a domain name into their browser, DNS works in the background to locate the corresponding IP address, allowing the requested web page to be accessed quickly and easily.

Web Server: A web server is a computer system responsible for hosting websites and delivering web pages to users upon request. When a user enters a URL or clicks a link, the web server processes the request, retrieves the appropriate files (such as HTML, images, or scripts), and sends them to the user's browser. Web serversmanage these requests through HTTP or HTTPS protocols. They handle both static content (like basic web pages) and dynamic content generated by server-side applications. In short, web servers ensure that web content is available and delivered efficiently to users.

Network Diagram

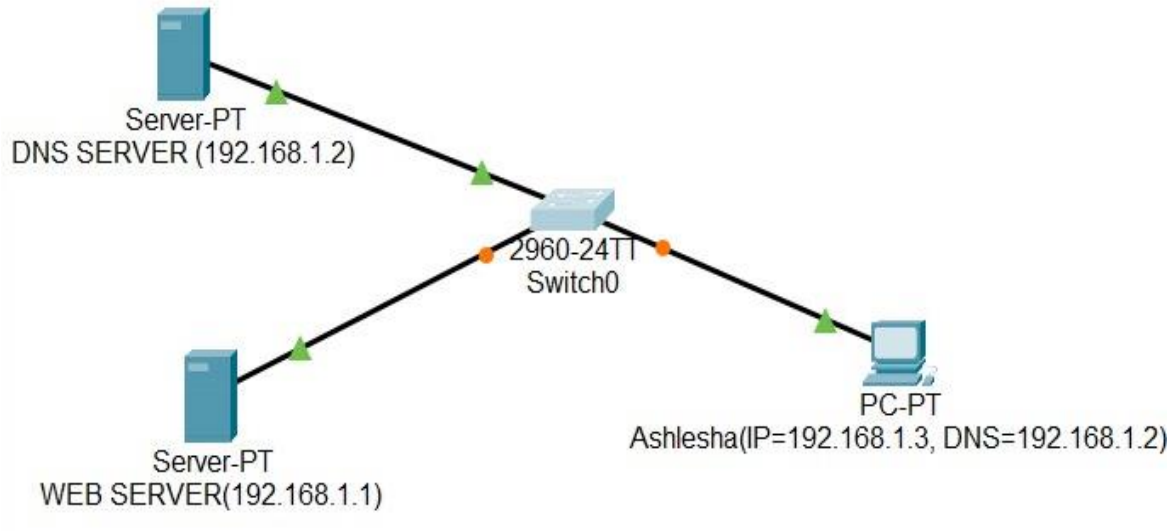

Fig: Network Diagram

1.Configuring DNS Server and Web Server

DNS Server Configuration:

Step 1: Go to the DNS Server and click on the Desktop tab.

Step 2: Set the IP Address to 192.168.1.2 and the Subnet Mask to 255.255.255.0.

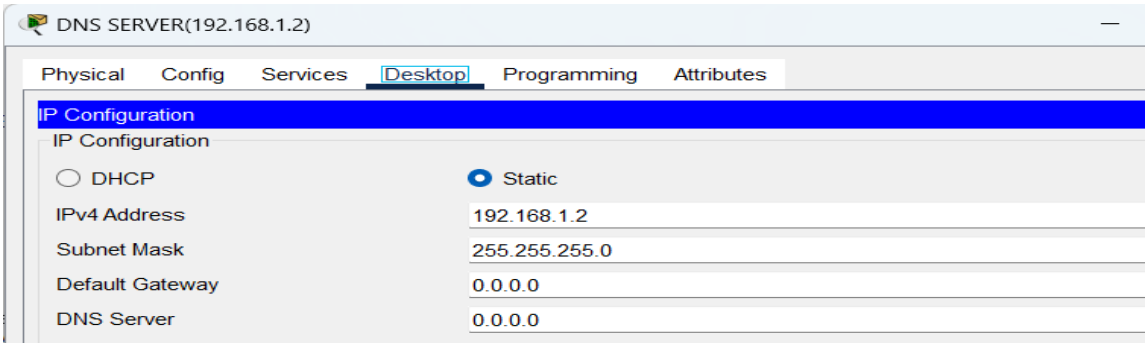

Fig: Configuring DNS server

Step 3: Click on the Services tab, then navigate to HTTP and turn it ON.

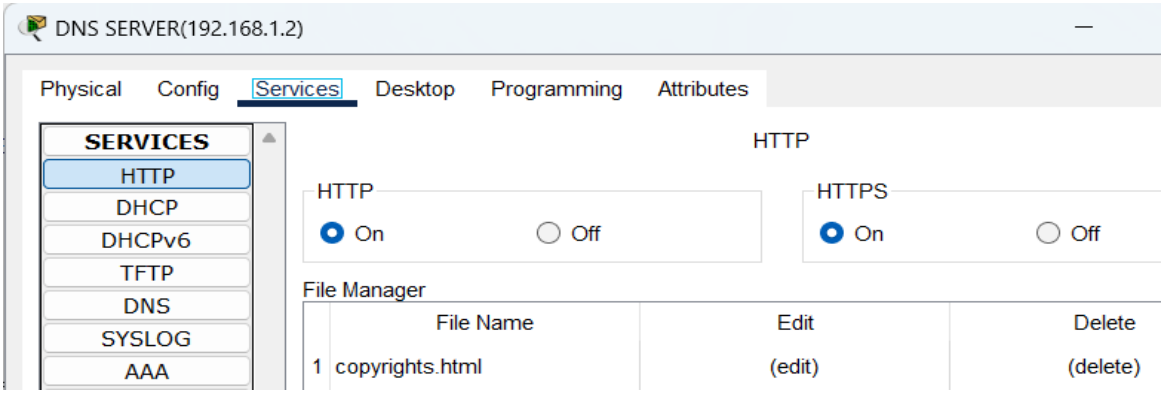

Fig: Turning ON HTTP

Step 4: And Go to index.html, click edit, make the necessary changes to the file, and click Save.

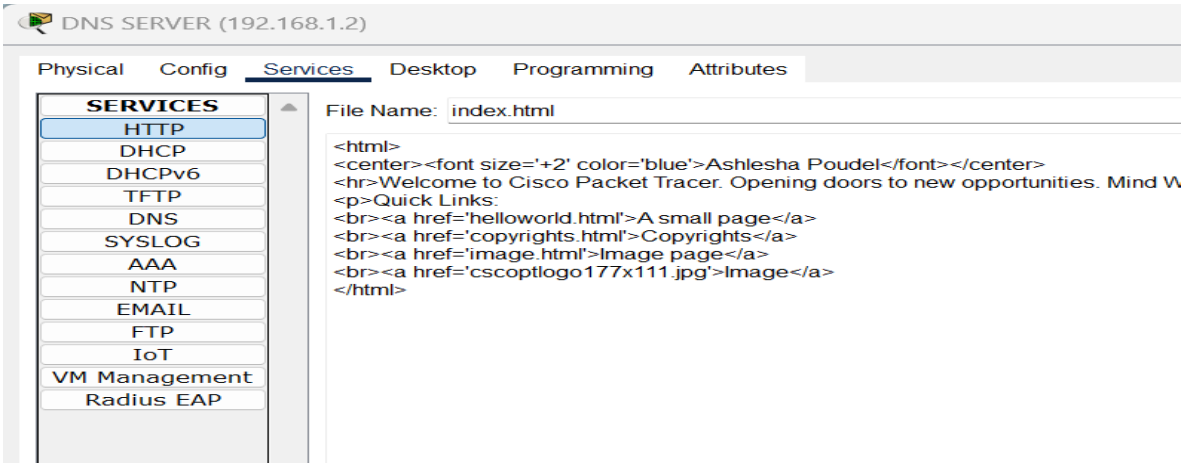

Fig: Configuring index.html file

Web Server Configuration:

Step 1: Click on the Web Server, then go to the Config tab.

Step 2: Set the DNS Server to 192.168.1.2.

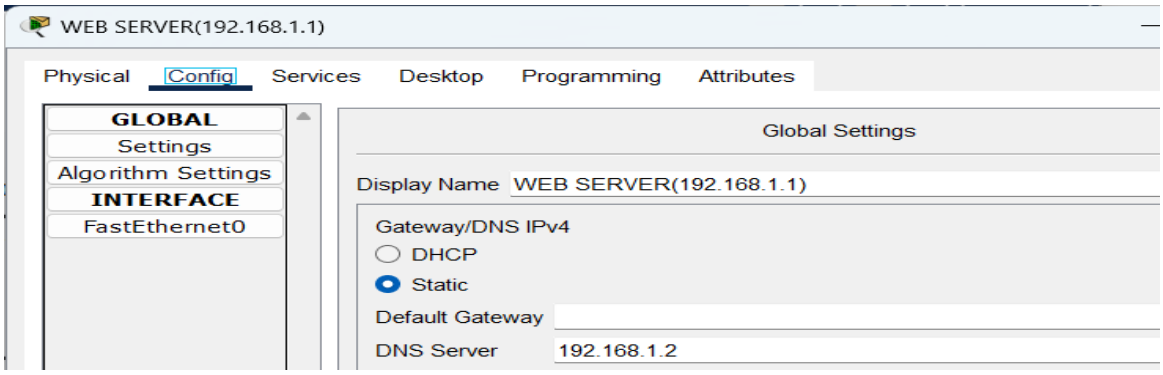

Fig: Configuring DNS on WEB server

Step 3: Go to the Desktop tab and set the IP Address to 192.168.1.1, the Subnet Mask to 255.255.255.0, and the DNS Server to 192.168.1.2.

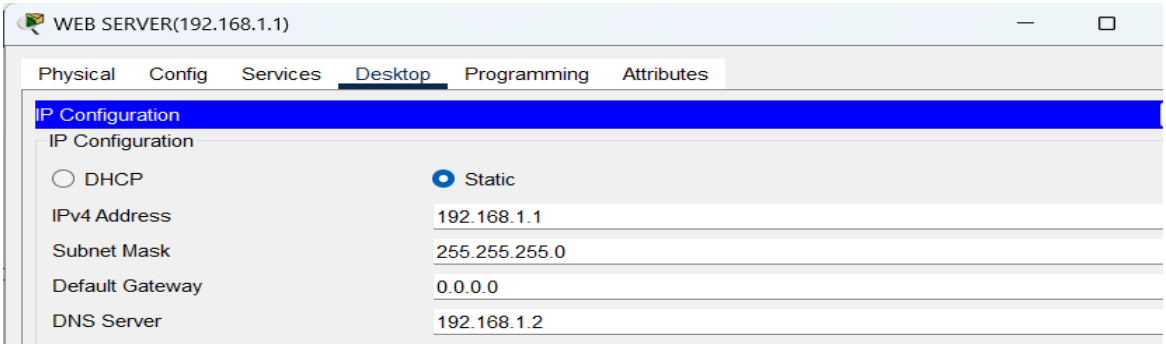

Fig: Configuring WEB server

PC Configuration:

Step 1: Go to the PC, then navigate to the Desktop tab.

Step 2: Set the IP Address to 192.168.1.3, the Subnet Mask to 255.255.255.0, and the DNS Server to 192.168.1.2.

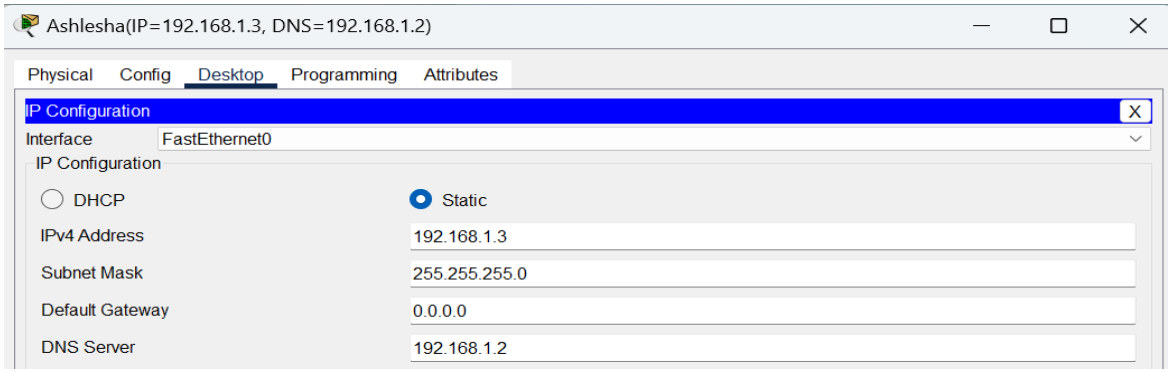

Fig: IP configuration on PC

Testing Web Server on PC

Step 1: Go to the Desktop, click on Web Browser, and in the URL tab, enter the IP address of the Web Server, i.e., 192.168.1.1.

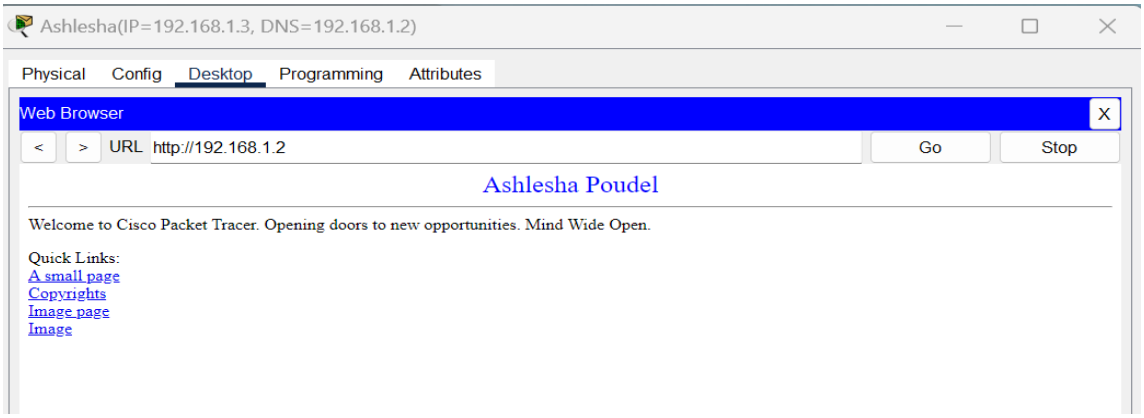

Fig: Checking WEB server on PC

Web Server in DNS Server Configuration

Step 1: Go to the DNS Server then click on Services, then select DNS.

Step 2: In the Name field, type google.com,enter the IP address of the Web Server in Address field, , i.e., 192.168.1.1 then click add and then save.

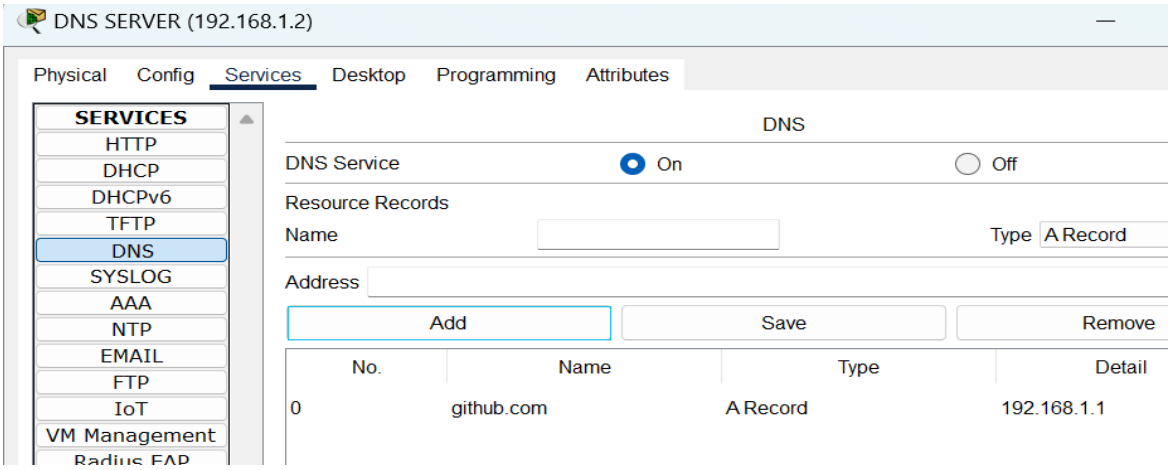

Fig: Adding WEB server on DNS server

Testing Web Server on PC after configuring in DNS

Step 1: Go to the Desktop, click on Web Browser, and in the URL tab, typegoogle.com to access the web page served by the Web Server.

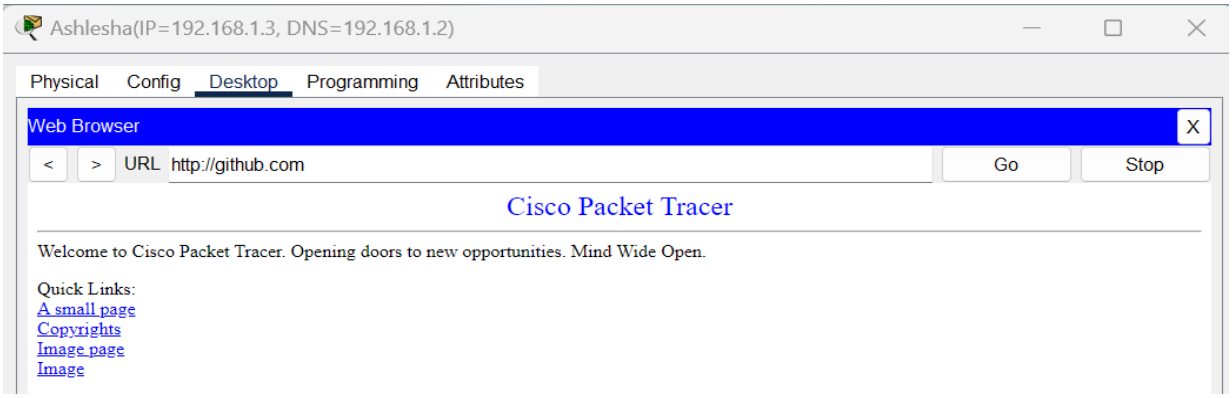

Fig: Checking Web Server after configuration in DNS

From above picture, we can verify that whether we type Name or IP address we willget the same web page.

Conclusion

In this lab, we demonstrate how DNS (Domain Name System) simplifies accessing web services by resolving human-readable domain names into machine-friendly IP addresses. This allows users to easily access websites using familiar domain names instead of remembering complex IP addresses. Using Cisco Packet Tracer, we configure both DNS and web servers to work together within a network. This setup highlights how DNS makes it easier for users to access web resources, improving usability and overall network efficiency.