

# Final Assignment Project Network Technologies

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index no 49729

Group L 1

## Description:

Welcome to the "Unified Network Ecosystem" lab assignment, where i've taken on the challenge of creating a comprehensive network infrastructure. In this project, i have strategically named my network, emphasizing the integration of various components. my network includes two routers, three switches, a DHCP server, a DNS server, and a web server, forming a dynamic and interconnected environment.

## Objective:

The core objective of this lab assignment is to demonstrate my proficiency in designing and implementing a cohesive network ecosystem that encompasses essential services like DHCP, DNS, and a web server. By combining routers, switches, and servers, i aim to create a seamless network that supports both internal communication and external services.

## Equipment:

2 Routers

5 Switches

DHCP Server

DNS Server

Web Server

Ethernet cables

Console cables

7 Computing devices for configuration (laptops or PCs)

## Router Configuration:

Assign IP addresses to router interfaces.

Implement routing protocols (e.g., OSPF or EIGRP) to establish communication between routers.

Set up static routes to ensure proper data forwarding.

## Switch Configuration:

Configure VLANs on each switch to segment the network logically.

Implement trunking between switches to allow VLAN information to pass through.

Assign IP addresses to the management interfaces of switches for remote administration.

DHCP Configuration:

Implement DHCP services on one of the routers.

Define DHCP pools for each subnet to automatically assign IP addresses to connected PCs.

Validate DHCP functionality by ensuring PCs obtain dynamic IP addresses.

DNS Configuration:

Set up a DNS server on a designated PC or a separate device.

Create DNS zones and records to facilitate name resolution.

Configure PCs to use the DNS server for name resolution.

Interconnecting Devices:

Establish physical connections between routers, switches, and PCs using Ethernet cables.

Configure router interfaces connected to switches and PCs as necessary.

Verify end-to-end connectivity and DNS resolution.

Testing and Verification:

Confirm DHCP functionality by checking IP configurations on PCs.

Validate DNS resolution by performing name lookups on connected devices.

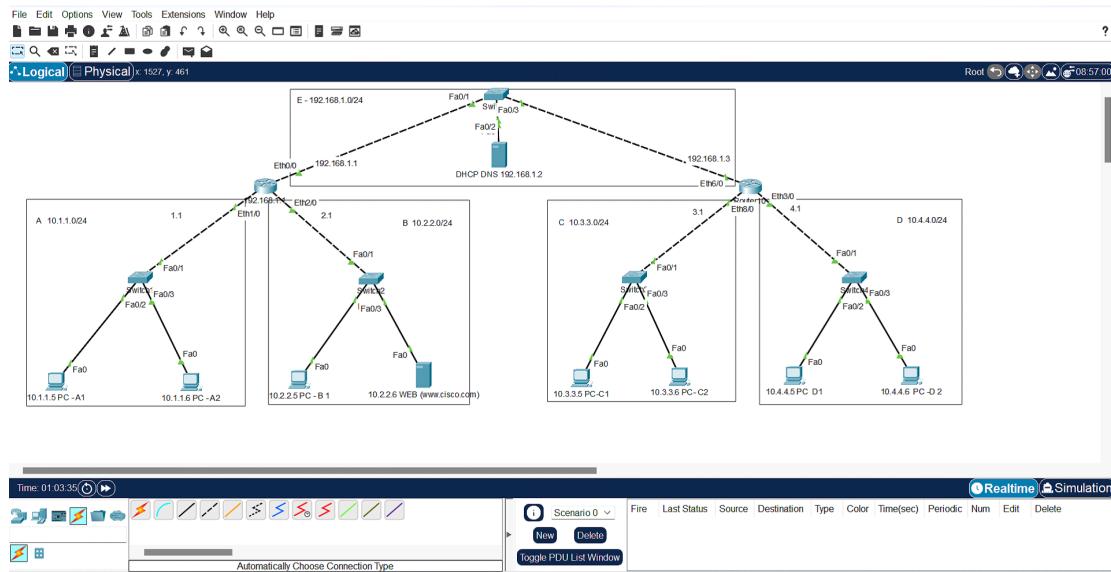
Troubleshoot and resolve any connectivity issues that may arise during testing.

Documentation:

Document the entire network topology, including IP addressing, routing configurations, VLAN assignments, DHCP settings, and DNS configurations.

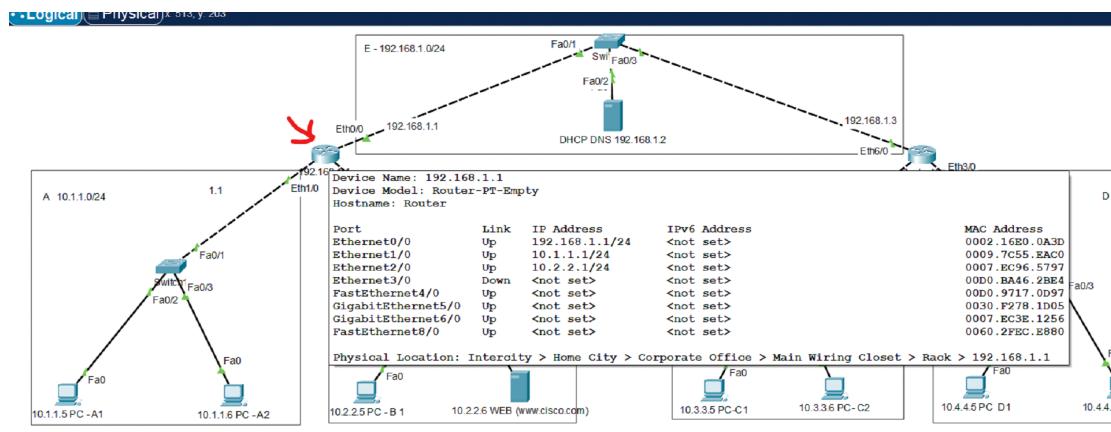
Provide a summary report of the lab, outlining the steps taken, challenges faced, and solutions implemented.

## Main view

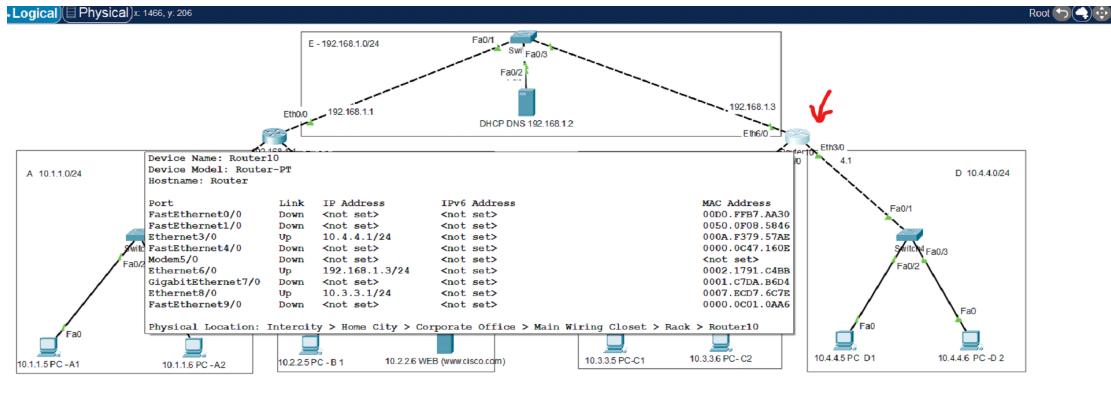


	A	B	C	D	E	F	G
1	Network Name	Network IP	Mask	Broadcast	Gateway IP	IP connected computers	IP of servers
2	A	10.1.1.0	255.255.255.0	24	10.1.1.1	A1-10.1.1.5 , A2-10.1.1.6	DNS 192.168.1.2
3	B	10.2.2.0	255.255.255.0	24	10.2.2.1	B1-10.2.2.5 , WEB 10.2.2.6	DNS 192.168.1.2
4	C	10.3.3.0	255.255.255.0	24	10.3.3.1	C1-10.3.3.5 , C2-10.3.3.6	DNS 192.168.1.2
5	D	10.4.4.0	255.255.255.0	24	10.4.4.1	D1-10.4.4.5 , D2-10.4.4.6	DNS 192.168.1.2
6	E SERVER	192.168.1.0	255.255.255.0	24	192.168.1.1	DHCP,DNS 192.168.1.2	DNS 192.168.1.2

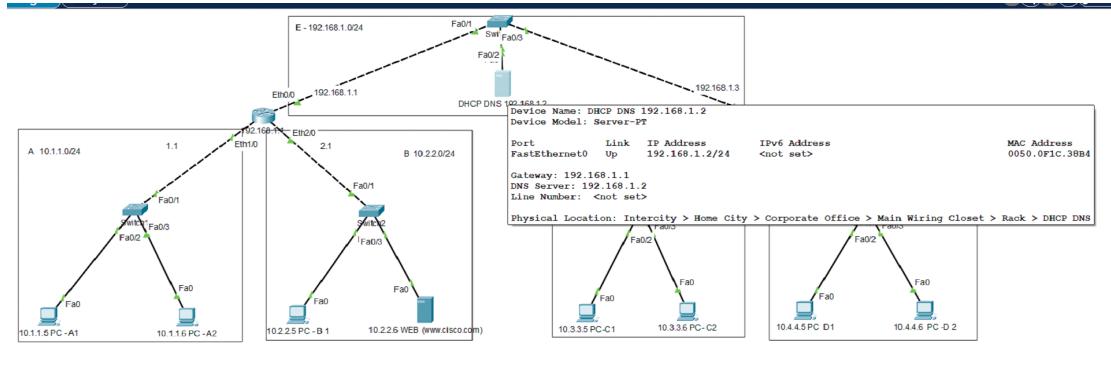
## Router 1



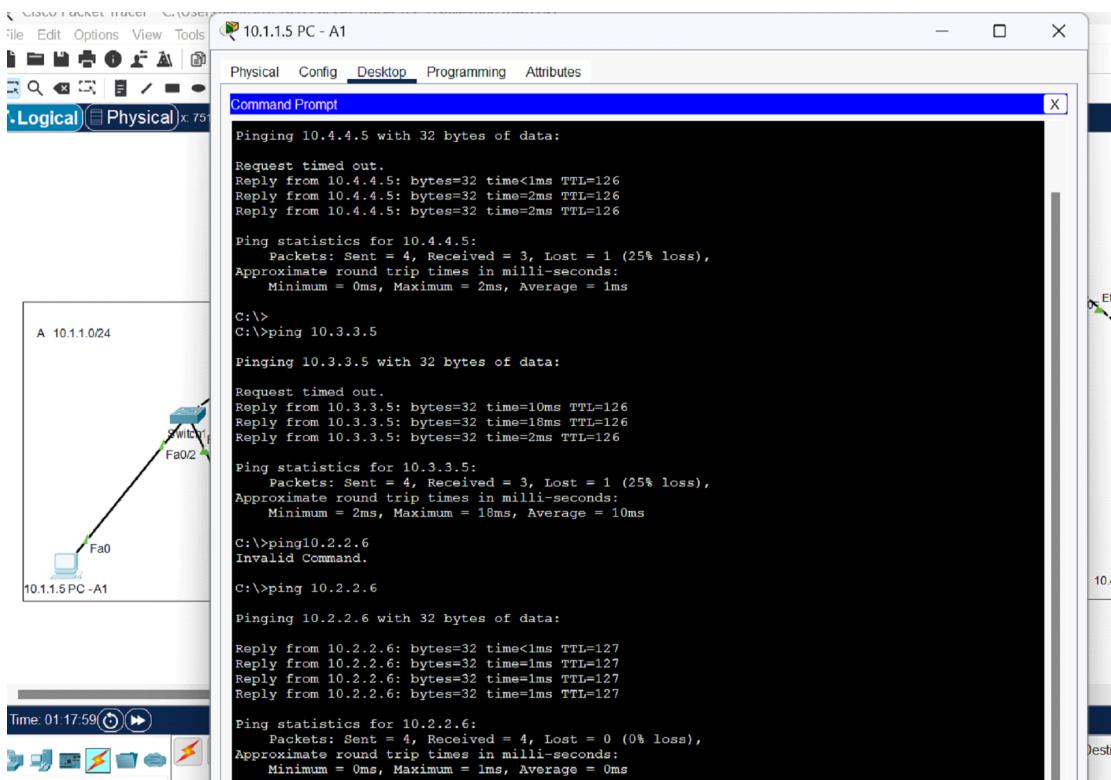
## Router 2



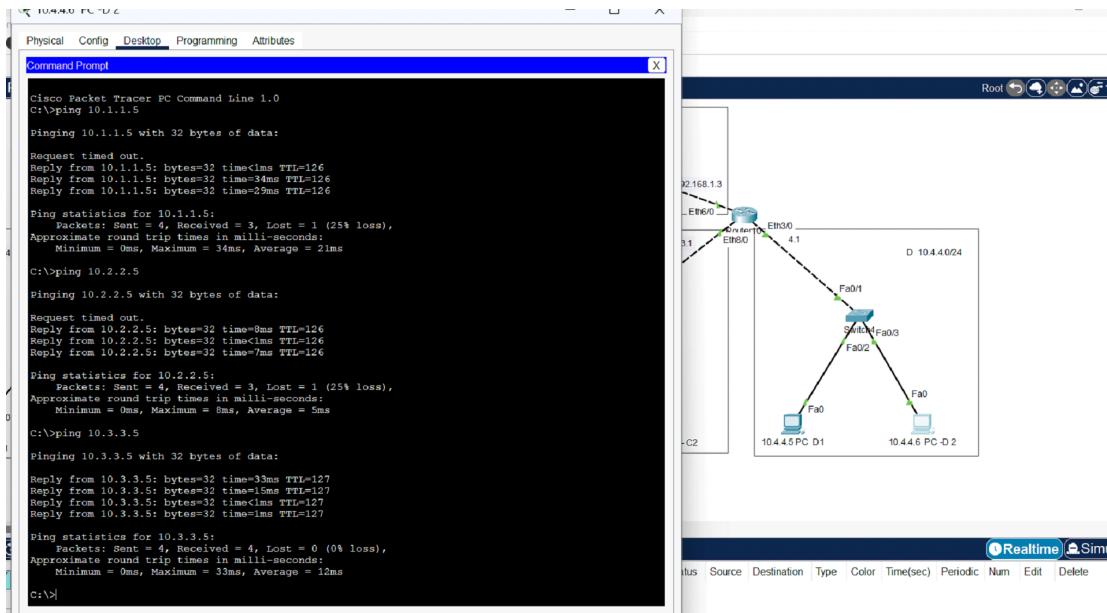
## DHCP DNS



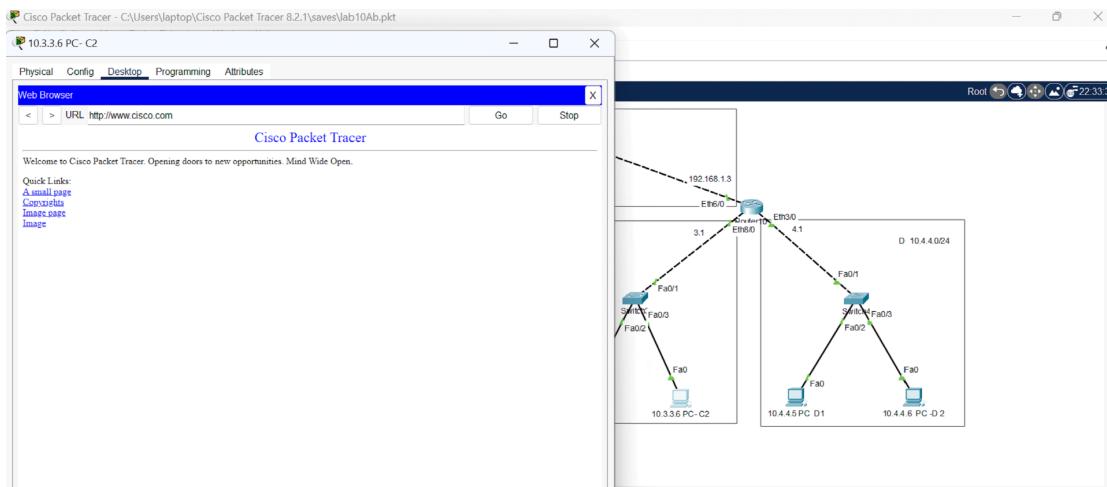
Ping from PC-A1 to D1, C1 and B2 (working)



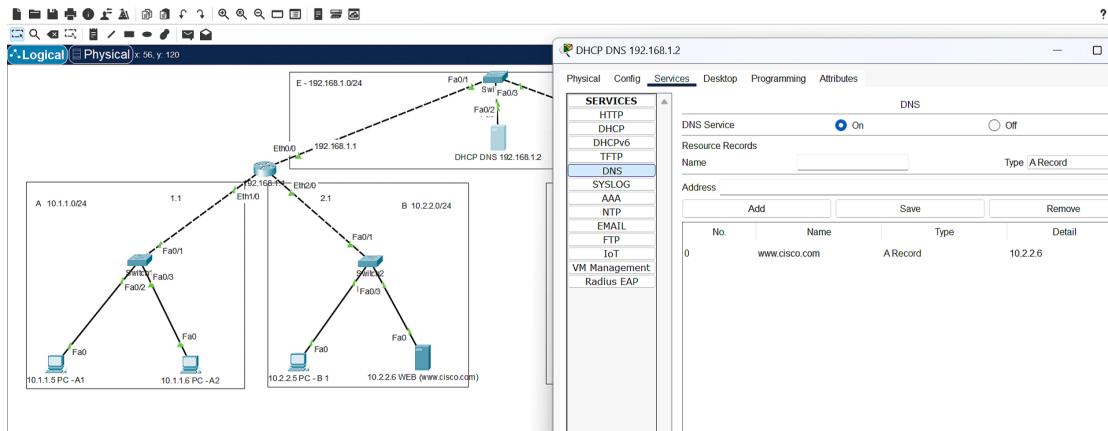
## PING from PC-D2 to A1, B1 and C1 (working)



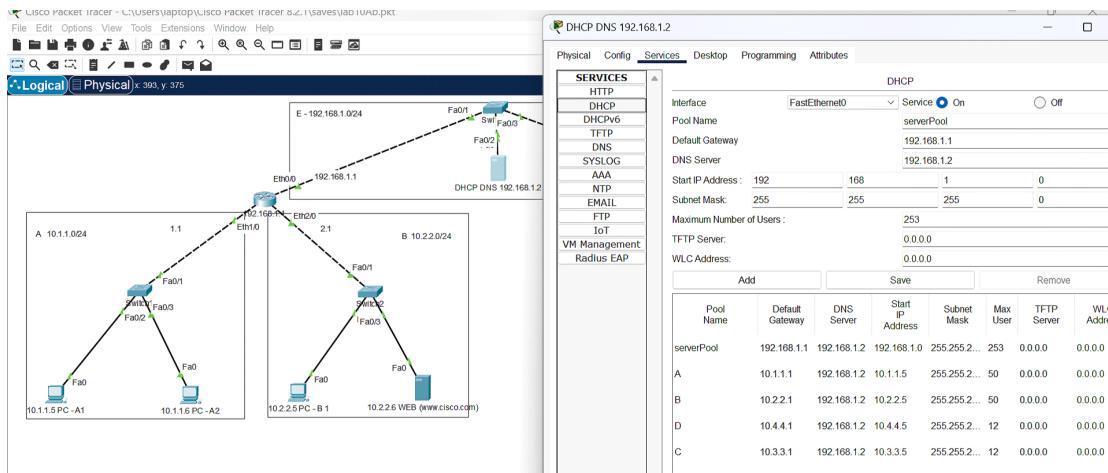
## Enter from C2 to PC-B WEB server (working)



DNS



## DHCP



## DHCP (working)

