



# EastWest University

**Department of CSE**

**CSE 405**

**Computer Networking**

**SECTION: 02**

**Title: Design a full-Fledged  
network for an organization with  
multiple subnets.**

## ***Project Report***

**Submitted To:**

**Dr. Anisur Rahman**

**Asst.Professor ,**

**Department of CSE .**

**Submitted By:**

**Md. Sakibul Islam**

**➤ 2016-2-60-060**

## **Project Statement:**

The purpose of my project is to create a university based network. The project based on creating complete model of the complex network by discovering the interconnectivity of the system and subnetworks, which will reflect the Apex University curriculum. This project is about configure a DHCP which is automatically assign IPv4 addresses to any host. Also DNS server ,HTTP protocol used in this project. Here I use cisco packet tracer and implemented window.

## **Overview of Three main services:**

In my project I have used Cisco Packet Tracer for the implementation. There are three main services, One is Dynamic Host Configuration Protocol (DHCP) ,Second one is Hyper Transfer Protocol (HTTP), Third one is Domain Name System (DNS).

DHCP is a network protocol that enables a server to automatically assign an IP to a computer from defined range of numbers configured for a given network. DHCP allows to move a computer, such as a laptop, among various locations without reconfiguring the TCP/IP setting. For example, if a faculty member had a laptop which he wanted to take from his office to a networked classroom to present in class, DHCP will allow the laptop to hook to the network in both locations without reconfiguring the computer.

In this project's network model, there is a single server (DHCP), which is connected to a switch. That switch is connected to other five routers connected to switch that refer to Academic, Classrooms, ICS labs, faculty, employee, digital lab, and library. Each server is a sub-network. In the DHCP server there are few numbers of ports where I use only two port to connect a switch that creates sub-network. In future which can be expanded creating subnets from them? These are the wired network connections. Alongside of those, we I used 1 wireless switch so that one can connect there tablet or mobile phone and use internet service.

HTTP is designed to permit intermediate network elements to improve or enable communications between clients and servers. High-traffic websites often benefit from web cache servers that deliver content on behalf of upstream servers to improve response time. Web browsers cache previously accessed web resources and reuse them when possible to reduce network traffic. HTTP proxy servers at private network boundaries can facilitate communication for clients without a globally routable address, by relaying messages with external servers.

DNS server is the Internet's equivalent. It maintain a directory of domain names and translate them to Internet Protocol addresses.

Using this configuration I tried to create that complete model of complex network that reflects the Apex University curriculum.

### **Tools or components :**

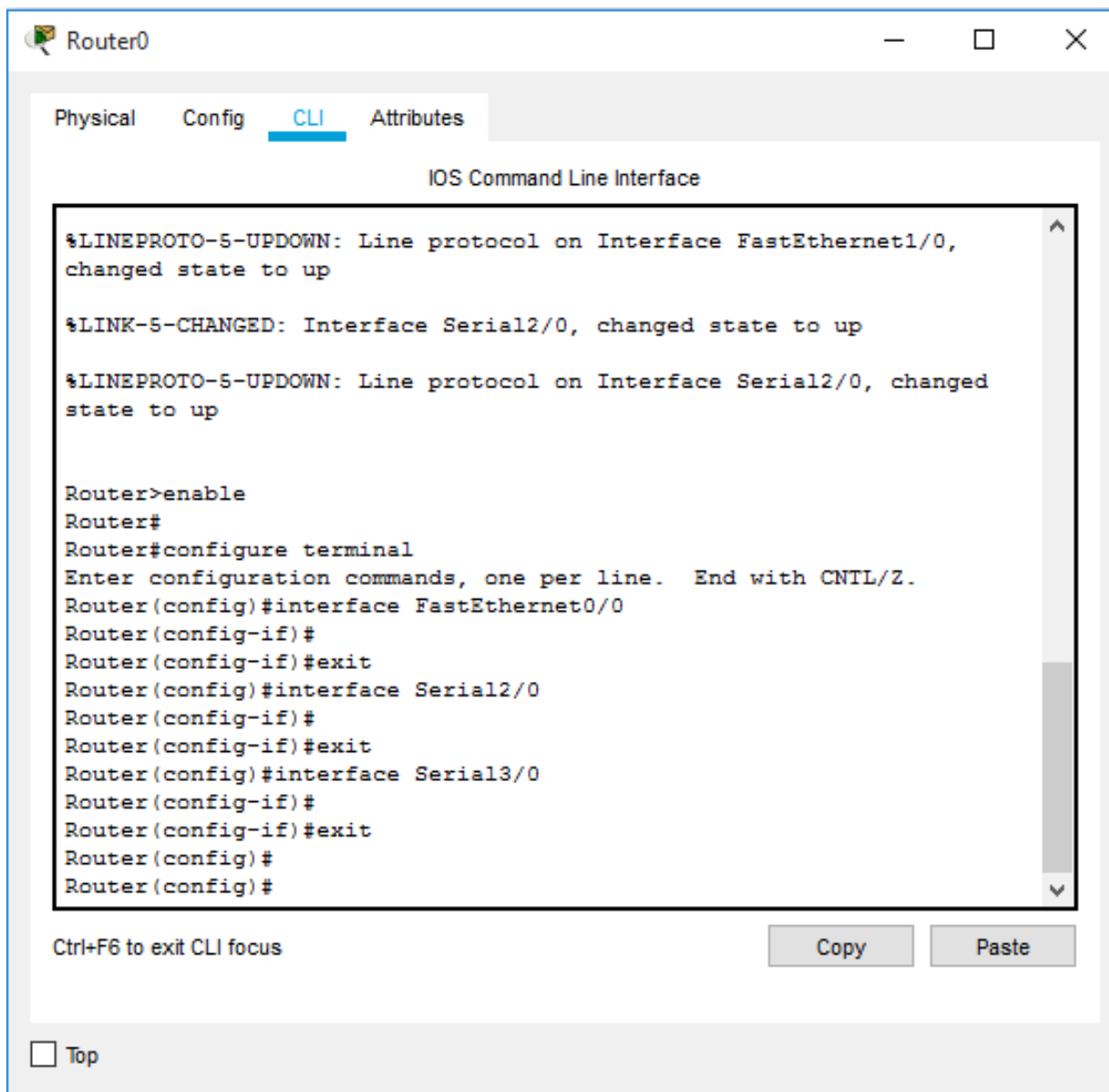
1. One DHCP Server
2. One DNS Server
3. One HTTP
4. Eleven Switches
5. Five routers
6. Twenty four hosts
7. One smart phone
8. Connector

### **Procedure:**

First I take hosts from where admission ,advising ,lab and different types of activities are done. To interface the host I take switch. Then used router for making network. After that I take DHCP server, DNS server and HTTP server. The DNS server is for HTTP server. So the web server can be workable . Everything ought to be associated with wire at that point. Then we will assign gateway IP in the router. The router will recognize server and switch with those gateway IP.

We assign the IP's of switch or server which will be recognizable to router. Those will be their default gateway IP. We will also assign the server IP.

Now, we make recognizable the switch side network to router.



Router0

Router0

PhysicalConfigCLIAttributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

INTERFACE

FastEthernet0/0

FastEthernet1/0

Serial2/0

Serial3/0

FastEthernet4/0

FastEthernet5/0

Network

Mask

Next Hop

Network Address

192.168.70.0/24 via 192.168.50.2

192.168.16.0/24 via 192.168.50.2

192.168.8.0/24 via 192.168.50.2

192.168.32.0/24 via 192.168.50.2

192.168.40.0/24 via 192.168.50.2

Equivalent IOS Commands

Router#  
Router#configure terminal  
Enter configuration commands, one per line. End with CNTL/Z.  
Router(config)#interface FastEthernet0/0  
Router(config-if)#  
Router(config-if)#exit  
Router(config)#interface Serial2/0  
Router(config-if)#  
Router(config-if)#exit  
Router(config)#interface Serial3/0  
Router(config-if)#  
Router(config-if)#exit

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Here is the static mode.

Similarly ,

```
cisco Internetwork Operating System Software
IOS (tm) PT1000 Software (PT1000-I-M), Version 12.2(28), RELEASE SOFTWARE (fc5)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2005 by Cisco Systems, Inc.
Compiled Wed 27-Apr-04 19:01 by miwang

PT 1001 (PTSC2005) processor (revision 0x200) with 60416K/5120K bytes of memory
..
Processor board ID PT0123 (0123)
PT2005 processor: part number 0, mask 01
Bridging software.
X.25 software, Version 3.0.0.
4 FastEthernet/IEEE 802.3 interface(s)
2 Low-speed serial(sync/async) network interface(s)
32K bytes of non-volatile configuration memory.
63488K bytes of ATA CompactFlash (Read/Write)

Press RETURN to get started!

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed state to up
%LINK-5-CHANGED: Interface Serial2/0, changed state to up
%LINK-5-CHANGED: Interface Serial3/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial3/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#
Router(config)#
```

Ctrl+F6 to exit CLI focus

Copy

Paste

Activate Windows  
Go to Settings to activate Windows.

Physical **Config** CLI Attributes

<b>GLOBAL</b>		
Settings		
Algorithm Settings		
<b>ROUTING</b>		
<b>Static</b>		
RIP		
<b>INTERFACE</b>		
FastEthernet0/0		
FastEthernet1/0		
Serial2/0		
Serial3/0		
FastEthernet4/0		
FastEthernet5/0		

Display Name	Router1	
Hostname	Router	
NVRAM	Erase	
Startup Config	Load...	
Running Config	Export...	

## Equivalent IOS Commands

Press RETURN to get started!

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed state to up

%LINK-5-CHANGED: Interface Serial2/0, changed state to up

%LINK-5-CHANGED: Interface Serial3/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial3/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

```

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PT 1001 (PTSC2005) processor (revision 0x200) with 60416K/5120K bytes of memory

Processor board ID PT0123 (0123)
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32K bytes of non-volatile configuration memory.
63488K bytes of ATA CompactFlash (Read/Write)

Press RETURN to get started!

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
%LINK-5-CHANGED: Interface Serial2/0, changed state to up
%LINK-5-CHANGED: Interface Serial3/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial3/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#
Router(config)#
```



Physical **Config** CLI Attributes

<b>GLOBAL</b>
Settings
Algorithm Settings
<b>ROUTING</b>
<b>Static</b>
RIP
<b>INTERFACE</b>
FastEthernet0/0
FastEthernet1/0
Serial2/0
Serial3/0
FastEthernet4/0
FastEthernet5/0

Network

Mask

Next Hop

Network Address
192.168.35.0/24 via 192.168.30.1
192.168.90.0/24 via 192.168.30.1
192.168.50.0/24 via 192.168.30.1
192.168.70.0/24 via 192.168.30.1
192.168.16.0/24 via 192.168.30.1

## Equivalent IOS Commands

Press RETURN to get started!

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
%LINK-5-CHANGED: Interface Serial12/0, changed state to up
%LINK-5-CHANGED: Interface Serial13/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial13/0, changed state to up
```

Router4

Physical Config CLI Attributes

### IOS Command Line Interface

Press RETURN to get started!

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

%LINK-5-CHANGED: Interface Serial2/0, changed state to up

%LINK-5-CHANGED: Interface Serial3/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial3/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

Router>enable

Router#

Router#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Router(config)#

Ctrl+F6 to exit CLI focus

Copy

Paste

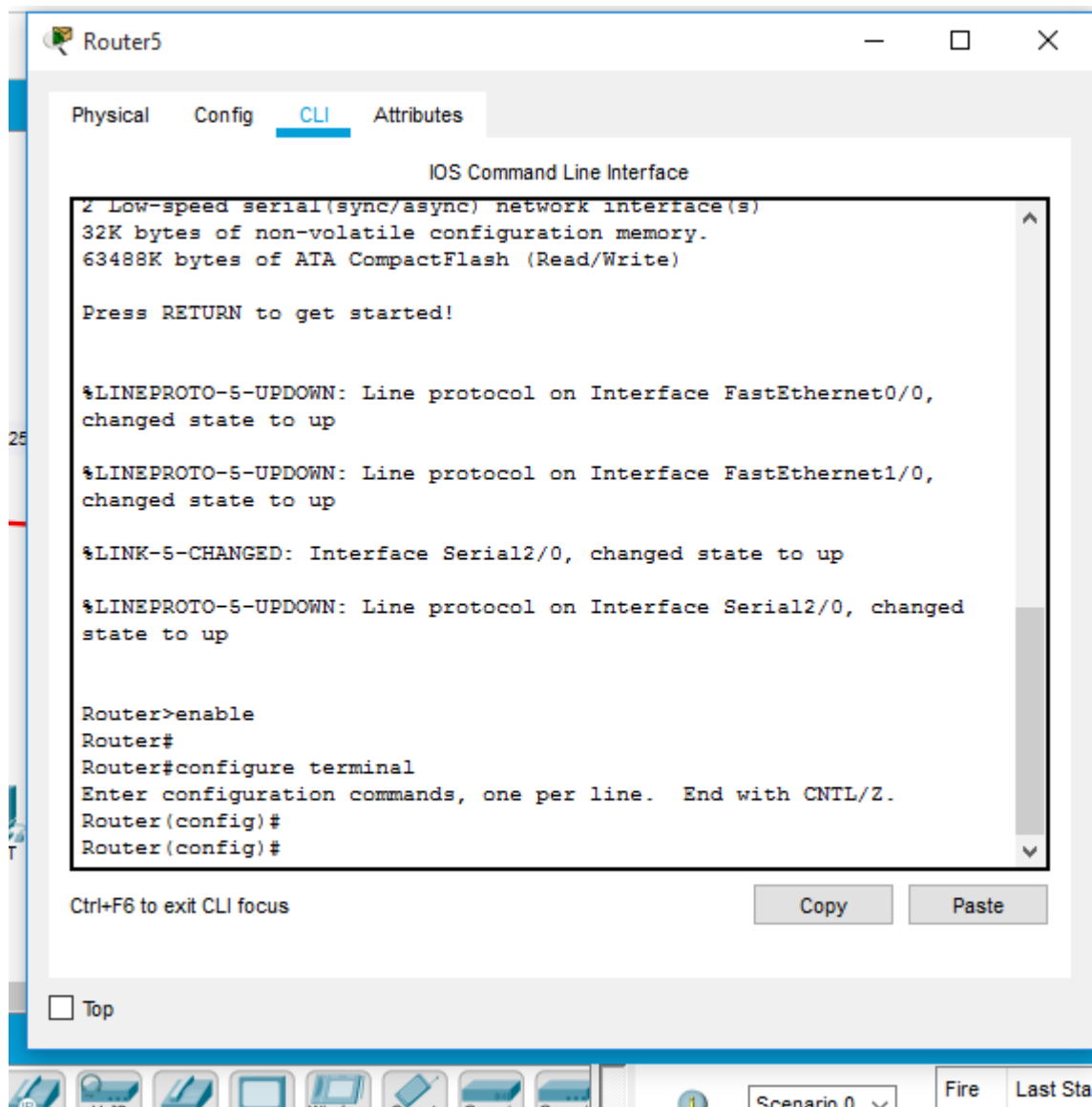
☐ Top



Scenario 0

Fire

Last Sta



Router5

Physical

Config

CLI

Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

INTERFACE

FastEthernet0/0

FastEthernet1/0

Serial2/0

Serial3/0

FastEthernet4/0

FastEthernet5/0

Static Ro

Network

Mask

Next Hop

Network Address

192.168.55.0/24 via 192.168.10.2

192.168.45.0/24 via 192.168.10.2

192.168.30.0/24 via 192.168.10.2

192.168.32.0/24 via 192.168.10.2

192.168.8.0/24 via 192.168.10.2

Equivalent IOS Commands

Press RETURN to get started!

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed state to up

%LINK-5-CHANGED: Interface Serial2/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

My Entire project in cisco packet is ,

