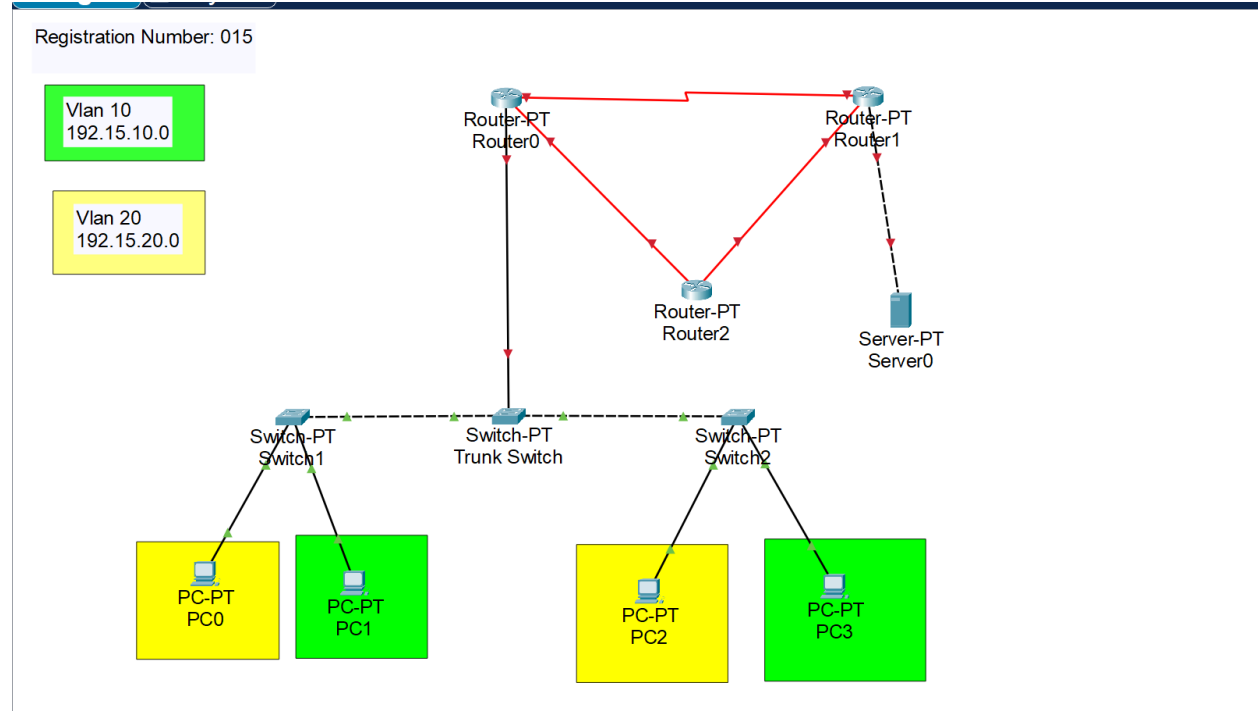


# DCCN Lab Assignment

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## Network Topology



## Configuring Ips on PCs

PC0

Physical Config Desktop Programming Attributes

**IP Configuration** X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.15.20.2

Subnet Mask 255.255.255.0

Default Gateway 192.15.20.1

DNS Server 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address /

Link Local Address FE80::201:63FF:FE0E:9956

Default Gateway

DNS Server

802.1X

☐ Use 802.1X Security

Authentication MD5

Username

Password

☐ Top

PC1

Physical Config Desktop Programming Attributes

IP Configuration

InterfaceFastEthernet0

IP Configuration

☐ DHCP

☒ Static

IPv4 Address192.15.10.2

Subnet Mask255.255.255.0

Default Gateway192.15.10.1

DNS Server0.0.0.0

IPv6 Configuration

☐ Automatic

☒ Static

IPv6 Address /

Link Local AddressFE80::20A:41FF:FE65:5670

Default Gateway

DNS Server

802.1X

☐ Use 802.1X Security

AuthenticationMD5

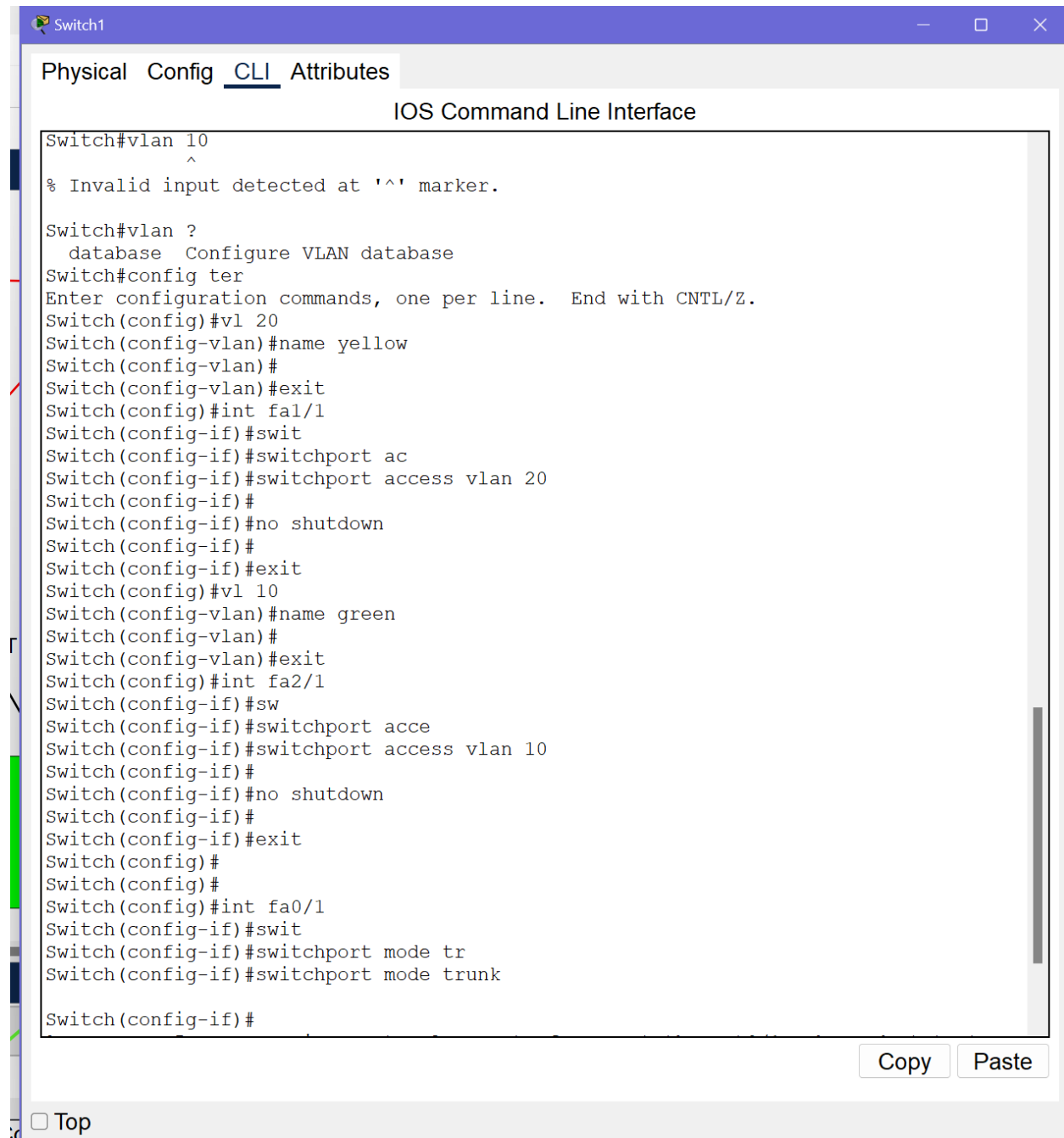
Username

Password

Top

## Creating VLANs on Switches

### Switch 1 (Left Most)



```
Switch1
Physical Config CLI Attributes
IOS Command Line Interface

Switch#vlan 10
^
% Invalid input detected at '^' marker.

Switch#vlan ?
  database  Configure VLAN database
Switch#config ter
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#vl 20
Switch(config-vlan)#name yellow
Switch(config-vlan)#
Switch(config-vlan)#exit
Switch(config)#int fa1/1
Switch(config-if)#swit
Switch(config-if)#switchport ac
Switch(config-if)#switchport access vlan 20
Switch(config-if)#
Switch(config-if)#no shutdown
Switch(config-if)#
Switch(config-if)#exit
Switch(config)#vl 10
Switch(config-vlan)#name green
Switch(config-vlan)#
Switch(config-vlan)#exit
Switch(config)#int fa2/1
Switch(config-if)#sw
Switch(config-if)#switchport acce
Switch(config-if)#switchport access vlan 10
Switch(config-if)#
Switch(config-if)#no shutdown
Switch(config-if)#
Switch(config-if)#exit
Switch(config)#
Switch(config)#
Switch(config)#int fa0/1
Switch(config-if)#swit
Switch(config-if)#switchport mode tr
Switch(config-if)#switchport mode trunk

Switch(config-if)#
```

Copy Paste

☐ Top

## Switch 2 (Right Most)

Switch2

Physical Config CLI Attributes

IOS Command Line Interface

```
Switch>
Switch>en
Switch#config ter
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#vl 20
Switch(config-vlan)#name yellow
Switch(config-vlan)#
Switch(config-vlan)#
Switch(config-vlan)#exit
Switch(config)#int fa1/1
Switch(config-if)#sw
Switch(config-if)#switchport access vl 20
Switch(config-if)#
Switch(config-if)#now shutdown
Switch(config-if)#^
% Invalid input detected at '^' marker.

Switch(config-if)#no shut
Switch(config-if)#no shutdown
Switch(config-if)#
Switch(config-if)#exit
Switch(config)#
Switch(config)#vl 10
Switch(config-vlan)#name green
Switch(config-vlan)#int fa2/1
Switch(config-if)#sw
Switch(config-if)#switchport access vl 10
Switch(config-if)#
Switch(config-if)#no shut
Switch(config-if)#no shutdown
Switch(config-if)#
Switch(config-if)#exit
Switch(config)#
Switch(config)#int fa0/1
Switch(config-if)#swit
Switch(config-if)#switchport mode tr
Switch(config-if)#switchport mode trunk

Switch(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to
```

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☐ Top

## Trunk Switch (Middle)

Trunk Switch

Physical Config CLI Attributes

IOS Command Line Interface

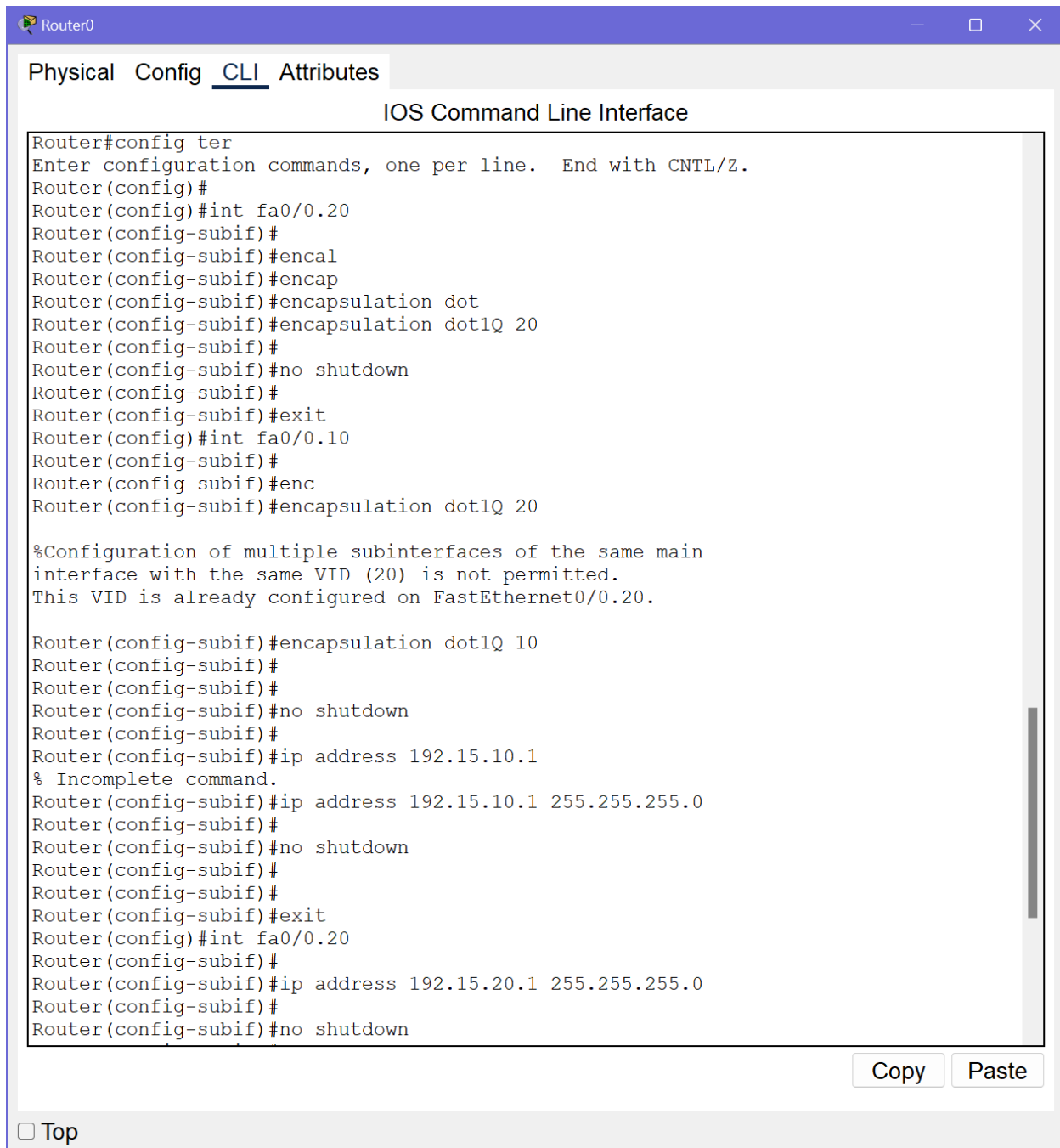
```
Switch>en
Switch#config ter
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#
Switch(config)#
Switch(config)#vl 20
Switch(config-vlan)#name yellow
Switch(config-vlan)#
Switch(config-vlan)#
Switch(config-vlan)#exit
Switch(config)#vl 10
Switch(config-vlan)#
Switch(config-vlan)#name green
Switch(config-vlan)#
Switch(config-vlan)#exit
Switch(config)#sw
Switch(config)#int fa2/1
Switch(config-if)#swit
Switch(config-if)#switchport mode tr
Switch(config-if)#switchport mode trunk
Switch(config-if)#
Switch(config-if)#no shutdown
Switch(config-if)#
Switch(config-if)#exit
Switch(config)#int fa1/1
Switch(config-if)#swi
Switch(config-if)#switchport mode trunk
Switch(config-if)#
Switch(config-if)#
Switch(config-if)#no shutdown
Switch(config-if)#
Switch(config-if)#int fa0/1
Switch(config-if)#swt
Switch(config-if)#swi
Switch(config-if)#switchport mode
Switch(config-if)#switchport mode t
Switch(config-if)#switchport mode trunk
Switch(config-if)#
Switch(config-if)#no shutdown
Switch(config-if)#
```

Copy Paste

☐ Top

# Router on The Stick Configuration

## VLAN Interface



The screenshot shows a Cisco Router CLI window titled "Router0". The window has tabs for "Physical", "Config", "CLI", and "Attributes", with "CLI" selected. The main area is titled "IOS Command Line Interface" and displays the following configuration commands:

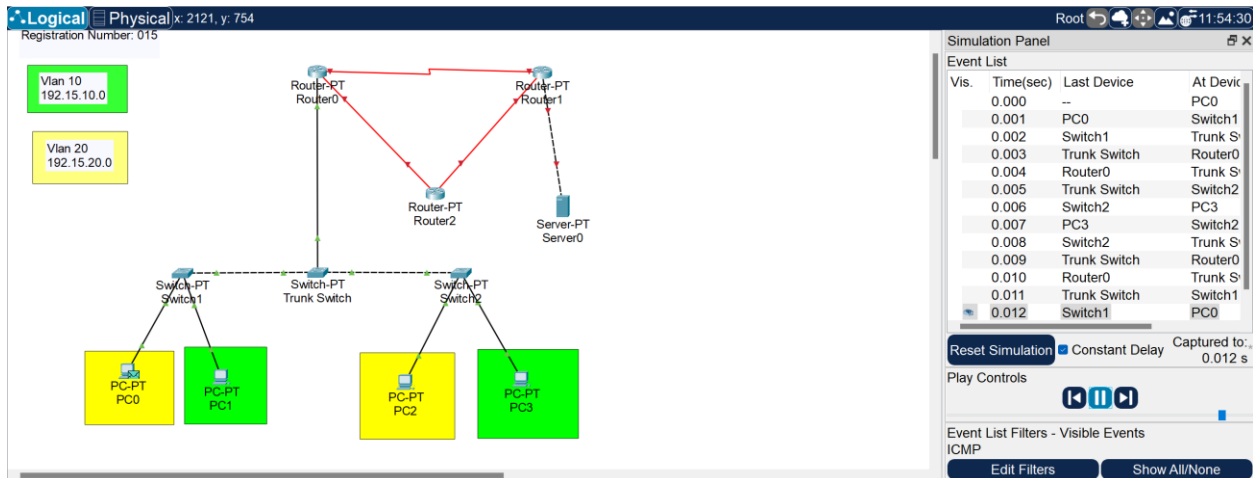
```
Router#config ter
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#
Router(config)#int fa0/0.20
Router(config-subif)#
Router(config-subif)#encal
Router(config-subif)#encap
Router(config-subif)#encapsulation dot
Router(config-subif)#encapsulation dot1Q 20
Router(config-subif)#
Router(config-subif)#no shutdown
Router(config-subif)#
Router(config-subif)#exit
Router(config)#int fa0/0.10
Router(config-subif)#
Router(config-subif)#enc
Router(config-subif)#encapsulation dot1Q 20

%Configuration of multiple subinterfaces of the same main
interface with the same VID (20) is not permitted.
This VID is already configured on FastEthernet0/0.20.

Router(config-subif)#encapsulation dot1Q 10
Router(config-subif)#
Router(config-subif)#
Router(config-subif)#no shutdown
Router(config-subif)#
Router(config-subif)#ip address 192.15.10.1
% Incomplete command.
Router(config-subif)#ip address 192.15.10.1 255.255.255.0
Router(config-subif)#
Router(config-subif)#no shutdown
Router(config-subif)#
Router(config-subif)#
Router(config-subif)#exit
Router(config)#int fa0/0.20
Router(config-subif)#
Router(config-subif)#ip address 192.15.20.1 255.255.255.0
Router(config-subif)#
Router(config-subif)#no shutdown
```

At the bottom right of the CLI window, there are "Copy" and "Paste" buttons. At the bottom left, there is a "Top" button.

After this Configuration, Inter VLAN Routing Works as simulated below:



## EIGRP Configuration (Router on the Stick) (Router0)

```

Router0
Physical Config CLI Attributes
IOS Command Line Interface
Router(config-if)#no shutdown
%LINK-5-CHANGED: Interface GigabitEthernet6/0, changed state to down
Router(config-if)#
Router(config-if)#exit
Router(config)#router eigrp 100
Router(config-router)#network 30.15.0.0
Router(config-router)#network 10.15.0.0
Router(config-router)#
Router(config-router)#no shutdown
Router(config-router)#
^
% Invalid input detected at '^' marker.
Router(config-router)#
Router(config-router)#exit
Router(config)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to up
%LINK-5-CHANGED: Interface GigabitEthernet6/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet6/0, changed state to up
%IP-4-DUPADDR: Duplicate address 10.15.0.1 on GigabitEthernet6/0, sourced by 0001.644C.E00A
%DUAL-5-NBRCHANGE: IP-EIGRP 100: Neighbor 10.15.0.2 (GigabitEthernet6/0) is up: new adjacency
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up
%DUAL-5-NBRCHANGE: IP-EIGRP 100: Neighbor 30.15.0.2 (Serial2/0) is up: new adjacency
Router(config)#
Router(config)#router eigrp 100
Router(config-router)#network 192.15.10.0
Router(config-router)#network 192.15.20.0
Router(config-router)#
Router(config-router)#exit
Router(config)#

```

Copy Paste

Top



## Right Most Router Configuration (Router1)

 Router1 — □ ×

Physical Config CLI Attributes

IOS Command Line Interface

```
Router>en
Router#config ter
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#int se2/0
Router(config-if)#ip address 30.15.0.2 255.0.0.0
Router(config-if)#
Router(config-if)#no shutdown

Router(config-if)#exit
Router(config)#int gig 7/0
Router(config-if)#
Router(config-if)#ip address 20.15.0.1 255.0.0.0
Router(config-if)#
Router(config-if)#no shutdown

%LINK-5-CHANGED: Interface GigabitEthernet7/0, changed state to down
Router(config-if)#exit
Router(config)#int fa0/0
Router(config-if)#
Router(config-if)#ip address 172.15.4.6 255.255.0.0
Router(config-if)#
Router(config-if)#no shutdown

Router(config-if)#
Router(config-if)#exit
Router(config)#router eigrp 100
Router(config-router)#
Router(config-router)#network 30.15.0.0
Router(config-router)#
Router(config-router)#network 20.15.0.0
Router(config-router)#
Router(config-router)#exit
Router(config)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to up

%LINK-5-CHANGED: Interface GigabitEthernet7/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet7/0, changed state
to up
```

Copy Paste

☐ Top

## IOS Command Line Interface

```
%DUAL-5-NBRCHANGE: IP-EIGRP 100: Neighbor 30.15.0.1 (Serial2/0) is up: new adjacency
%IP-4-DUPADDR: Duplicate address 172.15.4.6 on FastEthernet0/0, sourced by 0002.4A49.5360
%IP-4-DUPADDR: Duplicate address 172.15.4.6 on FastEthernet0/0, sourced by 0002.4A49.5360
```

```
Router(config)#
Router(config)#int fa0/0
Router(config-if)#ip address 172.15.0.1
% Incomplete command.
Router(config-if)#ip address 172.15.0.1 255.255.0.0
Router(config-if)#
Router(config-if)#no shutdown
Router(config-if)#
Router(config-if)#exit
Router(config)#router eigrp 100
Router(config-router)#network 172.15.0.1 255.255.0.0
Router(config-router)#
Router(config-router)#eexit
      ^
% Invalid input detected at '^' marker.

Router(config-router)#exit
Router(config)#
|
```

Router con0 is now available

[Copy](#)[Paste](#)

## Middle Router Configuration (Router2)

Router2

Physical Config CLI Attributes

IOS Command Line Interface

```
Router>
Router>en
Router#config ter
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#int gig 6/0
Router(config-if)#ip address 10.15.0.1 255.0.0.0
Router(config-if)#
Router(config-if)#no shutdown

Router(config-if)#
Router(config-if)#exit
Router(config)#int gig 7/0
Router(config-if)#ip address 20.15.0.2 255.0.0.0
Router(config-if)#
Router(config-if)#no shutdown

Router(config-if)#
Router(config-if)#exit
Router(config)#int gig6/0
Router(config-if)#ip address 10.15.0.2 255.0.0.0
Router(config-if)#
Router(config-if)#no shuttdown
                        ^
% Invalid input detected at '^' marker.

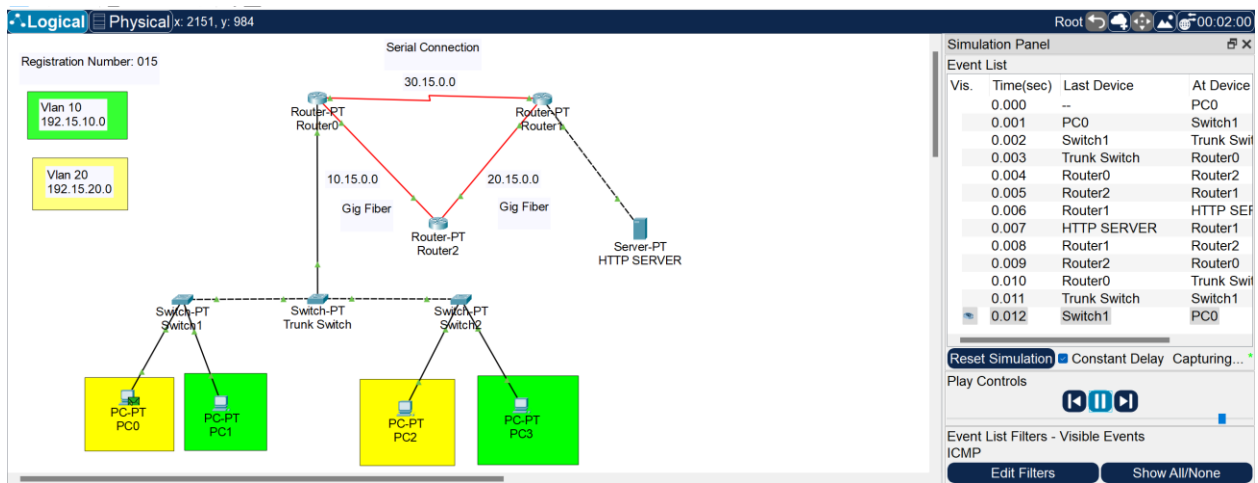
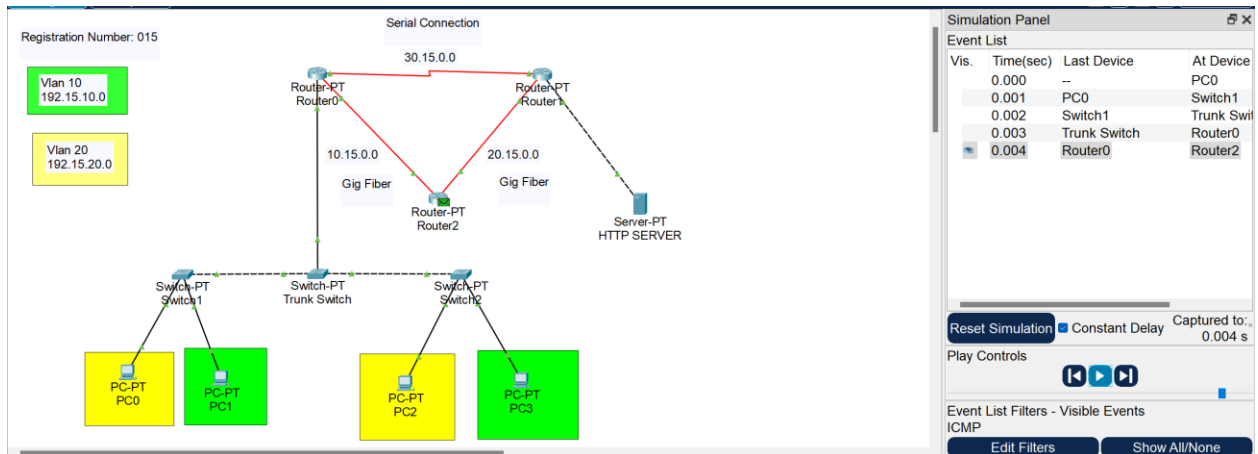
Router(config-if)#
Router(config-if)#no shutdown
Router(config-if)#
Router(config-if)#exit
Router(config)#router eigrp 100
Router(config-router)#network 10.15.0.0
Router(config-router)#network 20.15.0.0
Router(config-router)#
Router(config-router)#exit
Router(config)#
Router(config)#
%LINK-5-CHANGED: Interface GigabitEthernet6/0, changed state to up
```

Copy Paste

☐ Top

## EIGRP Shortest Path Selection (Fastest In this Case)

The ICMP Packet is sent through the fastest route i.e. Gigabit Fiber Path instead of the Serial Path as demonstrated below:



## Now Accessing the Web Page from the HTTP Server from a PC

