Symbiosis University of Applied Sciences, Indore

India's First Skill University

PRACTICAL JOURNAL

Enrollment Number – 2019BTCS088 Year of Enrollment – 2019-2023

Name of the Student – YASH GUPTA

School of COMPUTER SCIENCE & INFORMATION TECHNOLOGY

Program – B. TECH

Specialization/ Branch – CS&IT

Semester – 4TH Section – B2 Branch – CS&IT

Paper Code – BTCS03CCB5 Name of Paper – Computer Networks

Faculty-In-Charge – DR. NEHA GUPTA MAM

CERTIFICATE

THE PRACTICAL EXPERIMENTS

ENTERED IN THIS JOURNAL HAVE BEEN SATISFACTORY PERFORMED BY

ENROLLMENT NO - 2019BTCS088 MR/MS YASH GUPTA

STUDYING IN PROGRAM B. TECH BRANCH CS&IT IN

SCHOOL OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

DURING SEMESTER 4^{TH} OF ACADEMIC YEAR 2020-2021

_____

( )

Date: _____

INDEX

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Practical No: 01

(TELNET Configuration in Cisco Packet Tracer v8.0)

Date: June 23rd, 2021

PRACTICAL_NO.01

Date: June 23rd, 2021

1. TITLE: Telnet Configuration in Cisco Packet Tracer v8.0

2. AIM/OBJECTIVE:
   - The objective of this practical is to –
     - (a) Find out WSHH of Telnet?
     - (b) Application of Telnet in Cisco Packet Tracer
     - (c) Real world use cases for Telnet.
     - (d) How Network Admin's use Telnet in large Infrastructure?

3. METHODOLOGY: We are using both the Router as well as Switch in order to demonstrate Telnet (application) with a single Node.

So: (A) Telnet Configuration on Router:
- For a router, Telnet configuration is almost same as that of the switch.
- Step①: Build the Network topology as shown in SS.
- Step②: Configure enable password or enable secret password on the router.

```
Router > en
  "  # config term
  "  (config)# enable password admin
```

- Step③: Configure IP addresses on the Admin PC and interface fa/0 of the router.

// Router →
```
Router (config) # int fa0/0
  "  (  "  -if) # ip address 10.0.0.1 255.0.0.0
  "  ——  "  —— # no shut
```

// Admin-PC →
```
IP address 10.0.0.10 Subnet-mask 255.0.0.0
Default gateway 10.0.0.1
```

- Step④: Configure VLAN interface on the router. This interface allows for remote access on a switch or router via protocols such as Telnet or Secure Shell (SSH)

```
Router (config) # int VLAN 1
  "  —— (  "  -if) # no shutdown
```

↳ Step ⑤ : Configure Telnet Password on VTY lines & configure remote login.

Router (config) #
— " — # line vty 0 15
" " (— -line) # password cisco
— " — " # login

↳ Step ⑥ : We can now telnet the router using the IP address of f0/0 interface. So, in the command prompt of the admin PC type 'telnet 10.0.0.1 then hit enter key.

↳ Step ⑦ : Now provide Telnet password, then hit enter. Correct password allows us to access the CLI of the router.

↳ Step ⑧ : Now provide the enable password (that you set in step ②) to be allowed into privileged executive mode of the router.

③ Telnet configuration on Switch

↳ Step ① : Create the Network topology in packet tracer as shown in ss.

↳ Step ② : Assigning the PC0 a static IP address of 192.168.1.2/24

↳ Step ③ : Configure enable password or enable secret password on the switch. If this fails, the we won't get pass the executive mode of the switch even after establishing a telnet connection to switch.

↳ step ④ : Configure a VLAN interface on the switch.

Switch (config) # int VLAN 1
— " — (— -if) # ip address 192.168.1.2 255.0.0.0
— " — # no shut
— " — # exit

↳ Step ⑤ Configure a Telnet password for remote access. This password is configured on VTY lines.
↳ virtual terminal

Switch (config) # vty 0 15
— 1 — (config-line) # password cisco
— " — # login

↳ Step ⑥ : Now Test the Telnet connectivity.
Goto cmd prompt of PC and type
telnet 192.168.1.1

↳ Step ⑦: Now provide the Telnet password that we set in step ③. After we are authenticated, we will see the CLI of Remote switch appear.

↳ Step ⑧: Now provide the enable password (admin) to enter the privileged execution mode of the switch.

Finally, our telnet configuration on a switch is completed.

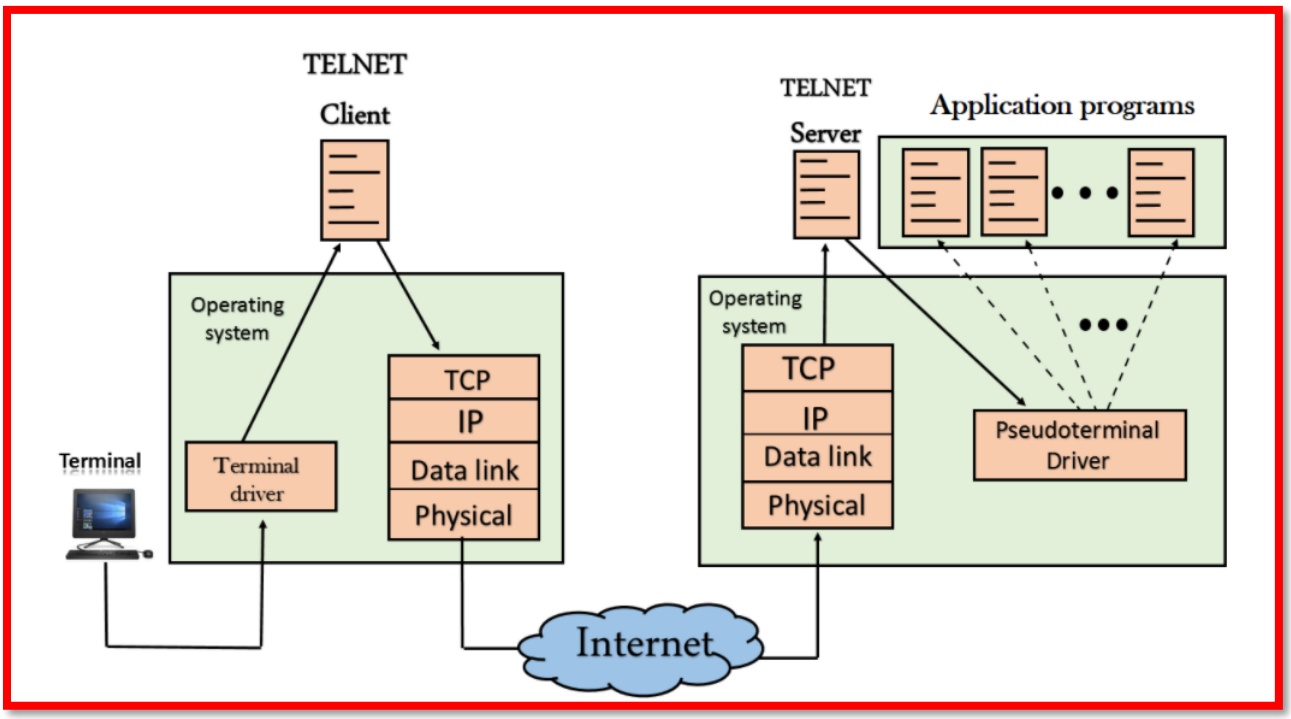
4. BRIEF DESCRIPTION:

Overview of telnet: Telnet is an application layer protocol that allows a Network administrator to access & manage remote devices. A user on a client machine can use a software (also known as Telnet client) to access a command line interface of another, remote machine that is running a Telnet server program.

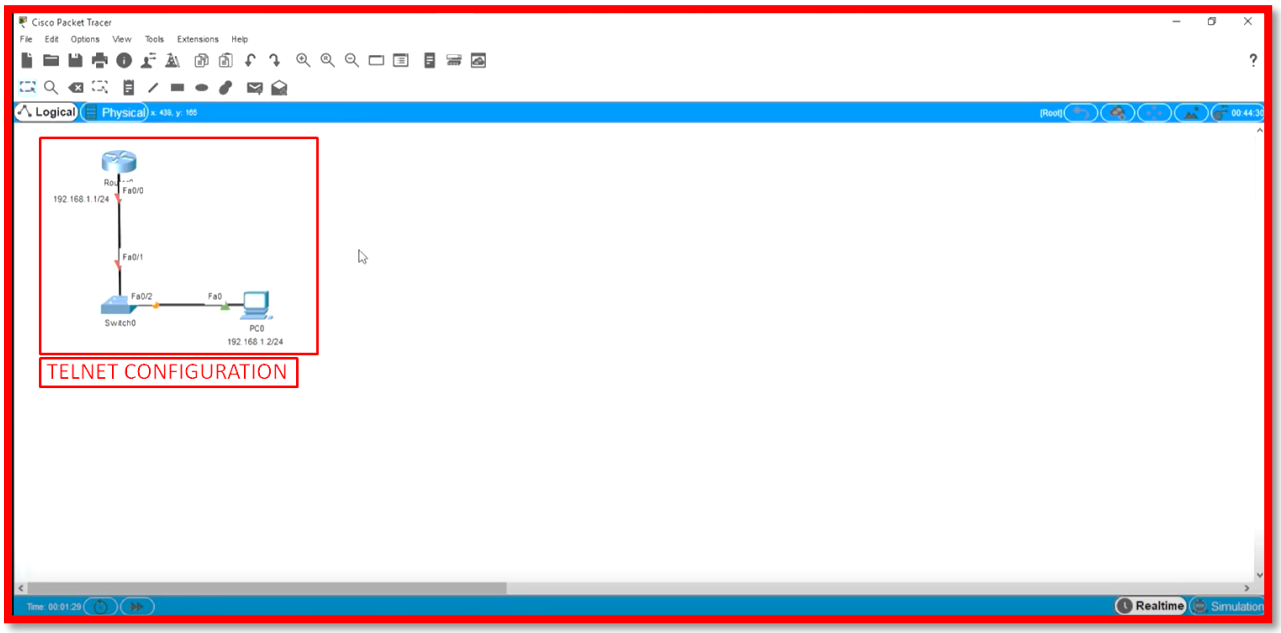
→ A network administrator can access the device by telnetting to the IP address or hostname of a remote device. The network administrator will then be presented with a virtual terminal that can interact with the remote HOST.

———x———

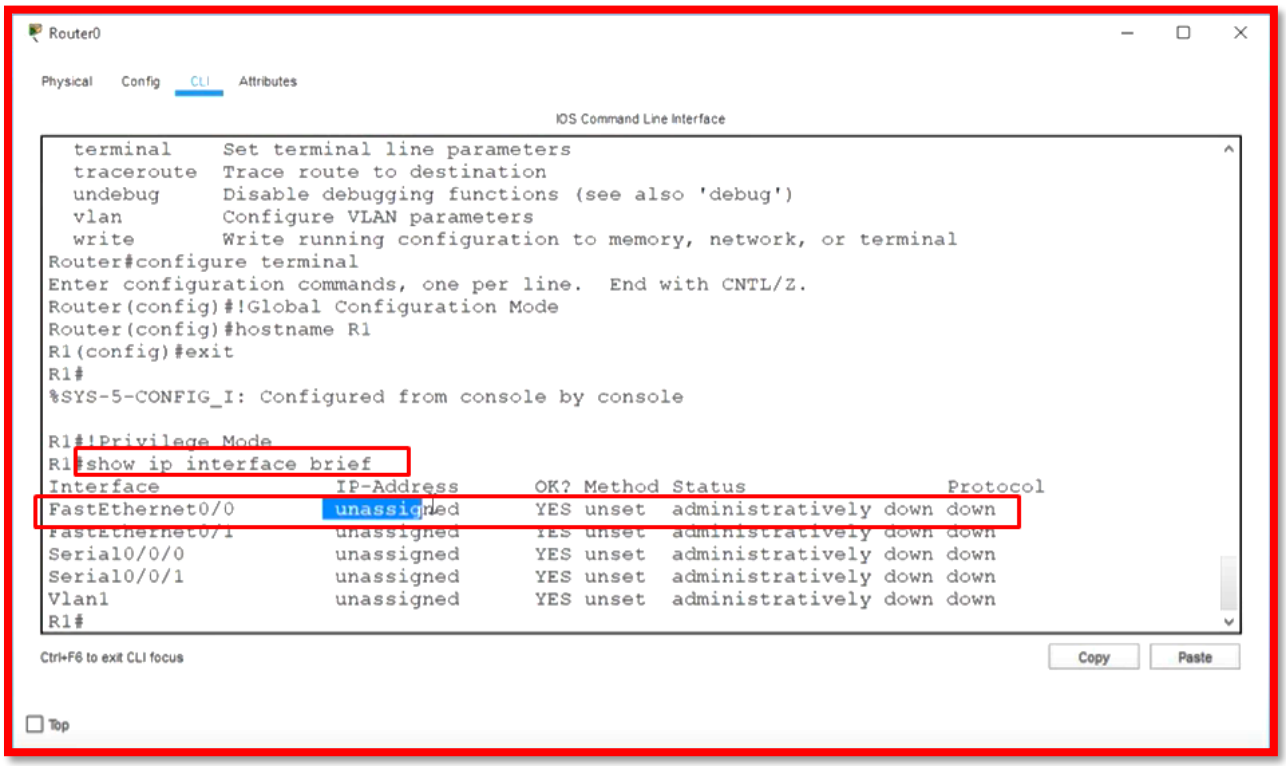
Algortihm used behind Telnet Server

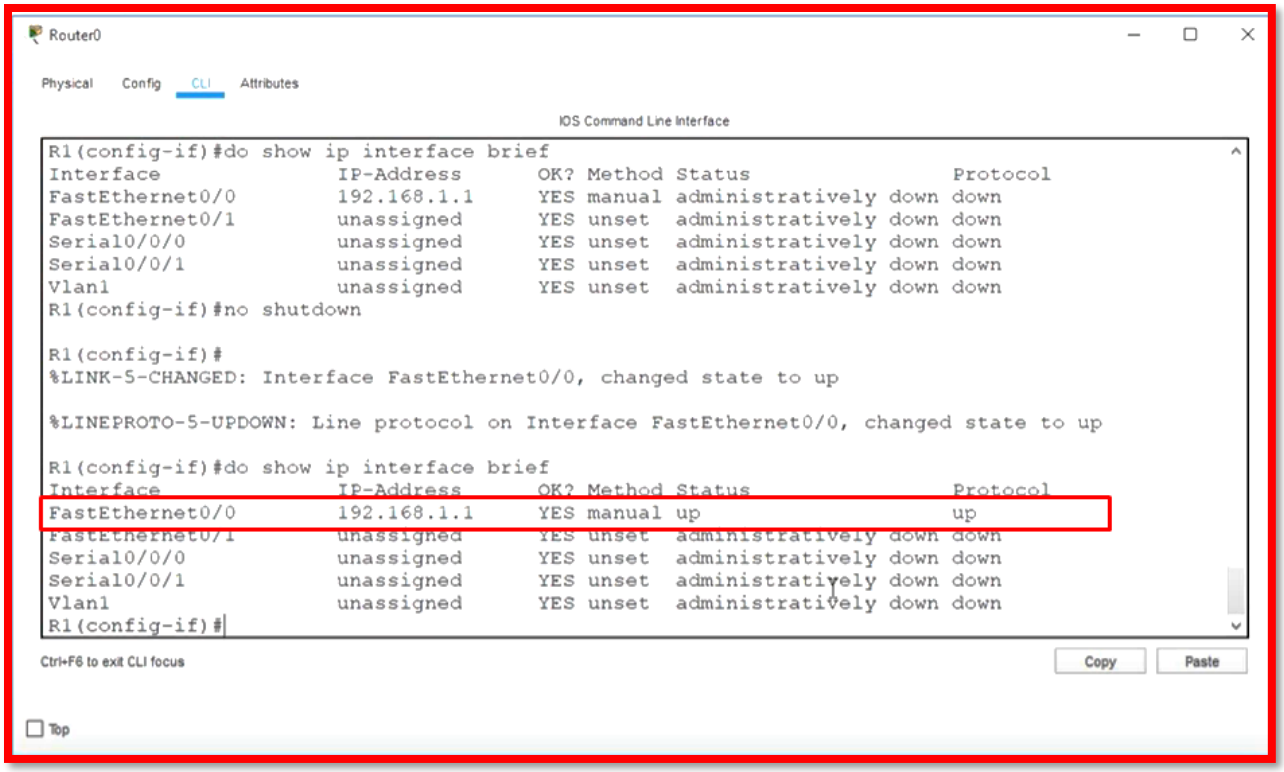


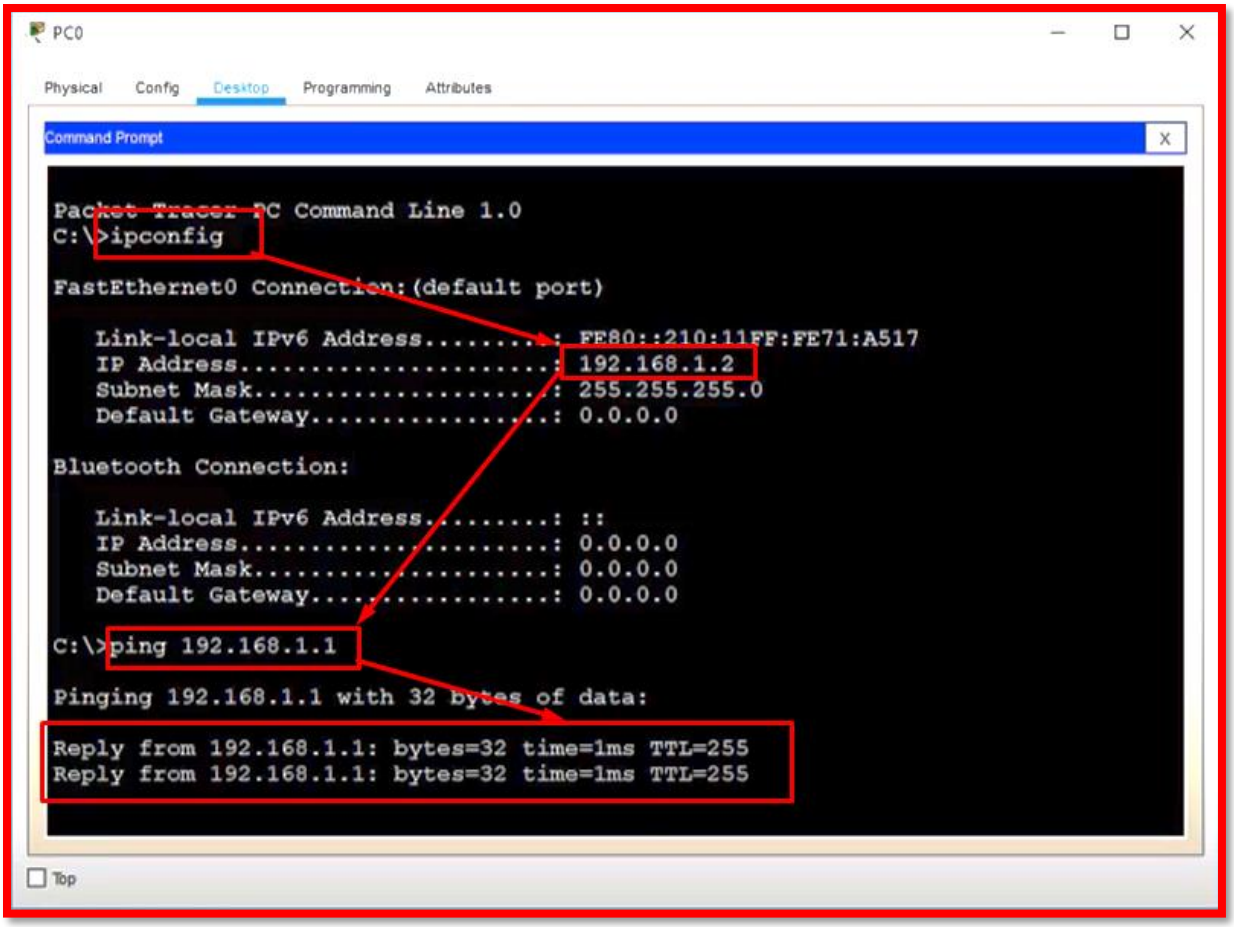
PRACTICAL-IMPLEMENTATION IN CISCO PACKET TRACER

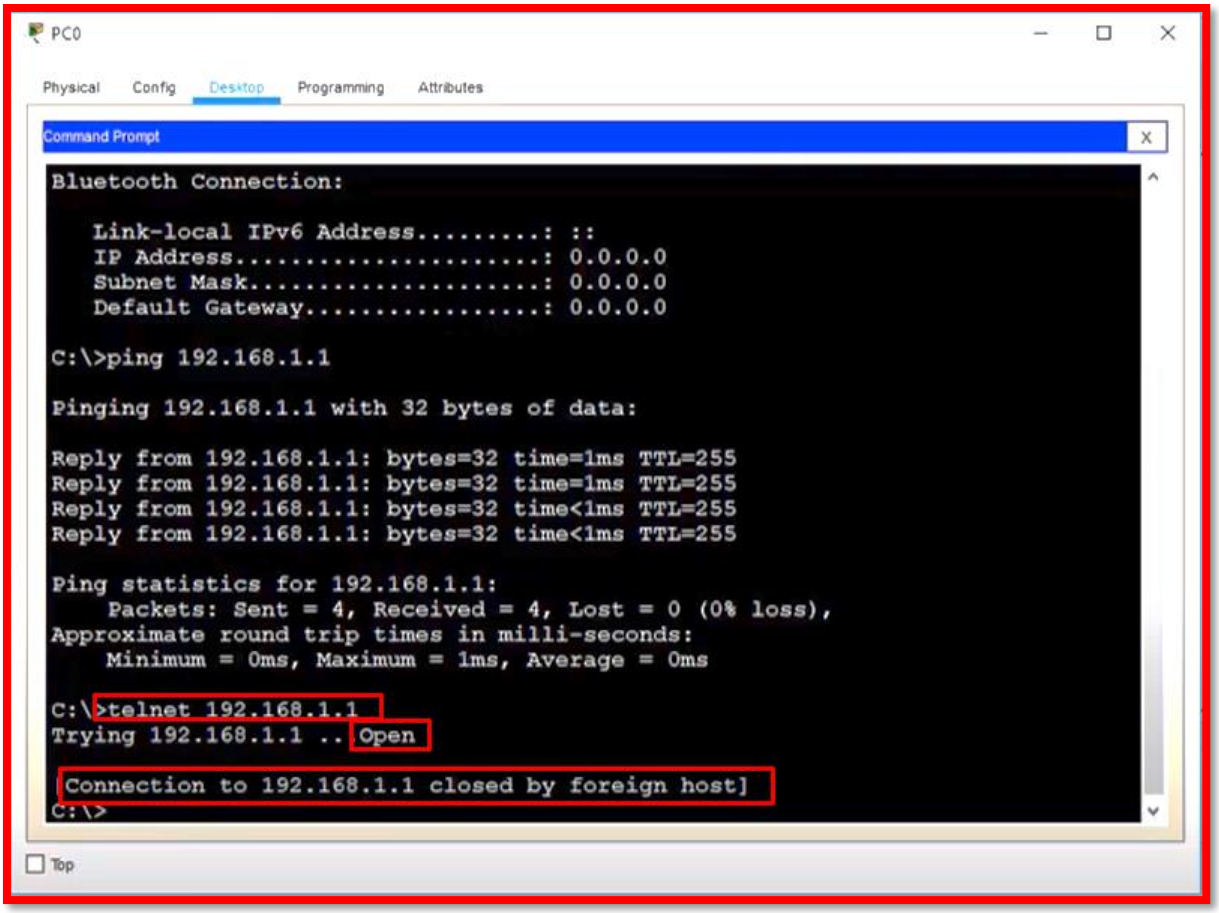


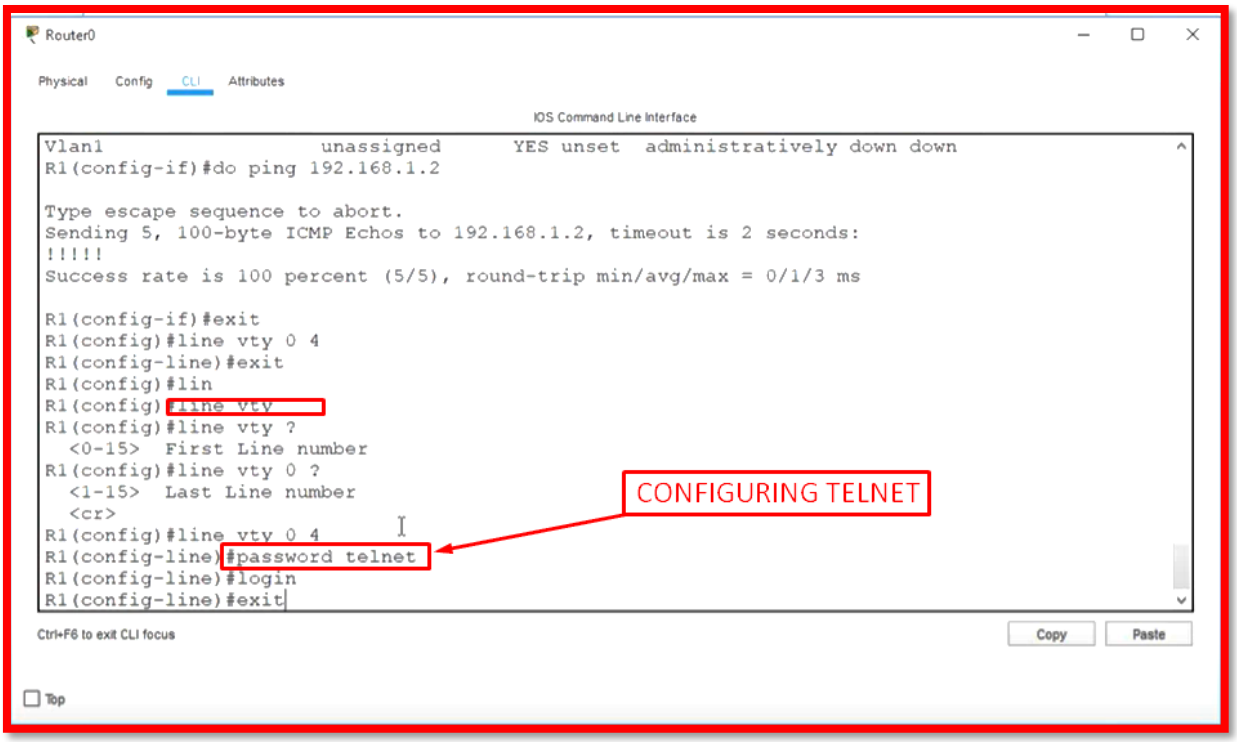
TELNET CONFIGURATION

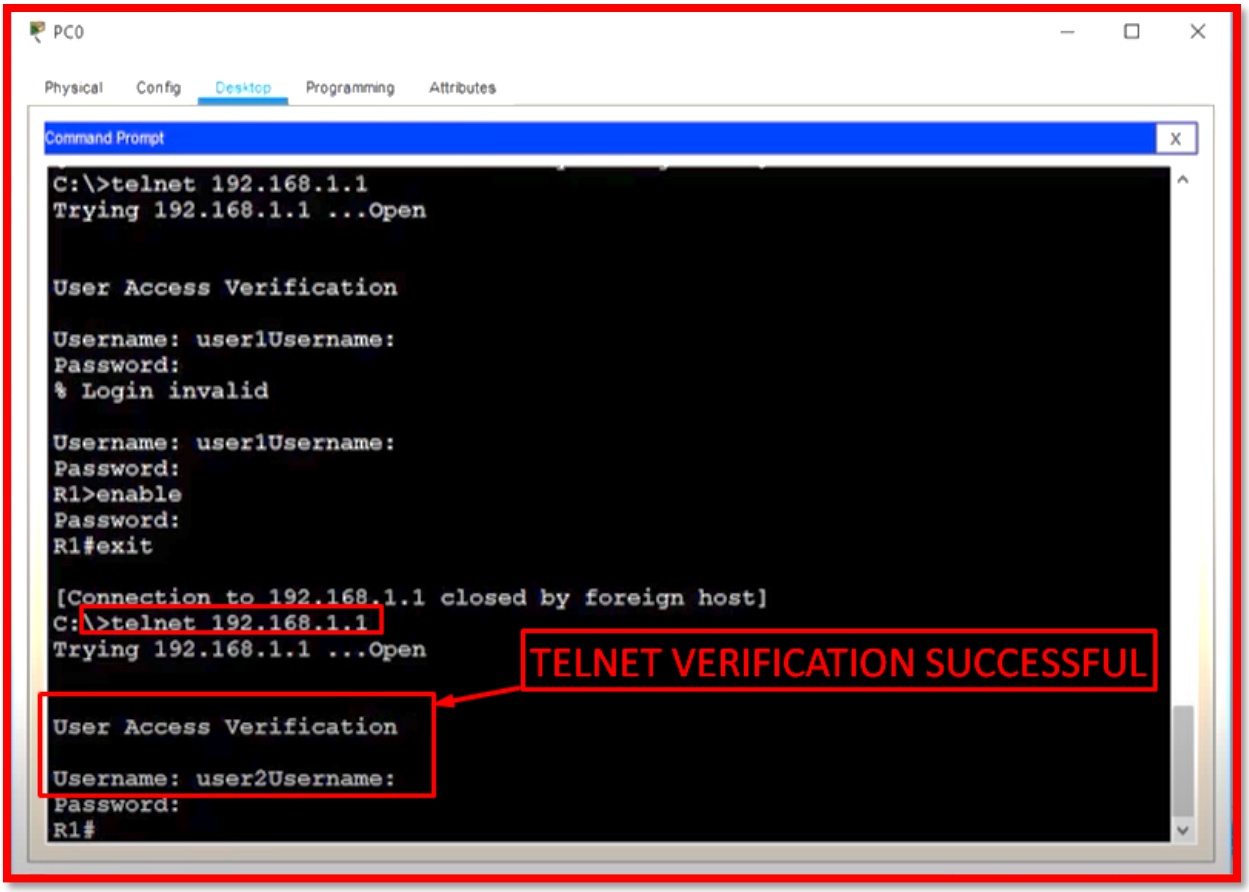



Router0
Physical
Config
CLI
Attributes
IOS Command Line Interface
R1(config-if)#do show ip interface brief
Interface IP-Address OK? Method Status Protocol
FastEthernet0/0 192.168.1.1 YES manual administratively down down
FastEthernet0/1 unassigned YES unset administratively down down
Serial0/0/0 unassigned YES unset administratively down down
Serial0/0/1 unassigned YES unset administratively down down
Vlan1 unassigned YES unset administratively down down
R1(config-if)#no shutdown
R1(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
R1(config-if)#do show ip interface brief
Interface IP-Address OK? Method Status Protocol
FastEthernet0/0 192.168.1.1 YES manual up up
FastEthernet0/1 unassigned YES unset administratively down down
Serial0/0/0 unassigned YES unset administratively down down
Serial0/0/1 unassigned YES unset administratively down down
Vlan1 unassigned YES unset administratively down down
R1(config-if)#
Ctrl+F6 to exit CLI focus
Copy
Paste
Top


PC0
Physical
Config
Desktop
Programming
Attributes
Command Prompt
Packet Tracer PC Command Line 1.0
C:\>ipconfig
FastEthernet0 Connection:(default port)
Link-local IPv6 Address.....: FE80::210:11FF:FE71:A517
IP Address.....: 192.168.1.2
Subnet Mask.....: 255.255.255.0
Default Gateway.....: 0.0.0.0
Bluetooth Connection:
Link-local IPv6 Address.....: ::
IP Address.....: 0.0.0.0
Subnet Mask.....: 0.0.0.0
Default Gateway.....: 0.0.0.0
C:\>ping 192.168.1.1
Pinging 192.168.1.1 with 32 bytes of data:
Reply from 192.168.1.1: bytes=32 time=1ms TTL=255
Reply from 192.168.1.1: bytes=32 time=1ms TTL=255
Top


PC0
Physical
Config
Desktop
Programming
Attributes
Command Prompt
Bluetooth Connection:
Link-local IPv6 Address.....: ::
IP Address.....: 0.0.0.0
Subnet Mask.....: 0.0.0.0
Default Gateway.....: 0.0.0.0
C:\>ping 192.168.1.1
Pinging 192.168.1.1 with 32 bytes of data:
Reply from 192.168.1.1: bytes=32 time=1ms TTL=255
Reply from 192.168.1.1: bytes=32 time=1ms TTL=255
Reply from 192.168.1.1: bytes=32 time<1ms TTL=255
Reply from 192.168.1.1: bytes=32 time<1ms TTL=255
Ping statistics for 192.168.1.1:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 1ms, Average = 0ms
C:\>telnet 192.168.1.1
Trying 192.168.1.1 ... Open
Connection to 192.168.1.1 closed by foreign host]
C:\>
Top


Router0
Physical
Config
CLI
Attributes
IOS Command Line Interface
Vlan1 unassigned YES unset administratively down down
R1(config-if)#do ping 192.168.1.2
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.1.2, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/1/3 ms
R1(config-if)#exit
R1(config)#line vty 0 4
R1(config-line)#exit
R1(config)#lin
R1(config)#line vty
R1(config)#line vty ?
<0-15> First Line number
R1(config)#line vty 0 ?
<1-15> Last Line number
<cr>
R1(config)#line vty 0 4
R1(config-line)#password telnet
R1(config-line)#login
R1(config-line)#exit
CONFIGURING TELNET
Ctrl+F6 to exit CLI focus
Copy
Paste
Top


PC0
Physical
Config
Desktop
Programming
Attributes
Command Prompt
C:\>telnet 192.168.1.1
Trying 192.168.1.1 ...Open
User Access Verification
Username: user1Username:
Password:
% Login invalid
Username: user1Username:
Password:
R1>enable
Password:
R1#exit
[Connection to 192.168.1.1 closed by foreign host]
C:\>telnet 192.168.1.1
Trying 192.168.1.1 ...Open
TELNET VERIFICATION SUCCESSFUL
User Access Verification
Username: user2Username:
Password:
R1#

Assessment Parameters (To be filled by faculty)

1. **Successful completion of Practical (Y/N)**
2. **Time taken (hours/ minutes)**
3. **List other Parameters & Outcomes:**

S.No.	Parameters	Outcomes (Achieved / Not Achieved)

Remarks:

Total marks _____ out of 10. **Sign of Faculty**

Practical No: 02

(Web Server Configuration in Cisco Packet Tracer v8.0)

Date: June 22nd, 2021

PRACTICAL NO-02

1. TITLE : Web Server Configuration in Cisco Packet Tracer (v8.0) Date: June 23rd 2021

2. AIM/OBJECTIVE: The objective is to configure a webserver in cisco Packet Tracer v8.0. Also this activity provides the complete overview to webservers. What, why, when & where to deploy them? Also, the real world use cases for webserver deployment.

3. METHODOLOGY: We will use 'Server-PT' as our webserver in Cisco Packet Tracer.

- Step①: Open your Cisco Packet Tracer.
- Step②: Under End Devices → , take few PCs and one webserver & 1 switch for connecting all devices. Make sure all devices should be connected by straigh through cable because for connecting different devices, straight through cable is Required.
- Step③: Now, Assign the IPs to each end device (server & PCs) of single Network (192.168.1.0) with subnet mask 255.255.255.0. (It can be as per your requirement)
- Step④: Now go inside server → Services → HTTP. Here, select both services as ON mode.
- Step⑤: Now we can search webpage from any connected PC. This will show us only existing HTTP file when we put our server IP.
- Step⑥: Now go to any PC → Desktop → WebBrowser → Put in URL → server IP { 192.168.1.1 } → click enter. It will show us below Result.
- Step⑦: For creating our own webpage. We go to Server → Services → HTTP → New file → Just write the code whatsoever we want. Then click on SAVE button.
- Step⑧: Now after that if your file is Not visible, then again → Go to server > Services > HTTP > index.html > edit > write what we want.

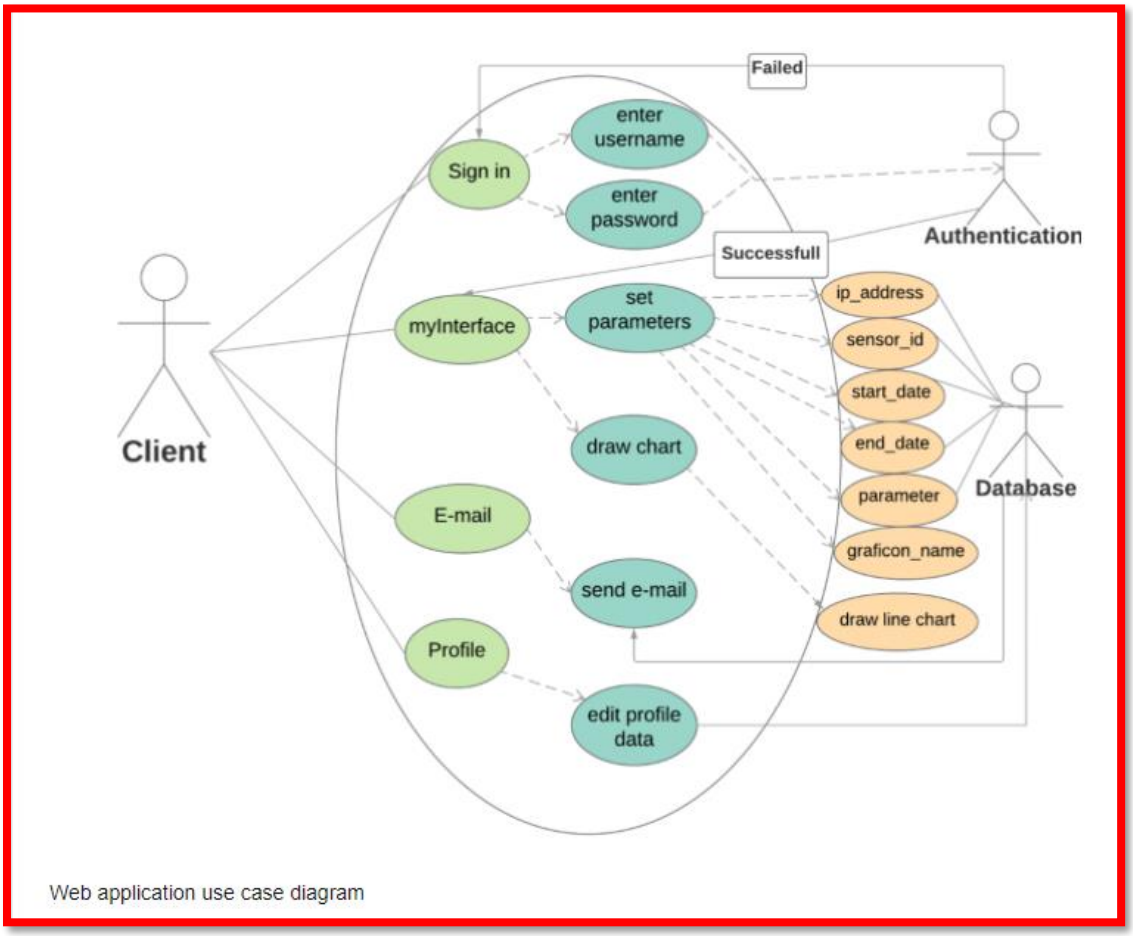
4. **BRIEF DESCRIPTION :**

Overview of Web Server : A web server is a software & typically a program whose fundamental job is to accept & fulfill requests from clients for static content from a website & HTML pages, files, images, video, and so on}. The client is almost always a browser or mobile application & the request takes the form of a HyperText Transfer Protocol (HTTP) message, as does the web server's response.

Summary steps which we use while configuring **Cisco Web Servers**

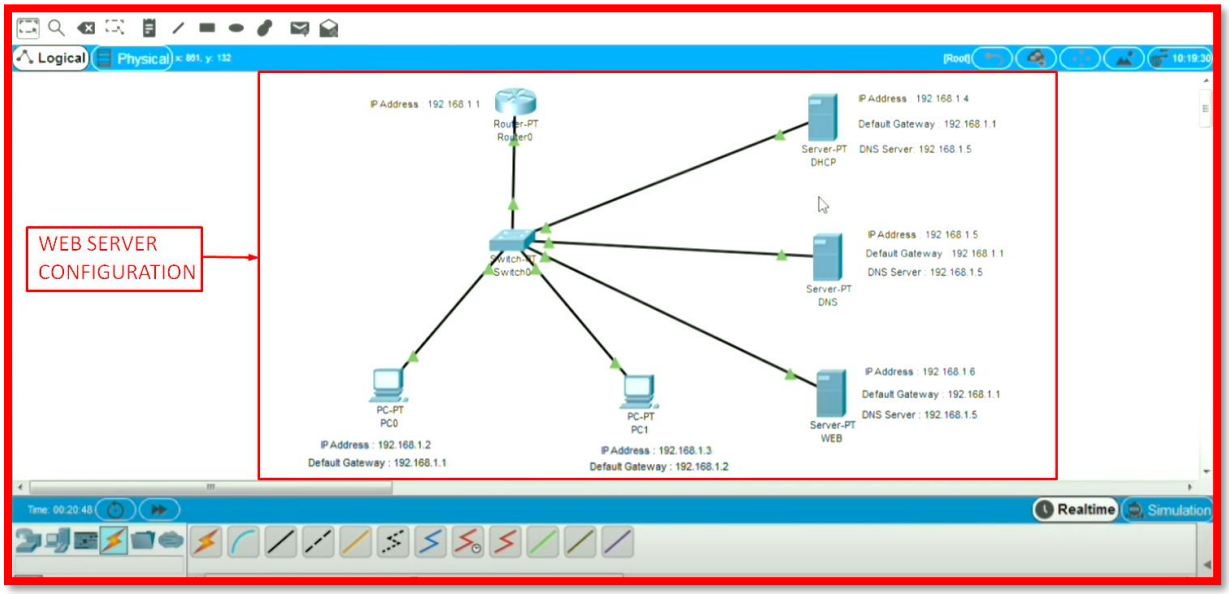
1. enable → // Enables privileged EXEC mode
   • Enter your password if prompted
2. configure terminal → // Enter global configuration mode
3. ip http server → // Enables the HTTP 1.1 server, including the Cisco web Browser User Interface.
4. ip http authentication exec-authentication → // Specifies the authentication method to be used for login when a client connects to HTTP server.
5. ip http port → // Specifies the server port that should be used for HTTP communication.
6. ip http path → // Sets the base HTTP path for HTML files
7. ip http access-class → // Specifies the access list that should be used to allow access to the HTTP Server
8. ip http max-connections → // Sets the maximum number of concurrent connections to the HTTP server that will be allowed.
9. ip http timeout-policy idle → Sets the characteristics that determine how long a connection to the HTTP server should remain open.

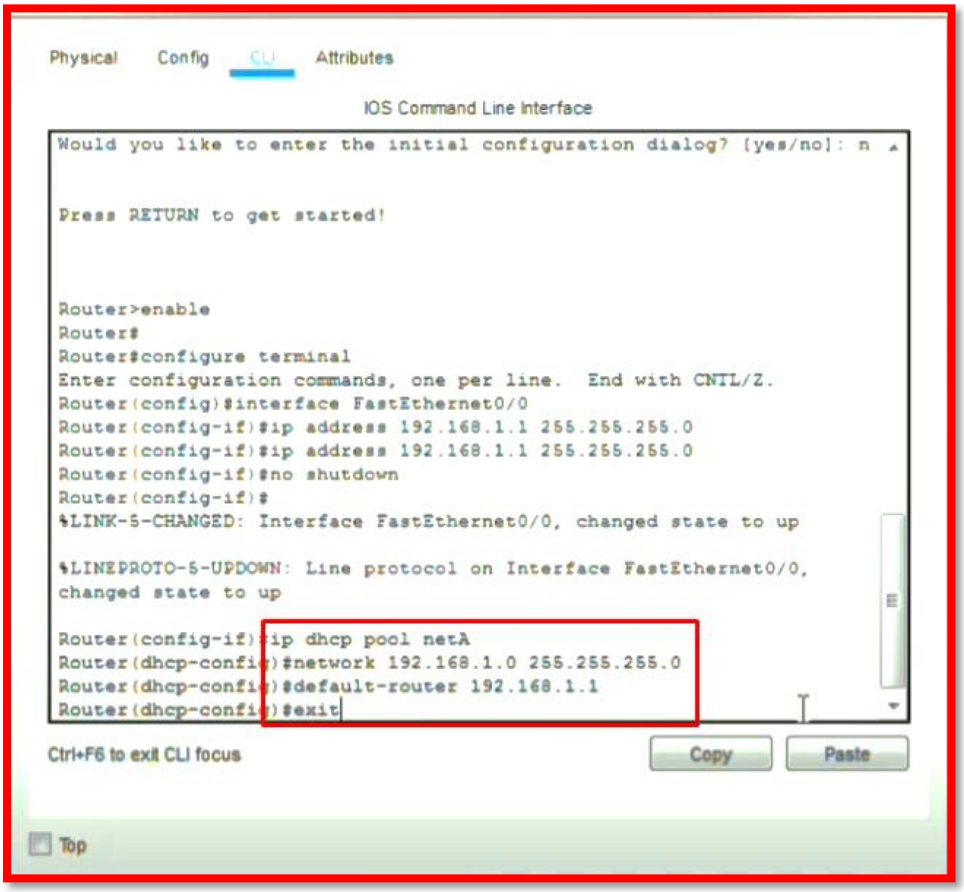
WEB SERVER USE CASES

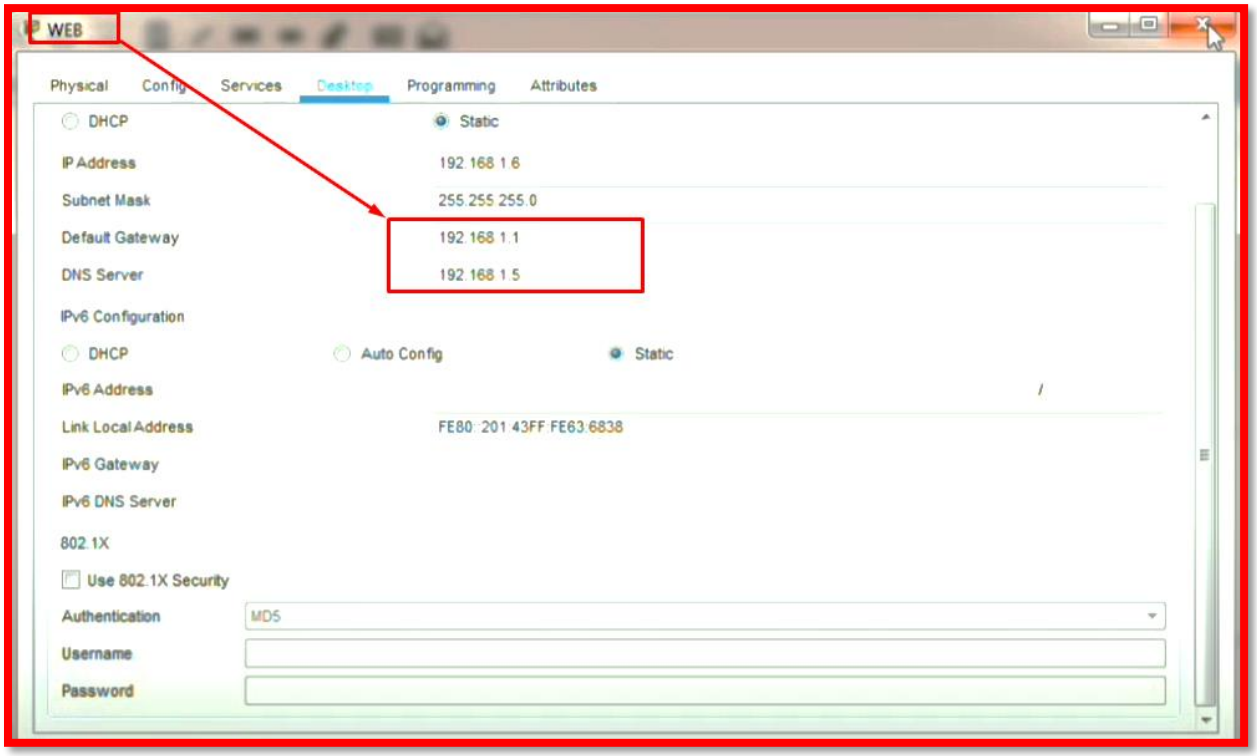


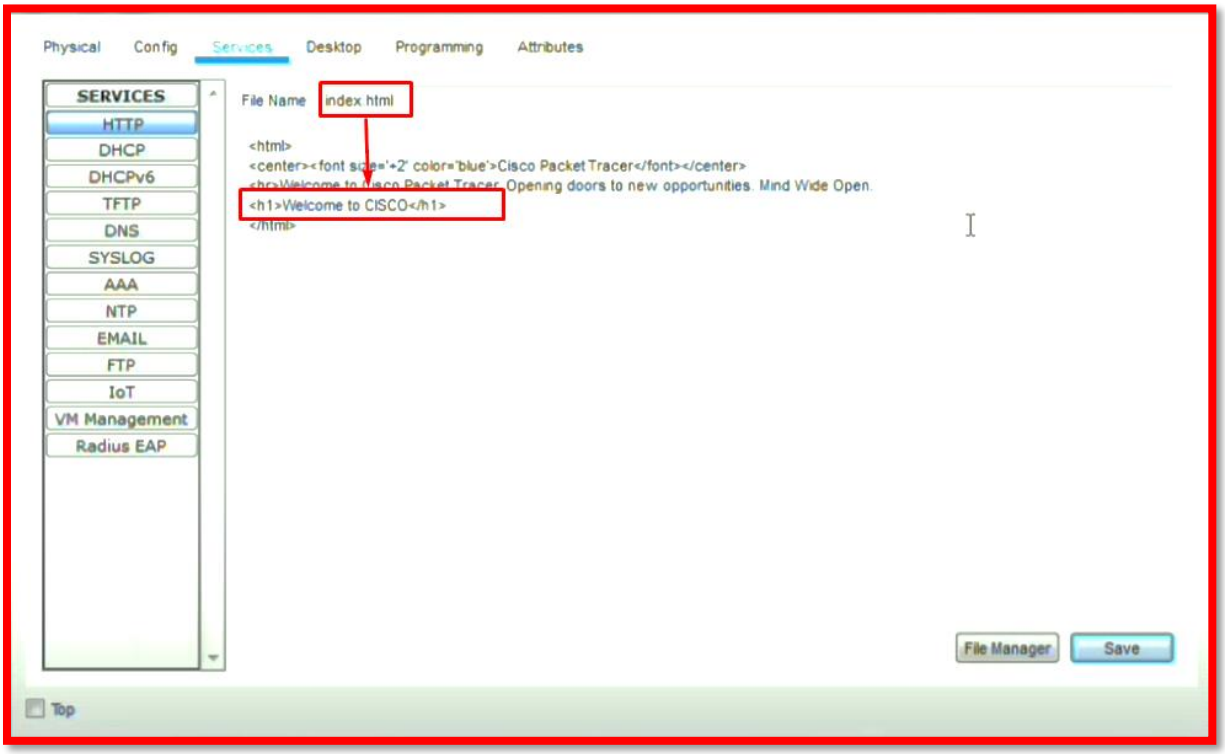
Web application use case diagram

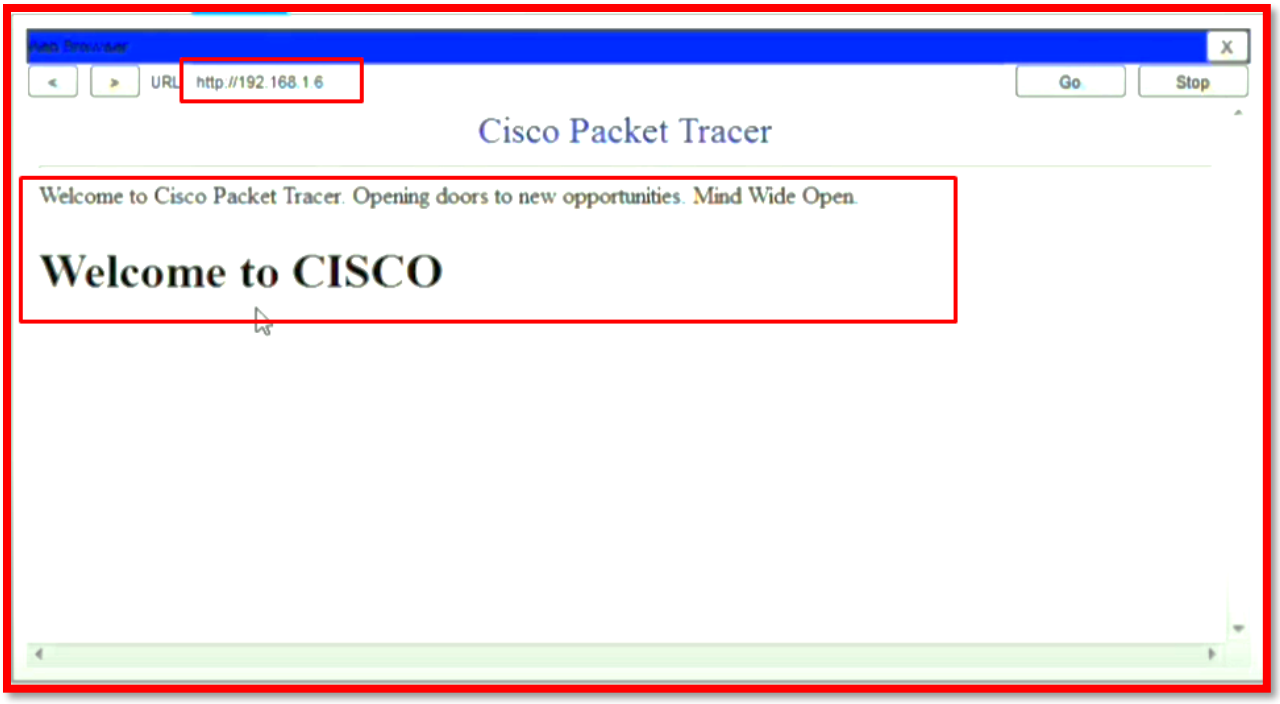
PRACTICAL-IMPLEMENTATION IN CISCO PACKET TRACER






WEB
Physical
Config
Services
Desktop
Programming
Attributes
DHCP
Static
IP Address
192.168.1.6
Subnet Mask
255.255.255.0
Default Gateway
192.168.1.1
DNS Server
192.168.1.5
IPv6 Configuration
DHCP
Auto Config
Static
IPv6 Address
Link Local Address
FE80::201:43FF:FE63:6838
IPv6 Gateway
IPv6 DNS Server
802.1X
Use 802.1X Security
Authentication
MD5
Username
Password


Physical
Config
Services
Desktop
Programming
Attributes
SERVICES
HTTP
DHCP
DHCPv6
TFTP
DNS
SYSLOG
AAA
NTP
EMAIL
FTP
IoT
VM Management
Radius EAP
File Name
index.html
<html>
Cisco Packet Tracer
<h1>Welcome to CISCO</h1>
</html>
File Manager
Save
Top


Web Browser
X
URL
http://192.168.1.6
Go
Stop
Cisco Packet Tracer
Welcome to Cisco Packet Tracer. Opening doors to new opportunities. Mind Wide Open.
Welcome to CISCO

Assessment Parameters (To be filled by faculty)

4. **Successful completion of Practical (Y/N)**
5. **Time taken (hours/ minutes)**
6. **List other Parameters & Outcomes:**

S.No.	Parameters	Outcomes (Achieved / Not Achieved)

Remarks:

Total marks _____ out of 10. **Sign of Faculty**

Practical No: 03

(DNS Server Configuration in Cisco Packet Tracer v8.0)

Date: June 23rd, 2021

PRACTICAL - NO-03

1. TITLE: DNS Server configuration in Cisco Packet Tracer — Date: June 23rd 2021

2. AIM/OBJECTIVE: The objective is to configure a DNS in cisco packet tracer v8.0. Also, via this practical we get to know about how DNS works? How to configure DNS? In Real world, how BIND tool is used for configuring DNS.

3. METHODOLOGY: We will use 'Server-PT' under End Devices section of Cisco Packet Tracer.

- Step①: Open your Ciscopacket Tracer v8.0. Then Build the Network topology as shown in SS.
- Step②: Configure static IP address on the PC's & the server.
- Step③: Setup DNS Server →
  - IP address: 192.168.1.2
  - Subnet Mask: 255.255.255.0
  - Default Gateway: 192.168.1.1
  - DNS Server: 192.168.1.2
- Step④: Setup PC0
  - IP address: 192.168.1.3
  - Subnet Mask: 255.255.255.0
  - Default Gateway: 192.168.1.1
  - DNS Server: 192.168.1.2
- Step⑤: Setup PC1
  - IP address: 192.168.1.4
  - Subnet Mask: 255.255.255.0
  - Default Gateway: 192.168.1.1
  - DNS Server: 192.168.1.2
- setup⑥: Configure DNS service on the generic server. To do this, click on Services tab. Click on DNS Server from the menu. First turn ON the DNS service, then define names of the hosts & their corresponding IP addresses.
- Setup⑦: Test domain name – IP resolution. Ping the hosts from one another using their Names instead of their IP addresses. If the DNS service is turned on & all configurations are okay? then ping should work.

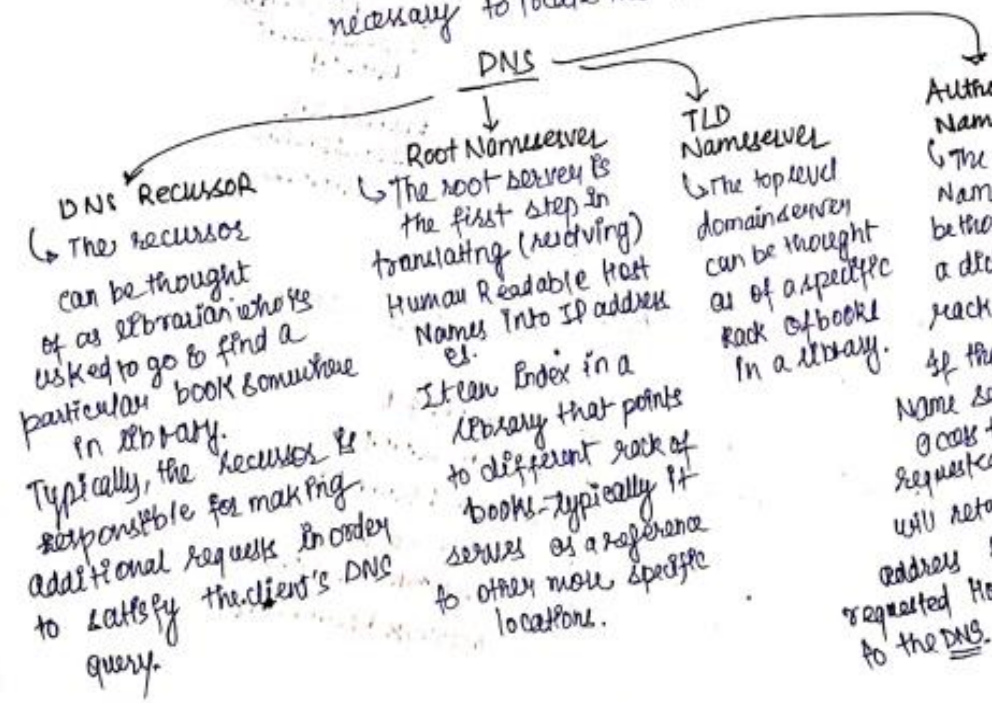
4. BRIEF DESCRIPTION:

Overview of DNS: A Domain Name System (DNS) server resolves Host Names into IP addresses. Although we can access a network host using its IP address, DNS makes it easier by allowing us use domain names which are easier to remember.

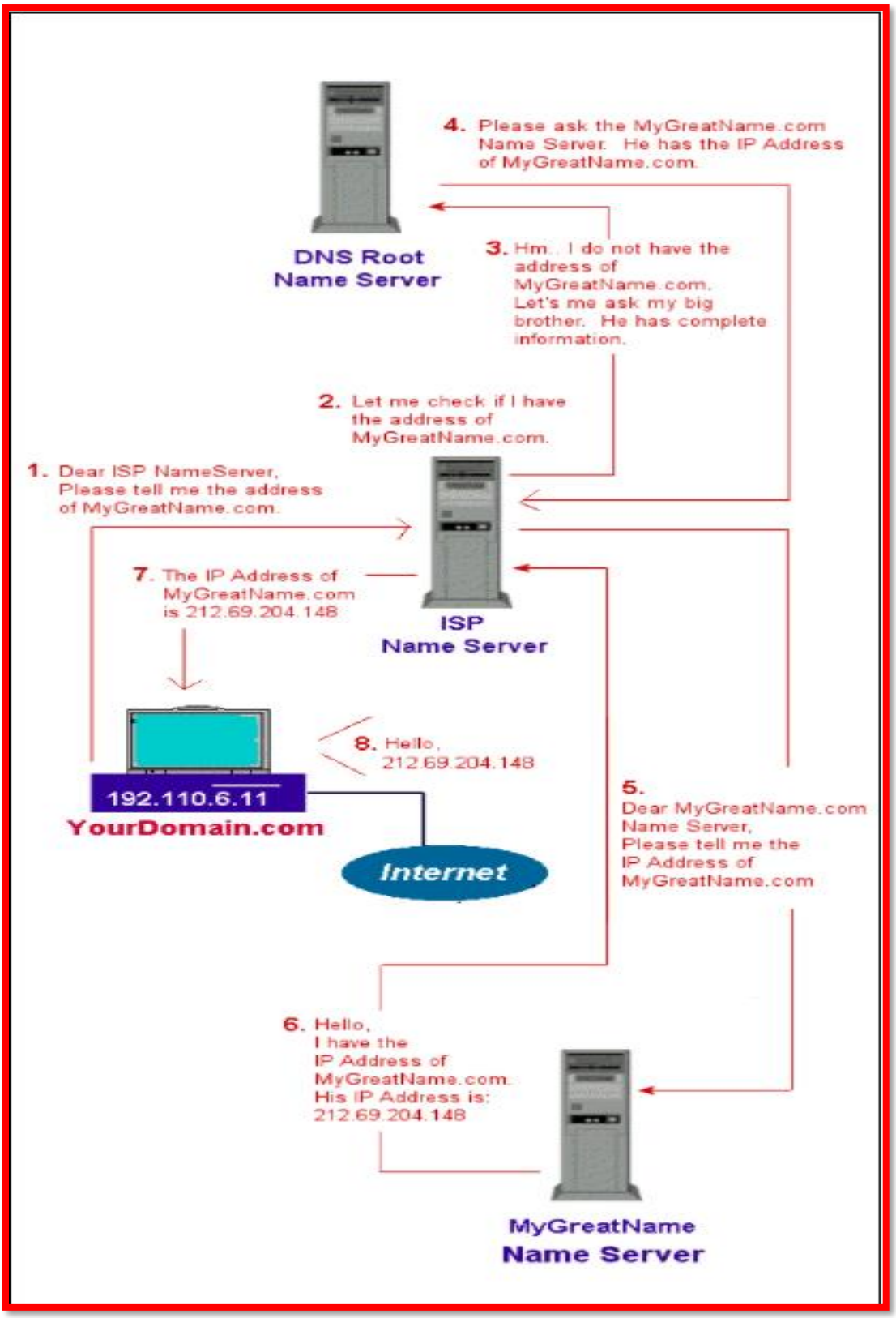
For Example: It much easier to access SUAS Moodle website by typing http://www.moodle.suas.ac.in/ as compared to typing http://103.83.255.66. In either case, we will access moodle website, but using Domain Name is obviously easier.

Now, before any Host can use a DNS service, we must configure a DNS server first.

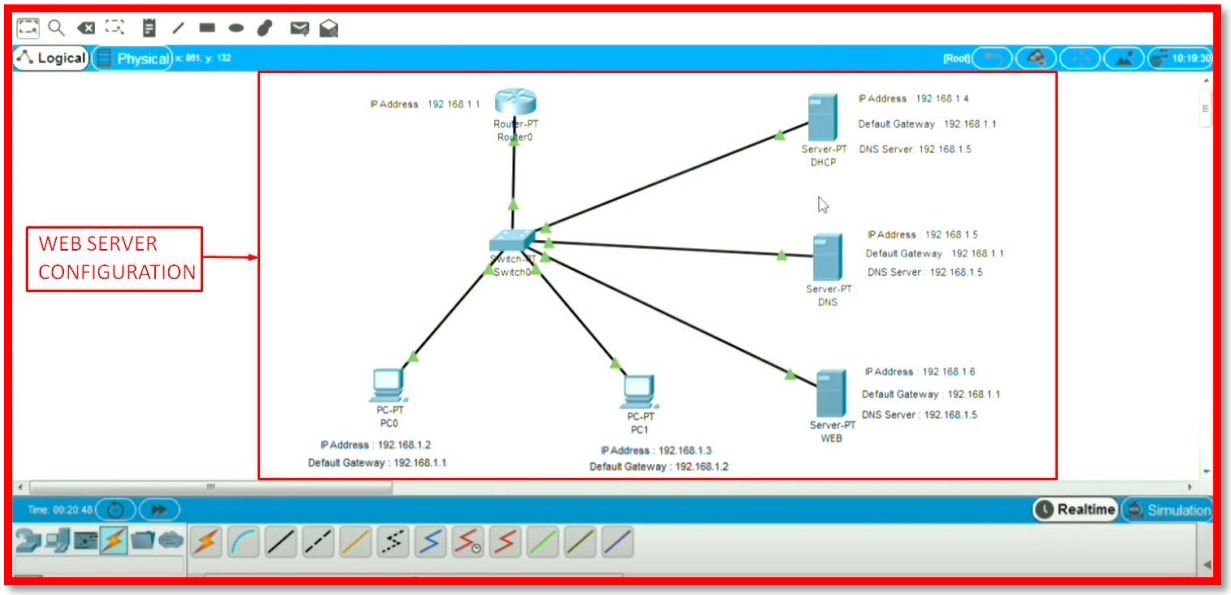
How DNS works? The process of DNS resolution involves converting a Hostname (ex: moodle.suas.ac.in) into a computer friendly IP address (such as 103.83.255.66) When a user wants to load a webpage, a translation must occur between what a user types into their web browser & the machine-friendly address necessary to locate the moodle.suas.ac.in. webpage.

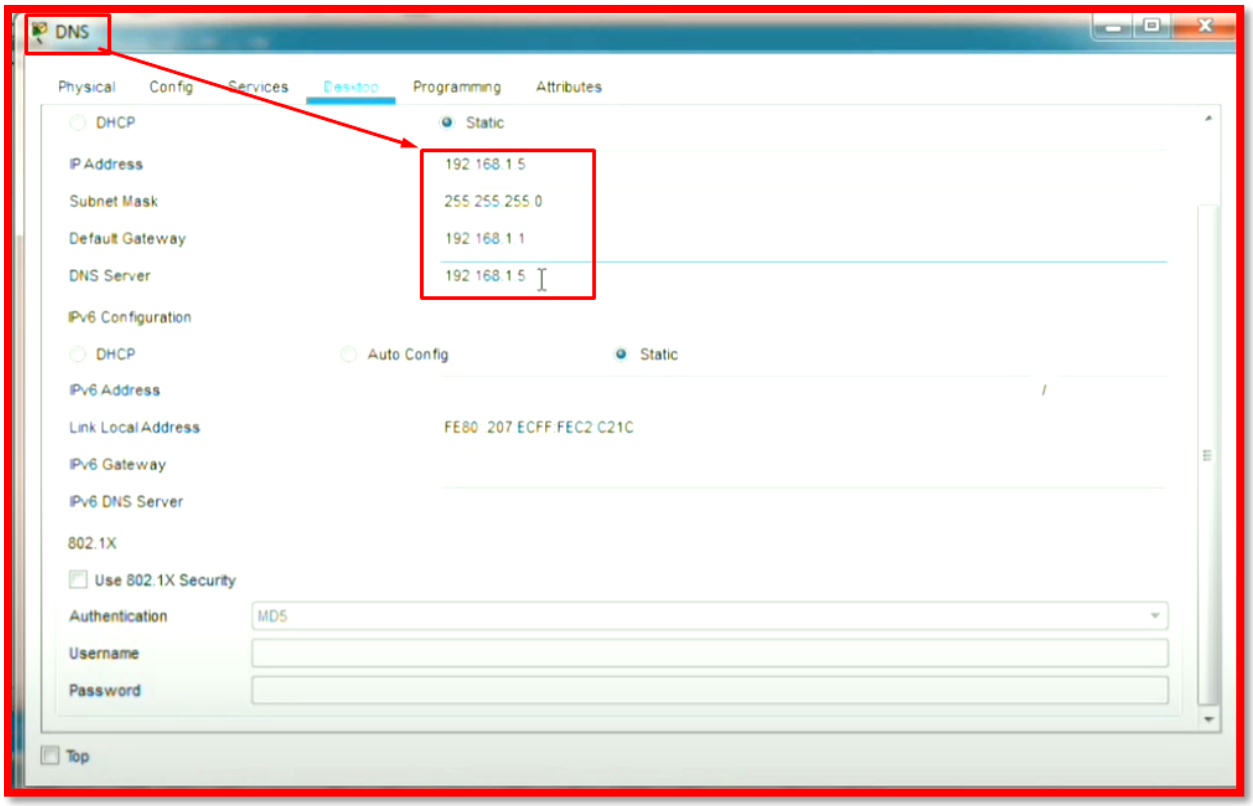


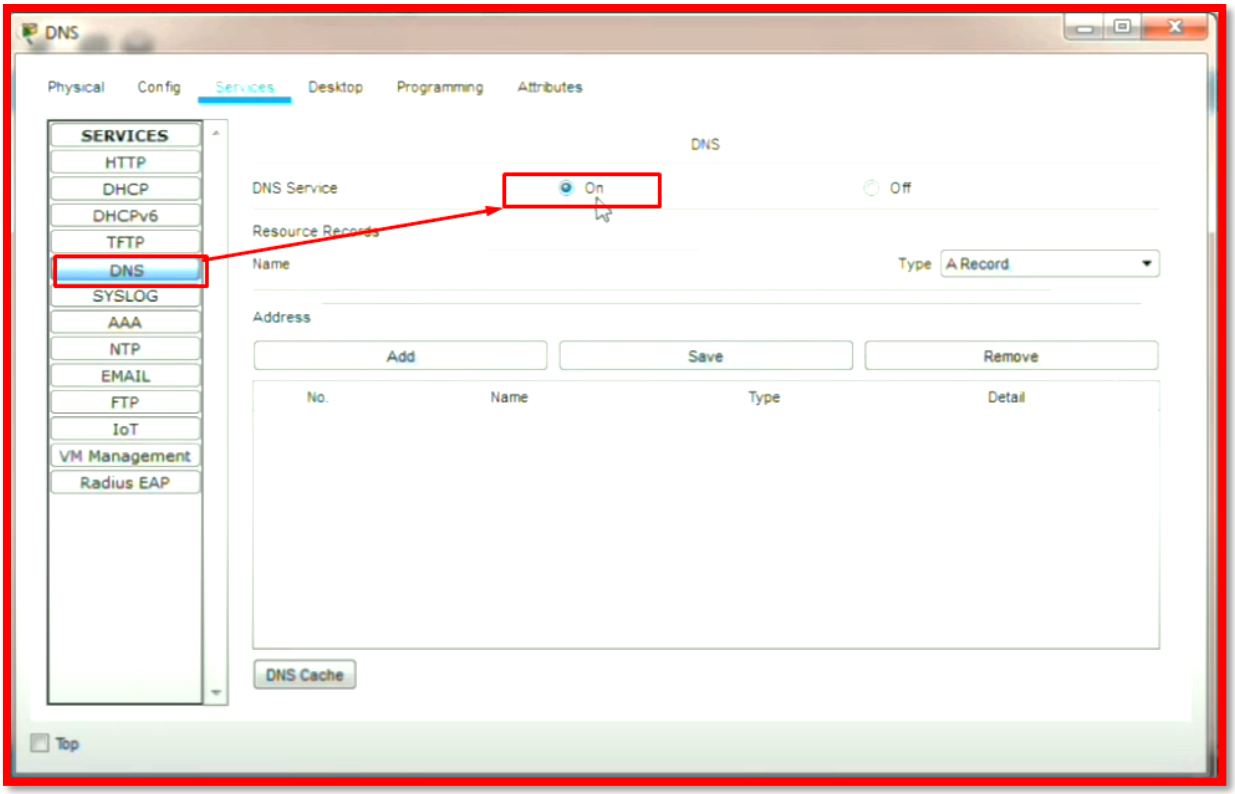
Algortihm used behind DNS Server



PRACTICAL-IMPLEMENTATION IN CISCO PACKET TRACER






DNS
Physical
Config
Services
Desktop
Programming
Attributes
SERVICES
HTTP
DHCP
DHCPv6
TFTP
DNS
SYSLOG
AAA
NTP
EMAIL
FTP
IoT
VM Management
Radius EAP
DNS
DNS Service
On
Off
Resource Records
Name
Type
A Record
Address
Add
Save
Remove
No.
Name
Type
Detail
DNS Cache
Top

Assessment Parameters (To be filled by faculty)

7. **Successful completion of Practical (Y/N)**
8. **Time taken (hours/ minutes)**
9. **List other Parameters & Outcomes:**

S.No.	Parameters	Outcomes (Achieved / Not Achieved)

Remarks:

Total marks _____ out of 10. **Sign of Faculty**

Practical No: 04

(Implementation of EIGRP in Cisco Packet Tracer v8.0.0)

Date: June 24th, 2021

PRACTICAL_NO_04

1. TITLE: Implementation of EIGRP in Cisco Packet Tracer v8.0 Date: June 23rd, 2021

2. AIM/OBJECTIVE: The objective of this practical is to implement EIGRP routing & establishes a EIGRP routing process.
   ↳ Also to know How to use EIGRP in Real world use cases/ scenarios.

3. METHODOLOGY: Before configuring EIGRP, we Have to CONFIGURE ATLEAST one IP address.

Ⓐ: EIGRP configuration on a Router:

↳ Step①: Open your Cisco Packet Tracer v8.0.0. Build the Network Topology as shown in ss.

↳ Step②: Setup Router 1 (R1)
- R1(config)#
- R1(config-if)# int fa0/0
- R1(config-if)# ip addr 10.0 12.0.0.1 log ~~192.168.1.1~~ ~~255.255.255.0~~ 255.0.0.0
- R1 — " — # no shut

↳ Step③: Setup Router 2 (R2)
- R2(config)# int fa0/0
- R2(config-if)# ip add ~~192.168.1~~. 12.0.0.2 255.0.0.0
- — " — # no shutdown
- — " — # int fa0/1
- — " — # ip address 12.0.0.2 255.0.0.0
- — " — # no shutdown

↳ Step④: Setup PC1
- IP address: ~~192.0.0~~ 192.168.1.2
- Subnet Mask: 255.255.255.0
- Default Gateway: 12.0.0.1

↳ Setup⑤: Setup PC2
- IP address: 192.168.2.2
- Subnet Mask: 255.255.255.0
- Default Gateway: 12.0.0.2

↳ Setup⑥: Configure EIGRP on the routers. Remember to use the same ASN number on both routers: Once configured the routers become EIGRP neighbours.

Router1
- R1(config) # router eigrp 1 ← These must be same
- R1(config-router) # network 12.0.0.1
- — " — # network 192.168.1.1

Router2
- R2(config) # router eigrp 1
- R2(config-router) # network 12.0.0.2
- — " — # network 192.168.2.2

→ Step⑦: Now verify EIGRP configuration.

↳ for Router 1

R1# show ip eigrp neighbors

↳ for Router 2

↳ R2# show ip eigrp neighbors

→ Step⑧ We will verify whether R1 has received a route to reach the 12.0.0.2/8 network. Lastly, if we ping PC2 from PC1 - Ping should succeed because R1 has learnt the route to 192.168.2.0/24 through EIGRP as denoted by letter D.

4. BRIEF DESCRIPTION

Overview of EIGRP: Enhanced Interior Gateway Routing Protocol (EIGRP) is an hybrid routing protocol possessing characteristics of both distance-vector & the link-state routing protocols.

Let's some key features that makes EIGRP Helpful especially for large and complex networks.

- It supports both IPv4 & IPv6
- Supports Classless routing and VLSM {Variable length Subnet Masking}
- Allow route summarization on any router in the Network
- Supports Load Balancing
- Supports MD5 authentication

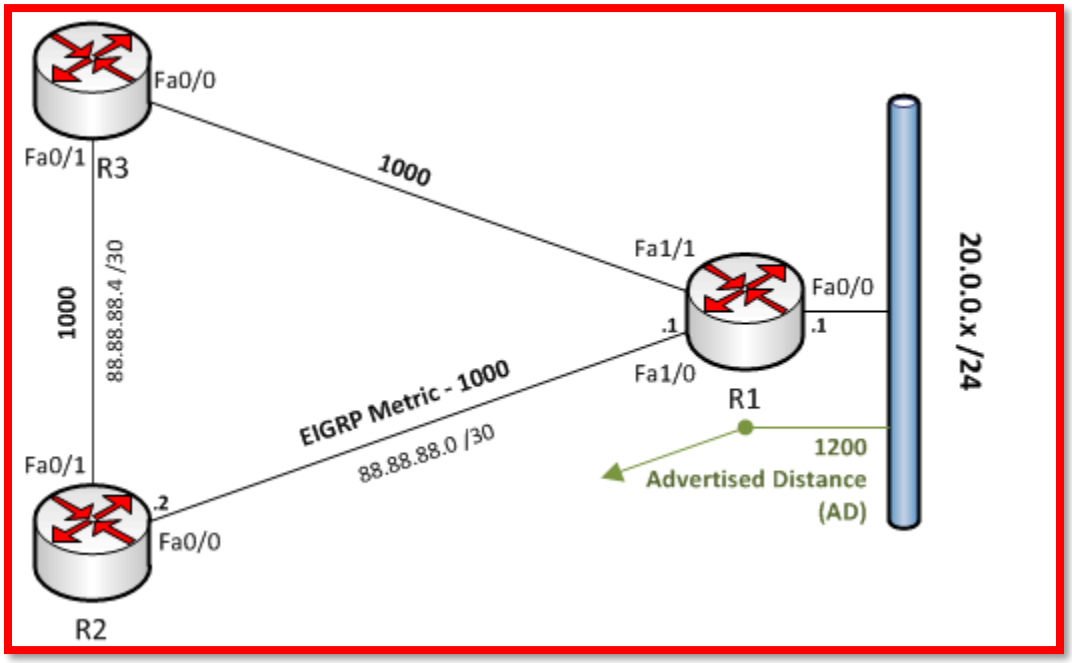
→ For configuring eigrp on Router, we used 2 commands:-

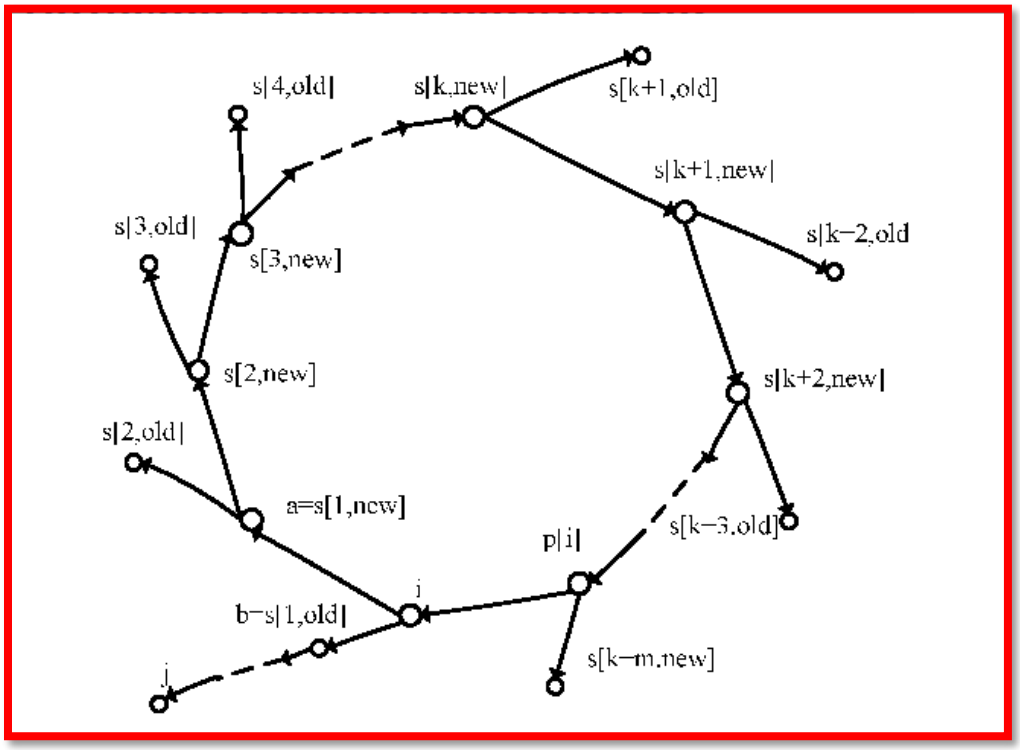
1. (config) router eigrp ASN
   ↳ This command starts EIGRP on the Router. In order to become EIGRP neighbours, routers must be configured with same ASN Number. We can use any Number btw 1 — 65,535

2. (config-router) network SUBNET [WILDCARD_MASK]
   ↳ This command implements a Network directly connected to the router & other devices.

—— x ——

Algortihm used behind EIGRP





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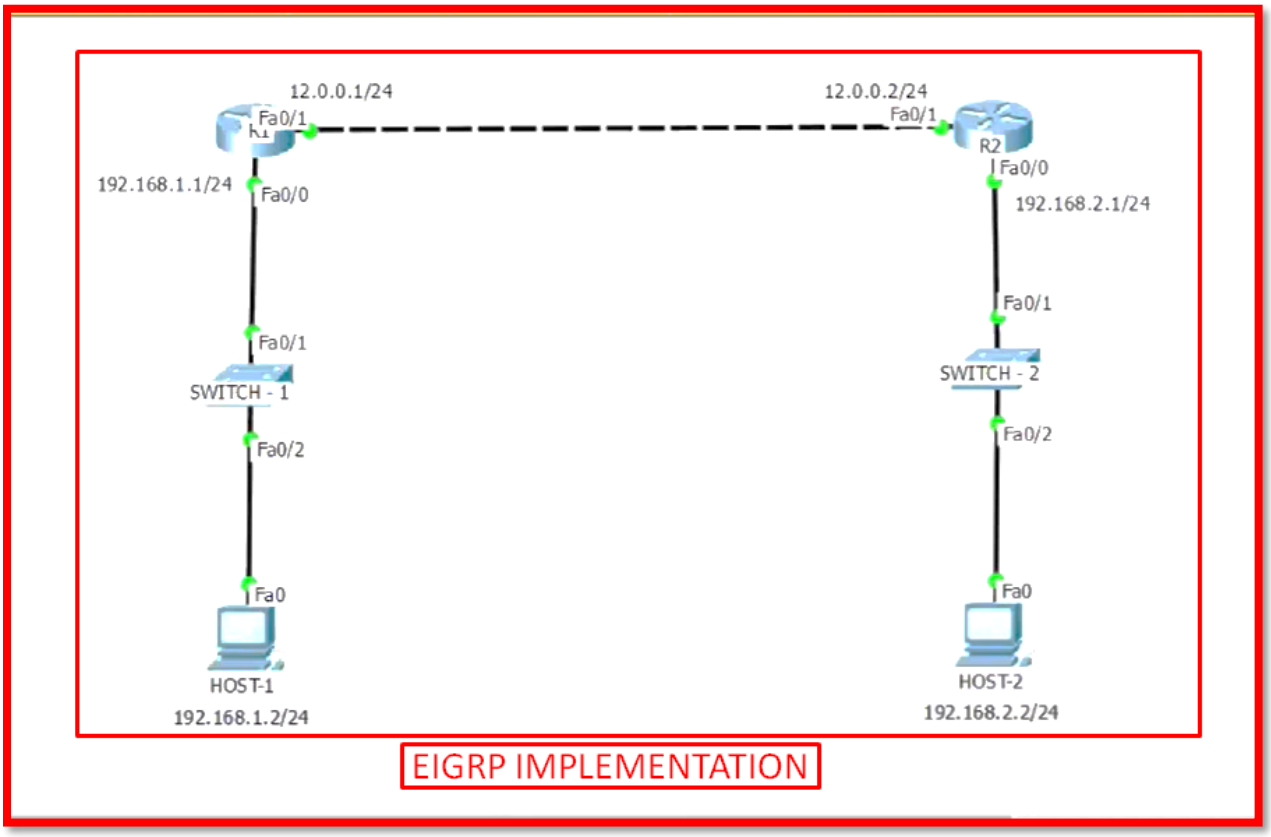
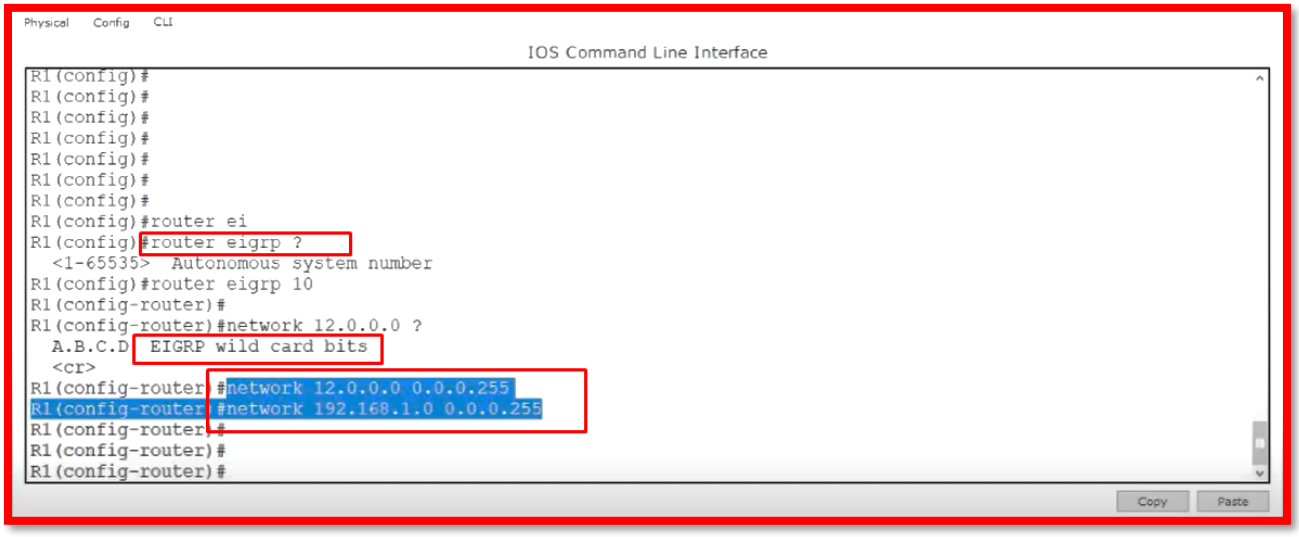
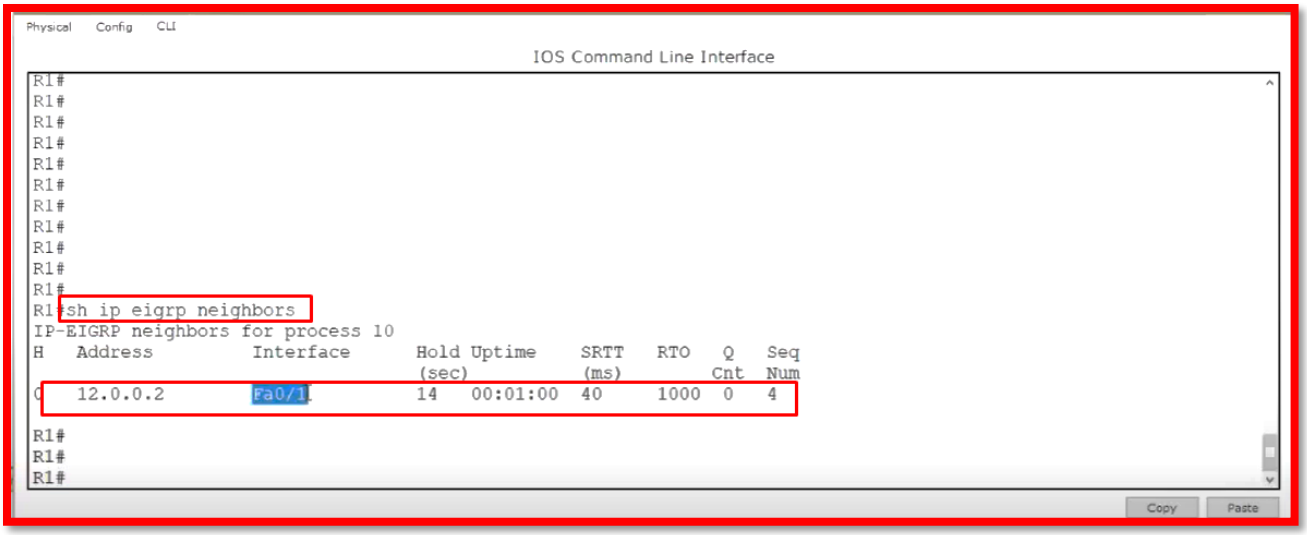
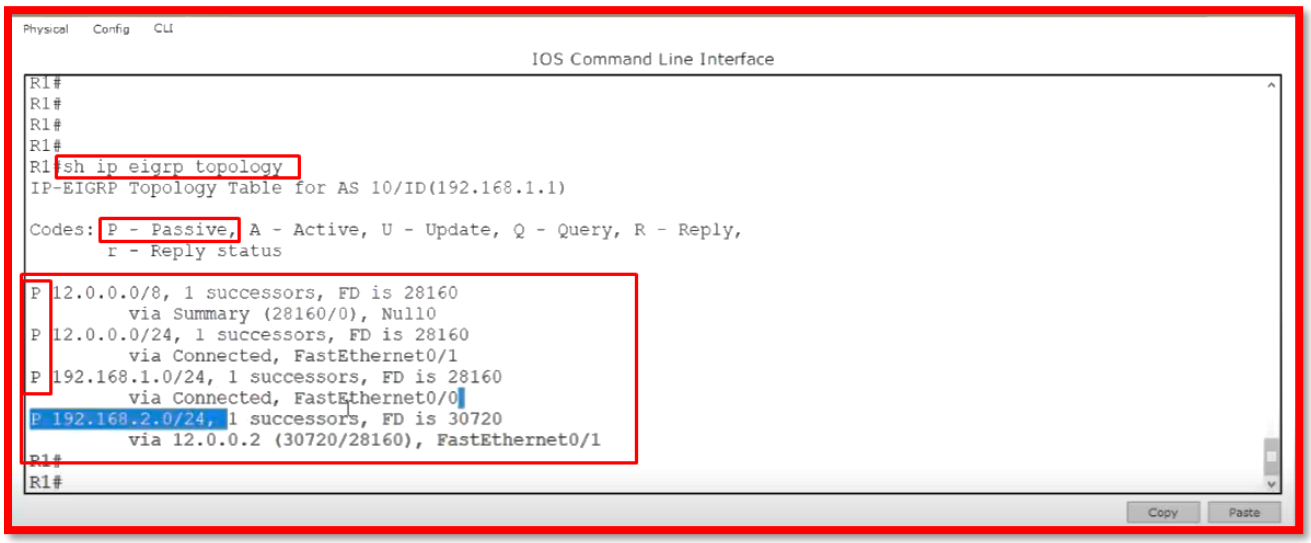
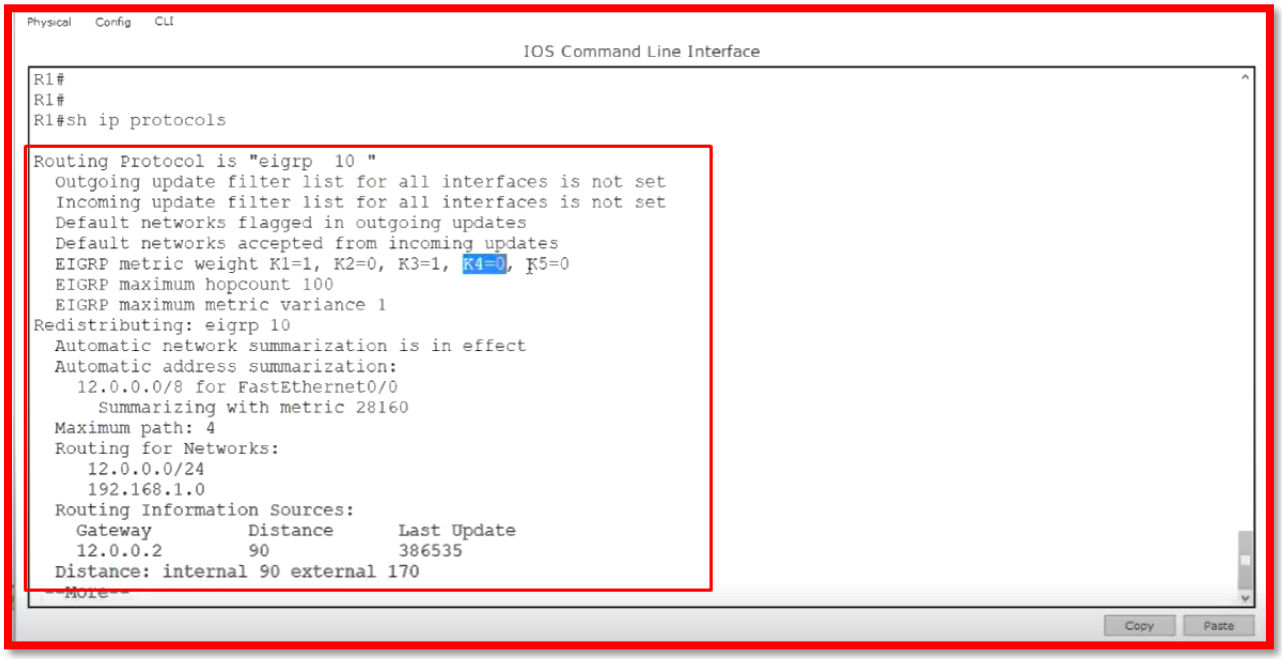





Physical
Config
CLI
IOS Command Line Interface
R1#
R1#
R1#
R1#
R1#
R1#
R1#
R1#
R1#
R1#
R1#
R1#sh ip eigrp neighbors
IP-EIGRP neighbors for process 10
H Address Interface Hold Uptime SRTT RTO Q Seq
(sec) (ms) Cnt Num
0 12.0.0.2 Fa0/1 14 00:01:00 40 1000 0 4
R1#
R1#
R1#
Copy
Paste


Physical
Config
CLI
IOS Command Line Interface
R1#
R1#
R1#
R1#
R1#sh ip eigrp topology
IP-EIGRP Topology Table for AS 10/ID(192.168.1.1)
Codes: P - Passive, A - Active, U - Update, Q - Query, R - Reply,
r - Reply status
P 12.0.0.0/8, 1 successors, FD is 28160
via Summary (28160/0), Null0
P 12.0.0.0/24, 1 successors, FD is 28160
via Connected, FastEthernet0/1
P 192.168.1.0/24, 1 successors, FD is 28160
via Connected, FastEthernet0/0
P 192.168.2.0/24, 1 successors, FD is 30720
via 12.0.0.2 (30720/28160), FastEthernet0/1
R1#
R1#
Copy
Paste


Physical
Config
CLI
IOS Command Line Interface
R1#
R1#
R1#sh ip protocols
Routing Protocol is "eigrp 10 "
Outgoing update filter list for all interfaces is not set
Incoming update filter list for all interfaces is not set
Default networks flagged in outgoing updates
Default networks accepted from incoming updates
EIGRP metric weight K1=1, K2=0, K3=1, K4=0, K5=0
EIGRP maximum hopcount 100
EIGRP maximum metric variance 1
Redistributing: eigrp 10
Automatic network summarization is in effect
Automatic address summarization:
12.0.0.0/8 for FastEthernet0/0
Summarizing with metric 28160
Maximum path: 4
Routing for Networks:
12.0.0.0/24
192.168.1.0
Routing Information Sources:
Gateway Distance Last Update
12.0.0.2 90 386535
Distance: internal 90 external 170
--More--
Copy
Paste

Assessment Parameters (To be filled by faculty)

10. **Successful completion of Practical (Y/N)**
11. **Time taken (hours/ minutes)**
12. **List other Parameters & Outcomes:**

S.No.	Parameters	Outcomes (Achieved / Not Achieved)

Remarks:

Total marks _____ out of 10. **Sign of Faculty**

Practical No: 05

(Routing Configuration in Cisco Packet Tracer v8.0)

Date: June 25th, 2021

PRACTICAL_NO_05

1. TITIE :- Routing configuration in Cisco Packet Tracer Date : June 23rd, 2021

2. AIM/OBJECTIVE :- The aim of this practical is to perform STATIC ROUTING configuration in Cisco Packet Tracer. Also, to find why we should use Static Routing rather than dynamic routing?

3. METHODOLOGY:

↳ Step①: Start your Cisco Packet Tracer V8.0. Then create a topology as shown in the SS.

↳ Step②: Configure ip address to routers via
Go to global configuration mode > in R1, R2, R3, R4 >
Configure connected interfaces

↳ Step③: Setup Router-1
R1(config)# int fa 0/0
R1(config-if)# ip address 11.0.0.2 255.0.0.0
" " # no shutdown
" " # exit

Router-2
R2(config)# int fa 1/0
R2(config-if)# ip addr 11.0.0.3
" " # no shutdown
" " # exit

Router-3
R3(config)# int fa 2/0
R3(config-if)# ip addr 12.0.0.2
" " # no shutdown
" " # exit

Router-4
R4(config)# int fa 3/0
R4(config-if)# ip addr 13.0.0.3
" " # no shutdown
" " # exit

↳ Step④: Assign ip address for both PC's with appropriate ip and subnet mask & default gateway.

↳ Step⑤: Now configure both router with static route

↳ Step⑥: Double click PC move to desktop then command prompt give the command ping 192.168.1.1 – 4.1, you will get reply from 192.168.1.1 – 4.1 as shown in the SS.

4. BRIEF DESCRIPTION

Overview of Static Routing: Static Routing is the most secure way of routing. It reduces overhead from Network Resources. In this type of routing we manually add routes in Routing Table. It is useful where Number of route are limited. Like other routing methods static routing also has its pros & cons.

Advantage of static Routing:

- It is easy to implement
- It is most secure way of Routing since no information is shared with other routers
- It puts No overhead on resources such as CPU or memory

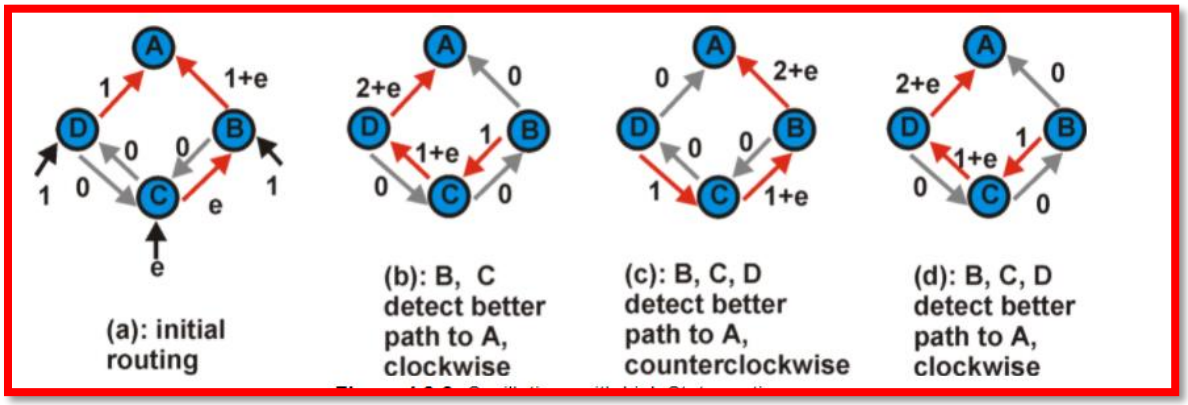
We can
- supplement dynamic routes with static routes where appropriate.
- redistribute static routes into dynamic routing algorithms.
- use static routes in environments where Network traffic is predictable & where network design is simple.

Disadvantages of Static Routing :-

- It can deal with large-size & infrastructure Network
- It can't be automatically updated hence, it can't recognize Network changes occur.
- Also, we can't redistribute routing information calculated by dynamic routing algos to the static Routing table.

—×—

Algortihm used behind Static Routing



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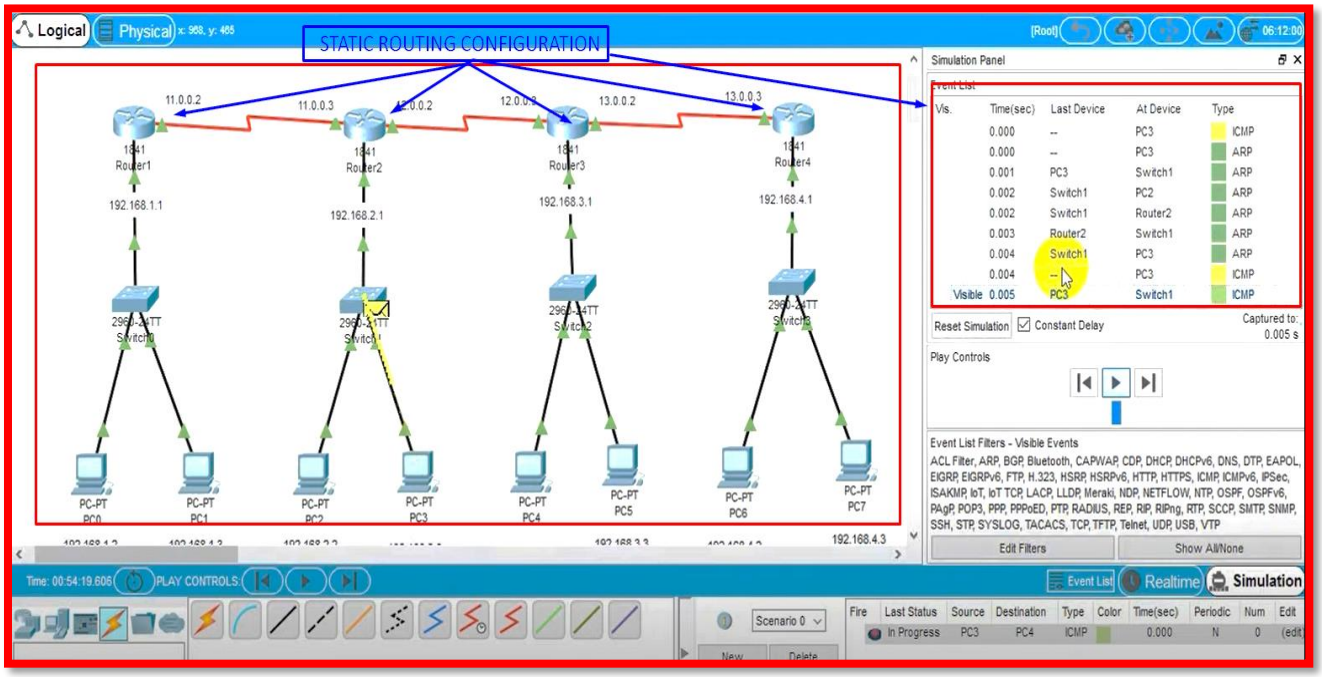
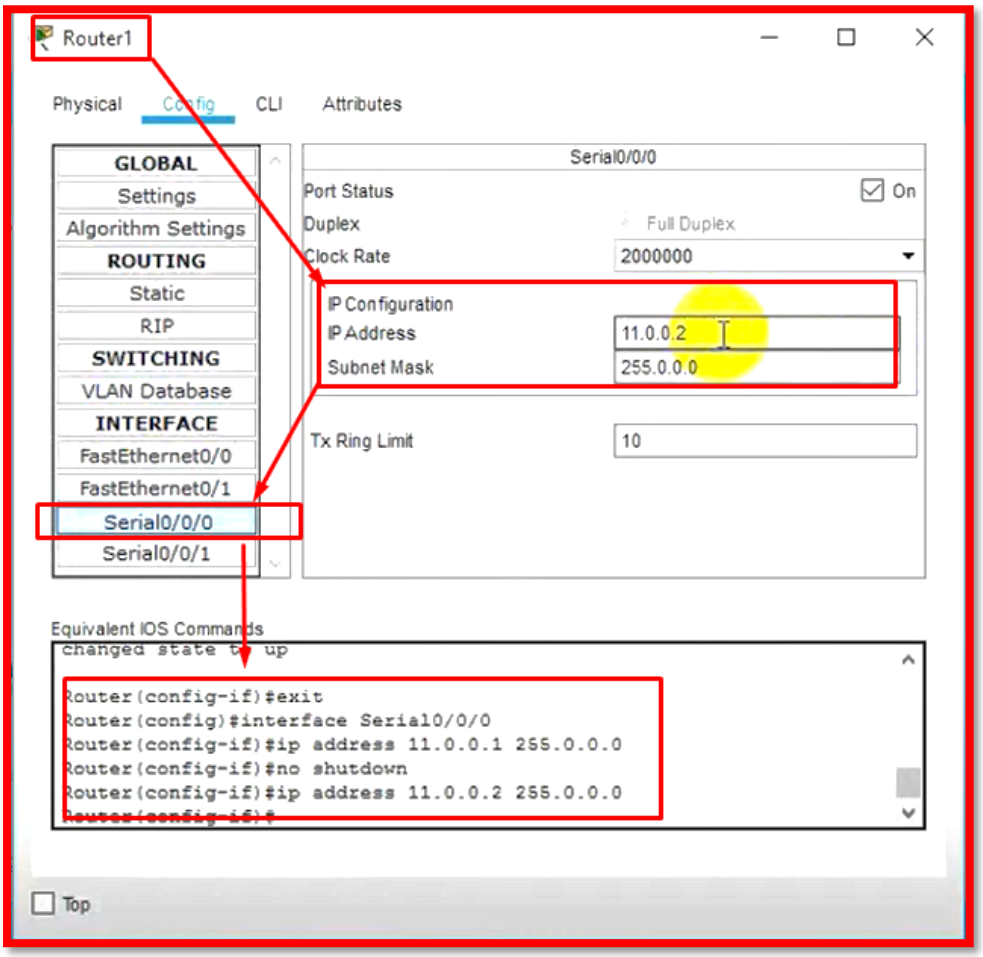
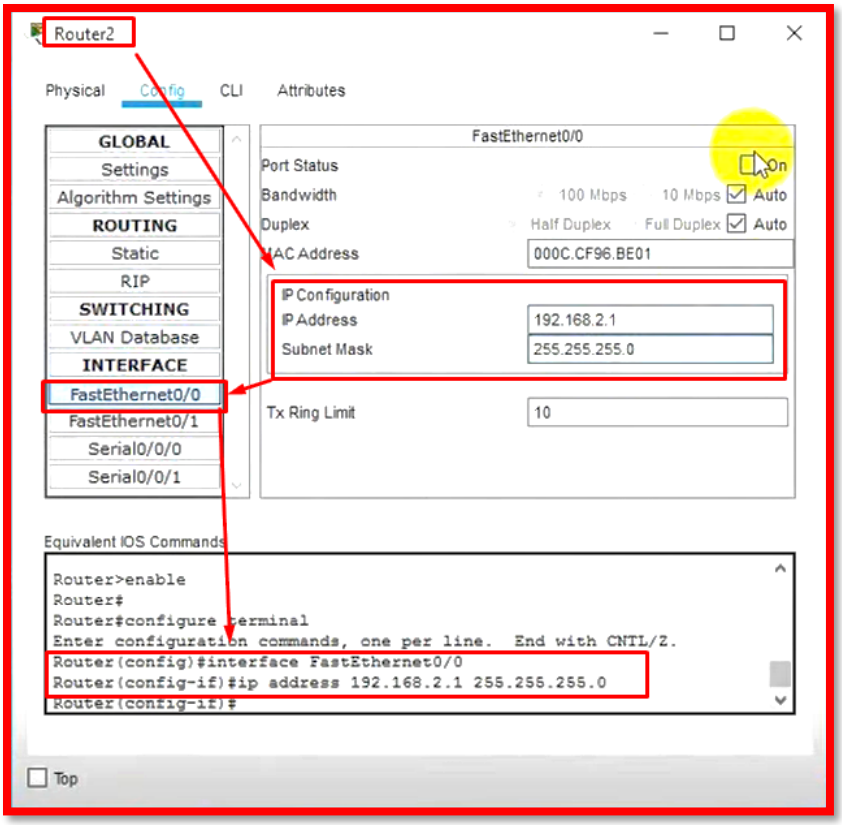
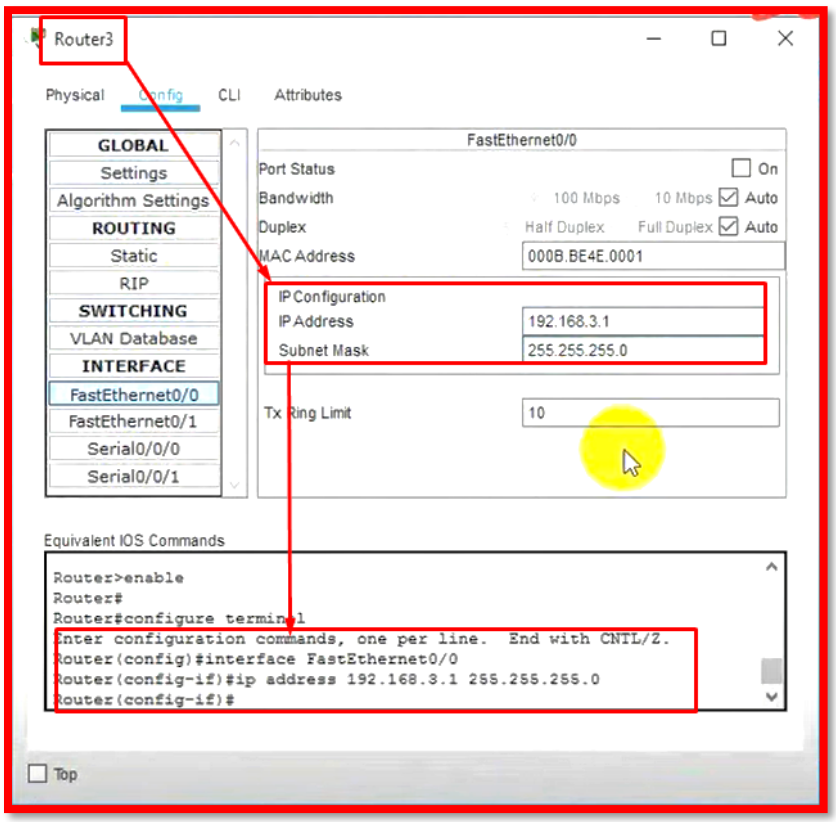
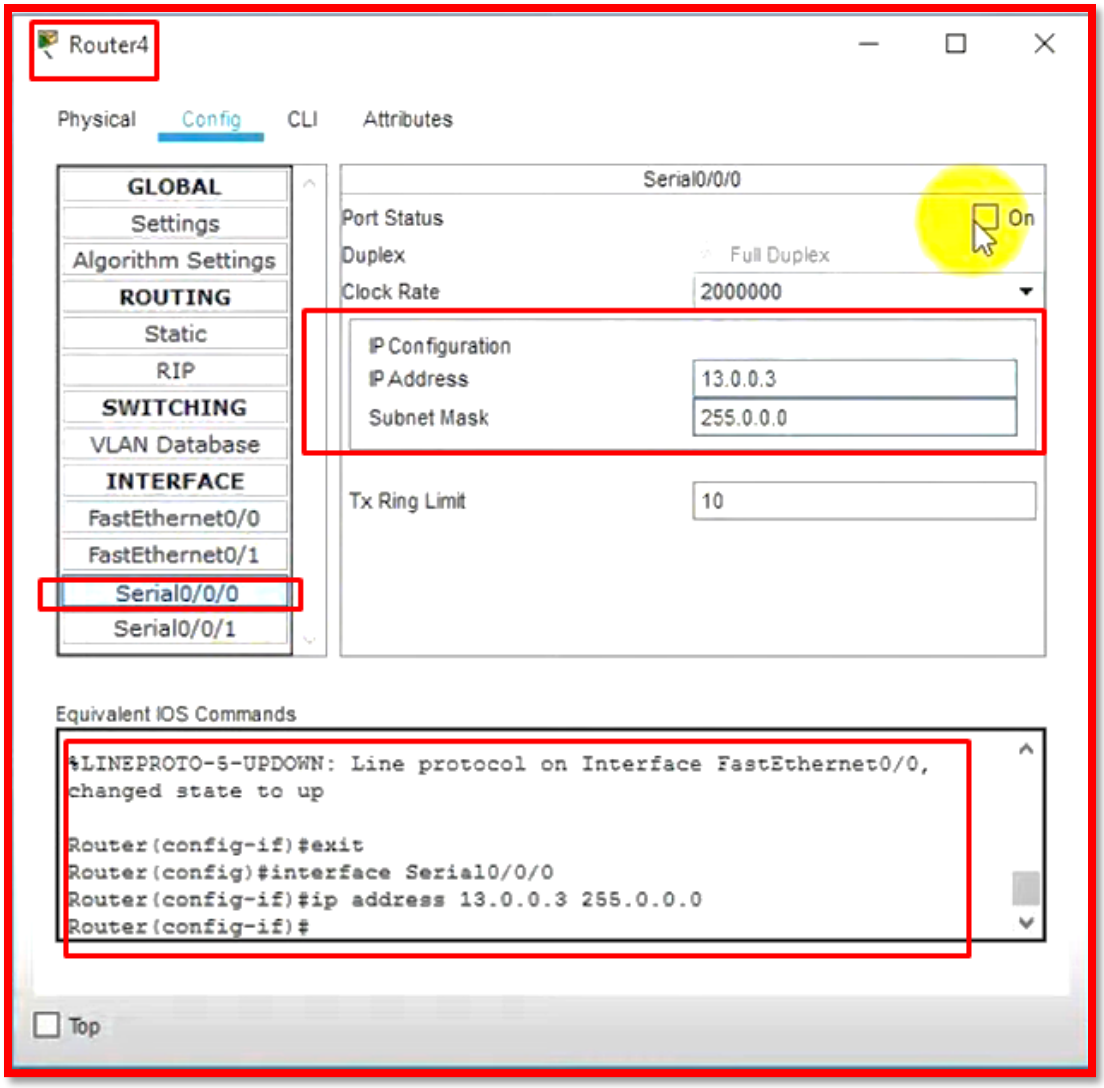



Router1
Physical
Config
CLI
Attributes
GLOBAL
Settings
Algorithm Settings
ROUTING
Static
RIP
SWITCHING
VLAN Database
INTERFACE
FastEthernet0/0
FastEthernet0/1
Serial0/0/0
Serial0/0/1
Serial0/0/0
Port Status
On
Duplex
Full Duplex
Clock Rate
2000000
IP Configuration
IP Address
11.0.0.2
Subnet Mask
255.0.0.0
Tx Ring Limit
10
Equivalent IOS Commands
changed state to up
Router(config-if)#exit
Router(config)#interface Serial0/0/0
Router(config-if)#ip address 11.0.0.1 255.0.0.0
Router(config-if)#no shutdown
Router(config-if)#ip address 11.0.0.2 255.0.0.0
Top


Router2
Physical
Config
CLI
Attributes
GLOBAL
Settings
Algorithm Settings
ROUTING
Static
RIP
SWITCHING
VLAN Database
INTERFACE
FastEthernet0/0
FastEthernet0/1
Serial0/0/0
Serial0/0/1
FastEthernet0/0
Port Status
On
Bandwidth
100 Mbps
10 Mbps
Auto
Duplex
Half Duplex
Full Duplex
Auto
MAC Address
000C.CF96.BE01
IP Configuration
IP Address
192.168.2.1
Subnet Mask
255.255.255.0
Tx Ring Limit
10
Equivalent IOS Commands
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#ip address 192.168.2.1 255.255.255.0
Router(config-if)#
Top


Router3
Physical
Config
CLI
Attributes
GLOBAL
Settings
Algorithm Settings
ROUTING
Static
RIP
SWITCHING
VLAN Database
INTERFACE
FastEthernet0/0
FastEthernet0/1
Serial0/0/0
Serial0/0/1
FastEthernet0/0
Port Status
On
Bandwidth
100 Mbps
10 Mbps
Auto
Duplex
Half Duplex
Full Duplex
Auto
MAC Address
000B.BE4E.0001
IP Configuration
IP Address
192.168.3.1
Subnet Mask
255.255.255.0
Tx Ring Limit
10
Equivalent IOS Commands
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#ip address 192.168.3.1 255.255.255.0
Router(config-if)#
Top


Router4
Physical
Config
CLI
Attributes
GLOBAL
Settings
Algorithm Settings
ROUTING
Static
RIP
SWITCHING
VLAN Database
INTERFACE
FastEthernet0/0
FastEthernet0/1
Serial0/0/0
Serial0/0/1
Serial0/0/0
Port Status
On
Duplex
Full Duplex
Clock Rate
2000000
IP Configuration
IP Address
13.0.0.3
Subnet Mask
255.0.0.0
Tx Ring Limit
10
Equivalent IOS Commands
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
Router(config-if)#exit
Router(config)#interface Serial0/0/0
Router(config-if)#ip address 13.0.0.3 255.0.0.0
Router(config-if)#
Top

Assessment Parameters (To be filled by faculty)

1. **Successful completion of Practical (Y/N)**
2. **Time taken (hours/ minutes)**
3. **List other Parameters & Outcomes:**

S.No.	Parameters	Outcomes (Achieved / Not Achieved)

Remarks:

Total marks _____ out of 10. **Sign of Faculty**