LOVELY PROFESSIONAL UNIVERSITY

Final Project.

Subject : CSE307 (INTERNETWORKING ESSENTIALS)

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Submitted To:

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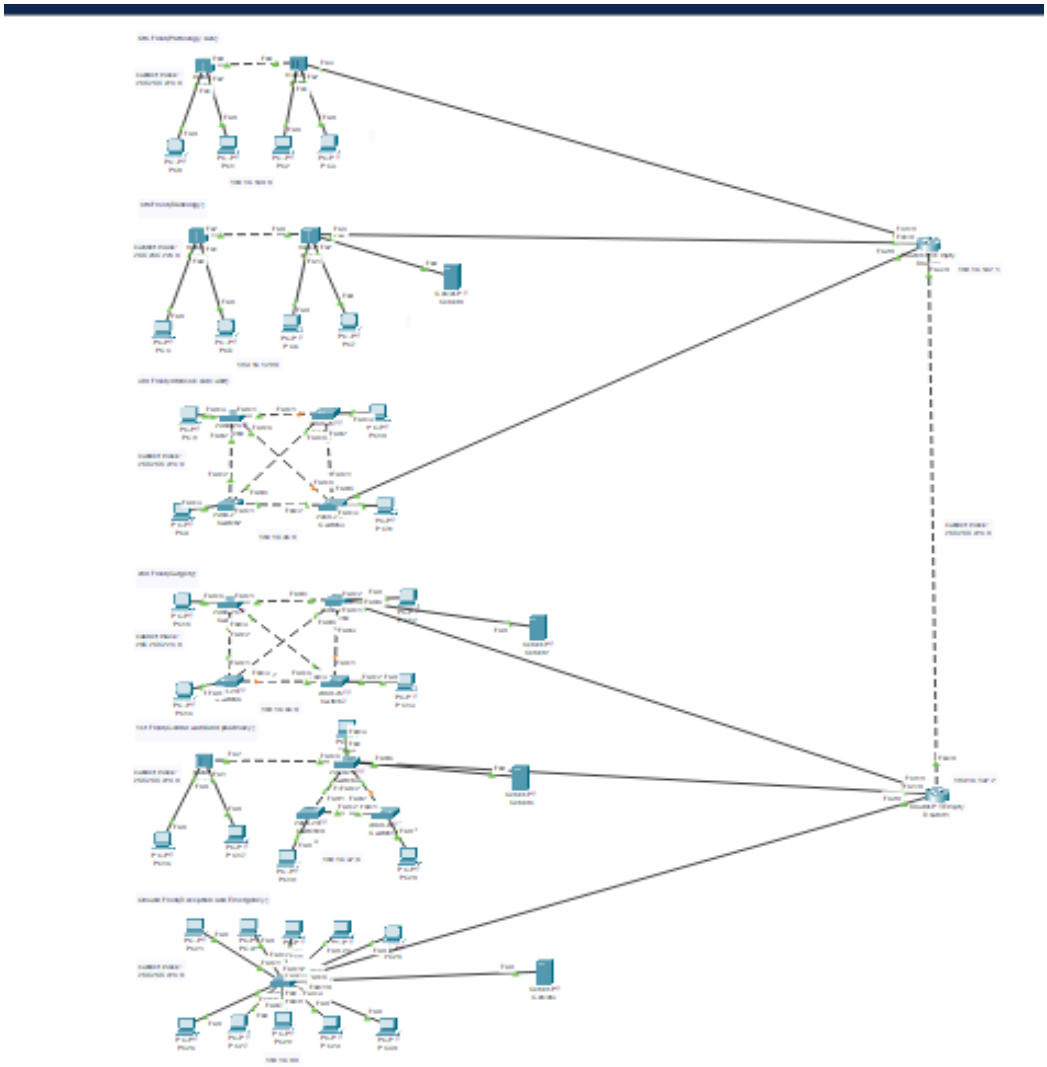
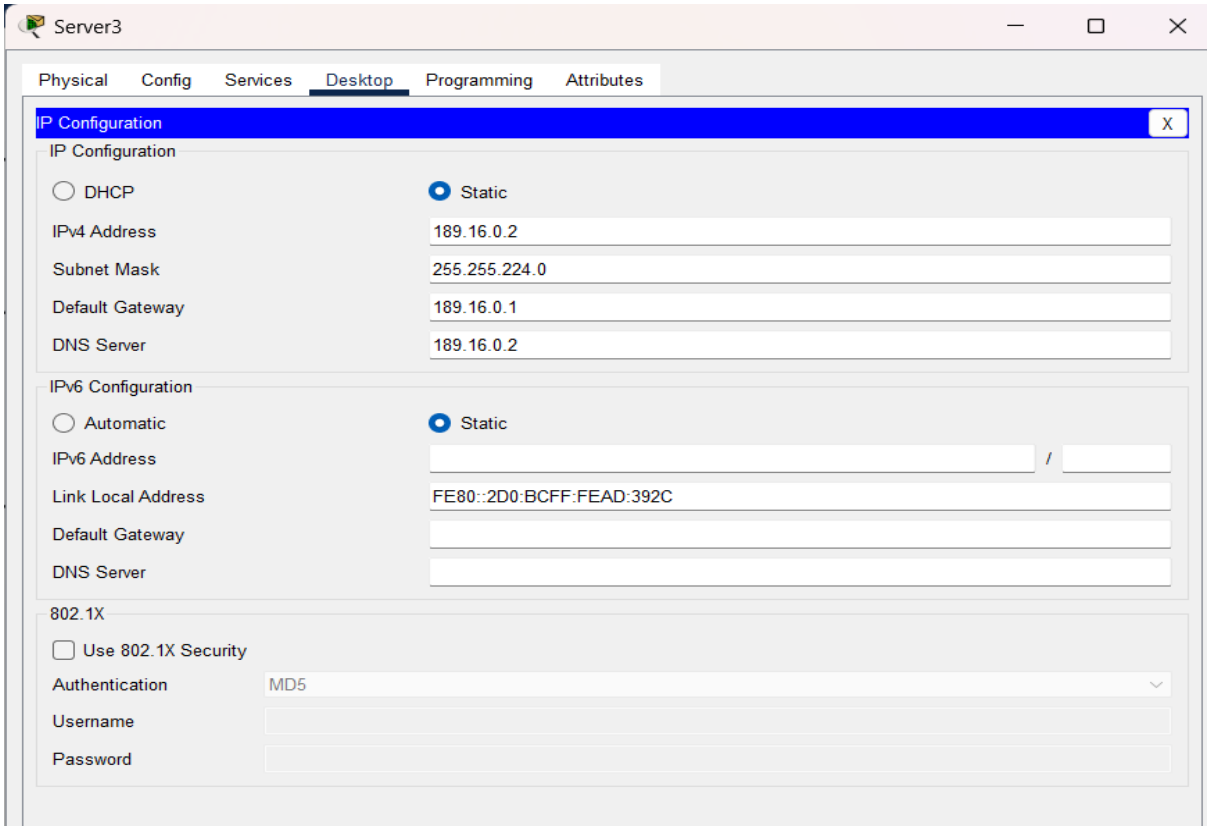
1. Physical scenario:

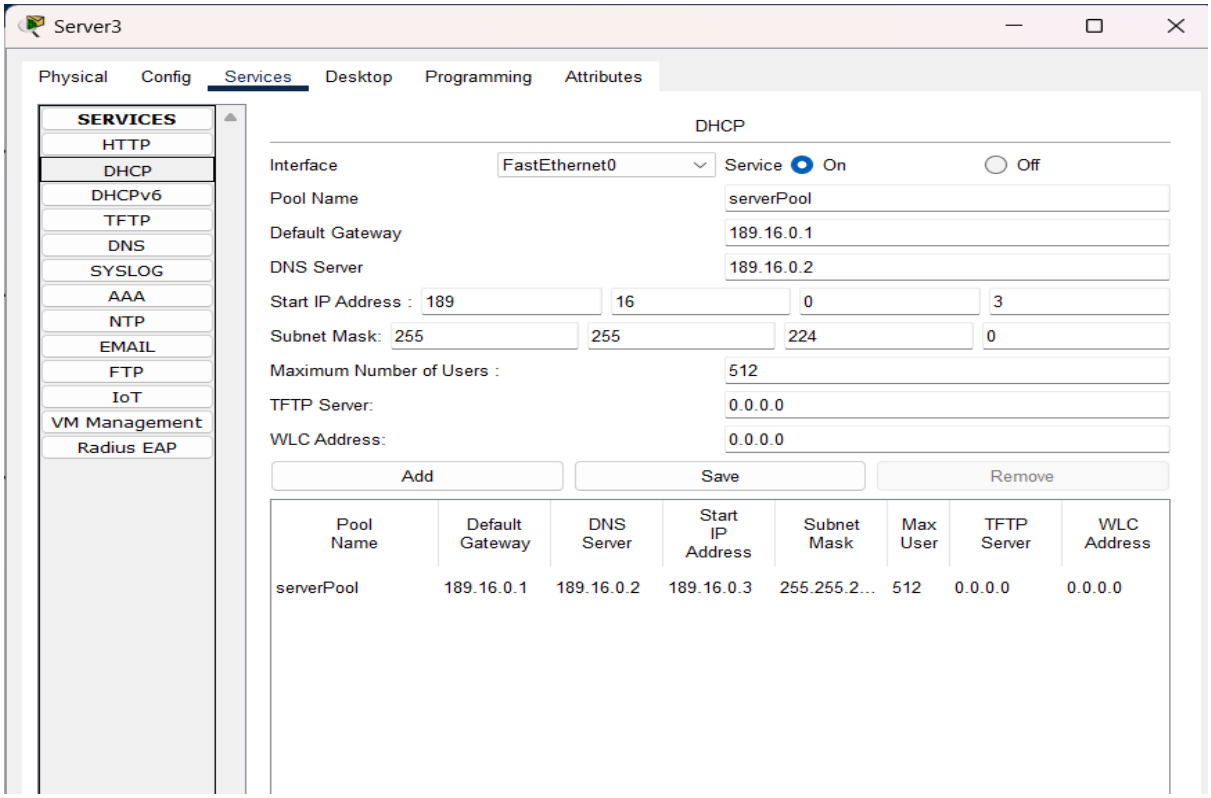


I have created multi-story hospital consisting of different departments:

- **Ground Floor (Reception & Emergency):** 10 computers (**Star Topology** with a switch)
- **1st Floor (General Wards & Pharmacy):** 5 computers (**Hybrid Topology** with hub and switch)
- **2nd Floor and 3th (Surgery & Intensive Care Unit - ICU):** 4 computers (**Mesh Topology** with switches)
- **4th Floor and 5th (Radiology & Pathology Lab):** 4 computers (**Bus Topology** with a hub)

2. IP VALUES and Servers:





using **FLSM**, with the **network address 189.16.0.0**.

FLSM : Fixed Length Subnet Mask.

I have total subnets are 7. So using FLSM I have created new subnet mask and subnet address.

In FLSM, subnet mask is same for all networks .

$2^n >= 7$

$2^3 >= 7$ (n = 3)

8 > 7

Given class was B:

In class B we have 16 and 16 network and host. So we have to add 3 to network and subtract 3 from host. So the new network and host are 19 and 13.

From this , we can easily find subnet mask.

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8 8 3 0 128+64+32= 224.

So , The new subnet mask is **255.255.224.0** **256-224 = 32**

Now we have to find Range : Difference is 32

189.16.0.0 to 189.16.31.255

189.16.32.0 to 189.16.63.255

189.16.64.0 to 189.16.95.255

189.16.96.0 to 189.16.127.255

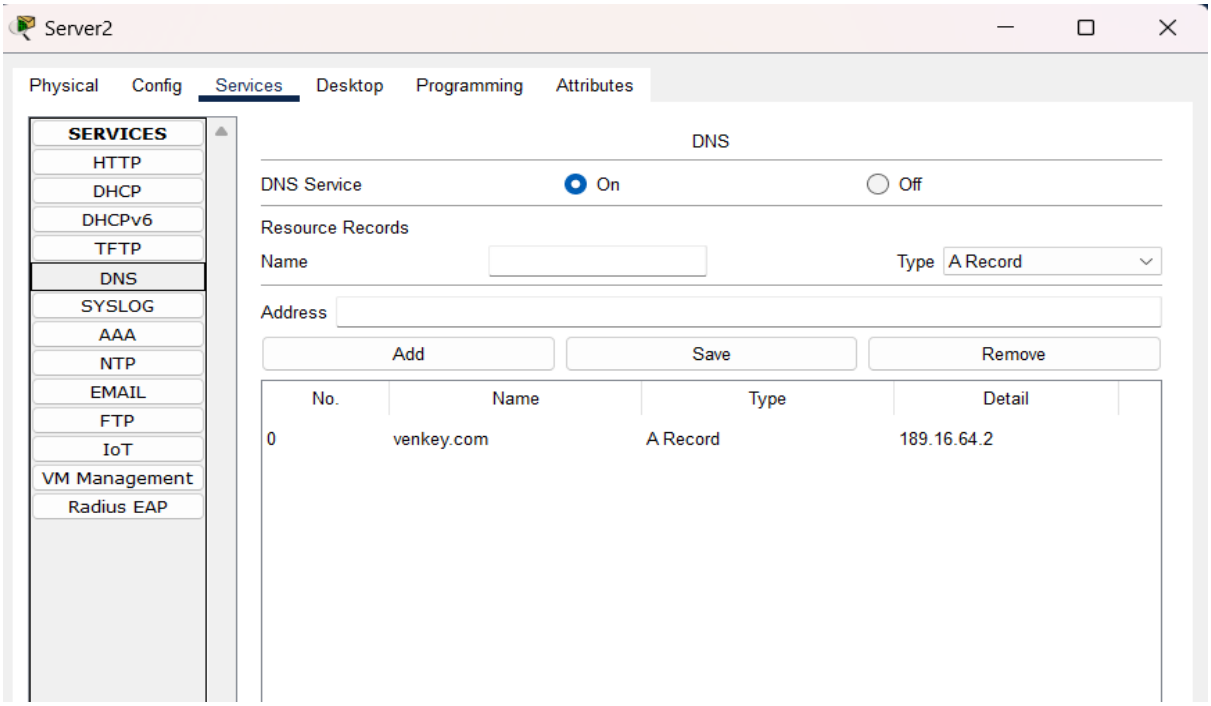
189.16.128.0 to 189.16.159.255

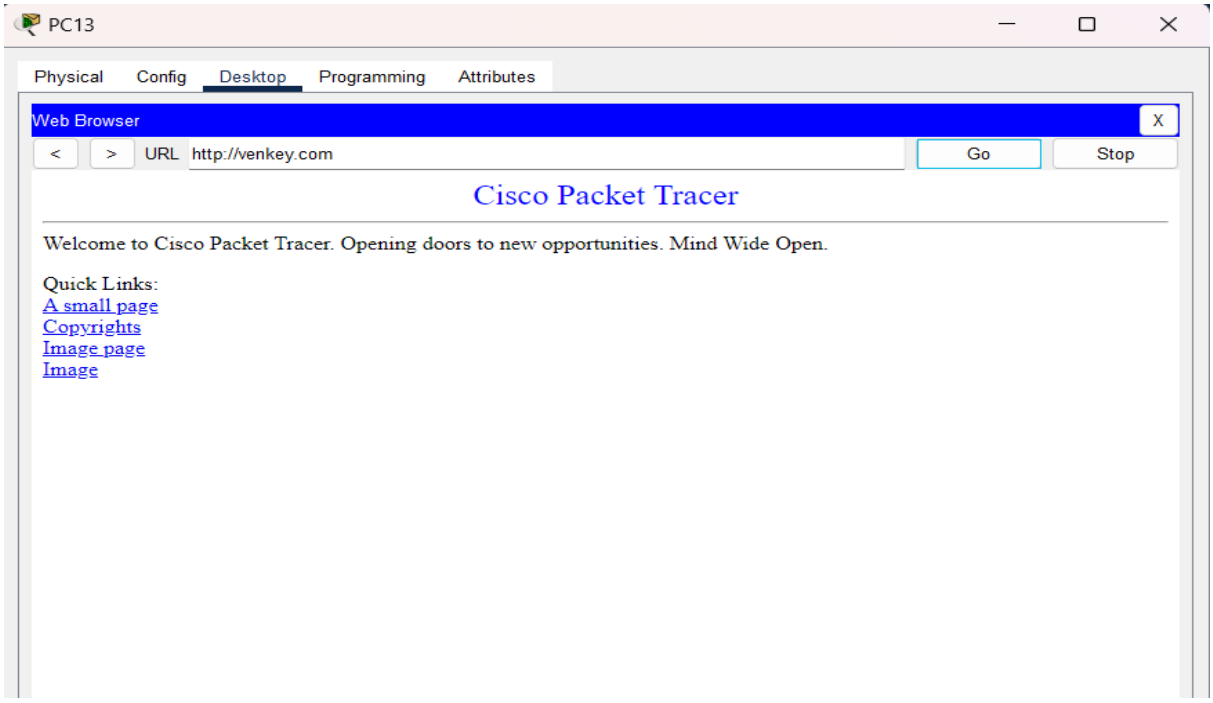
189.16.160.0 to 189.16.191.255

189.16.192.0 to 189.16.223.255

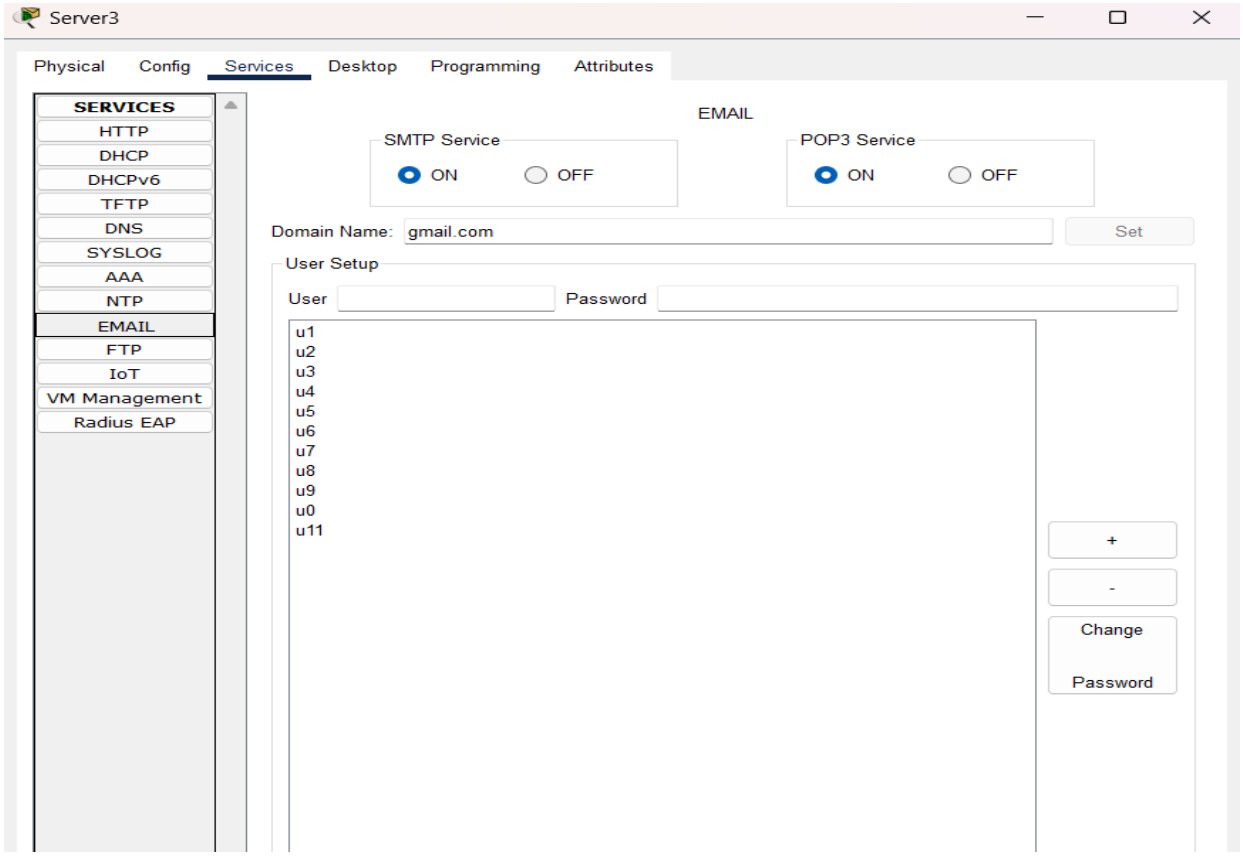
189.16.224.0 to 189.16.255.255

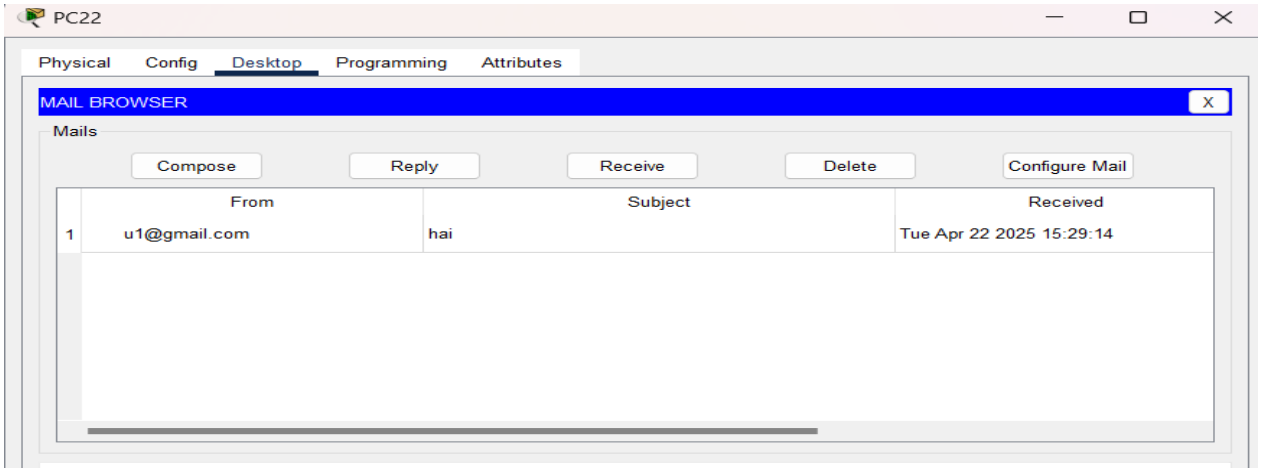
DNS SERVER:

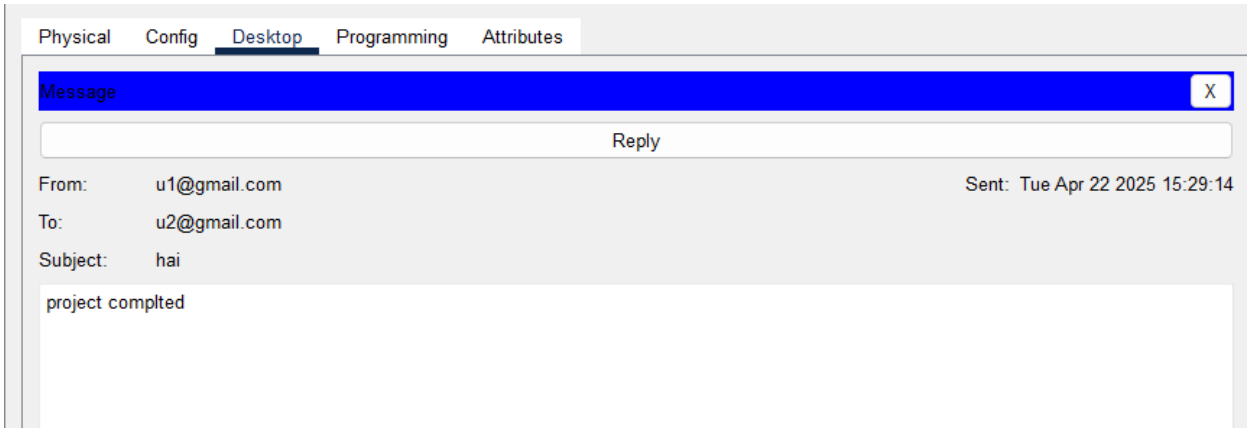

Server2
Physical
Config
Services
Desktop
Programming
Attributes
SERVICES
HTTP
DHCP
DHCPv6
TFTP
DNS
SYSLOG
AAA
NTP
EMAIL
FTP
IoT
VM Management
Radius EAP
DNS
DNS Service
On
Off
Resource Records
Name
Type
A Record
Address
Add
Save
Remove
No.
Name
Type
Detail
0
venkey.com
A Record
189.16.64.2


PC13
Physical
Config
Desktop
Programming
Attributes
Web Browser
X
<
>
URL
http://venkey.com
Go
Stop
Cisco Packet Tracer
Welcome to Cisco Packet Tracer. Opening doors to new opportunities. Mind Wide Open.
Quick Links:
A small page
Copyrights
Image page
Image

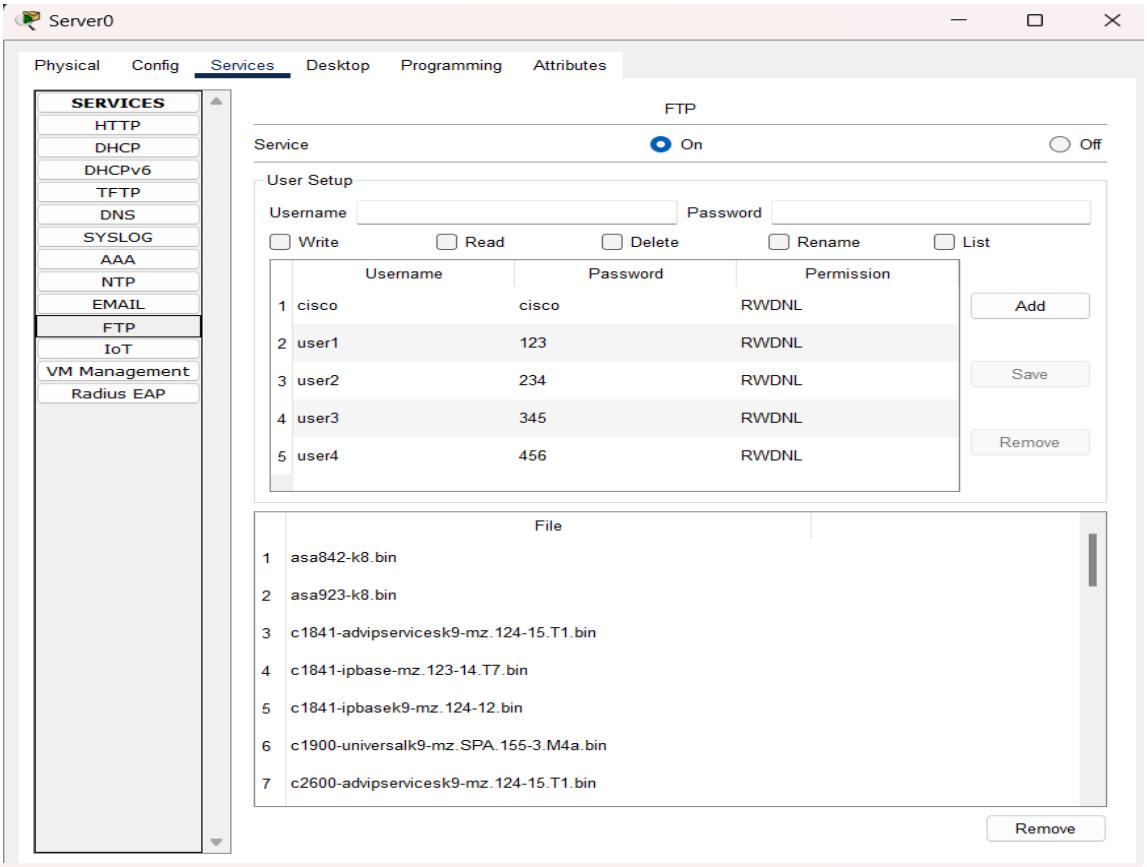
Email:

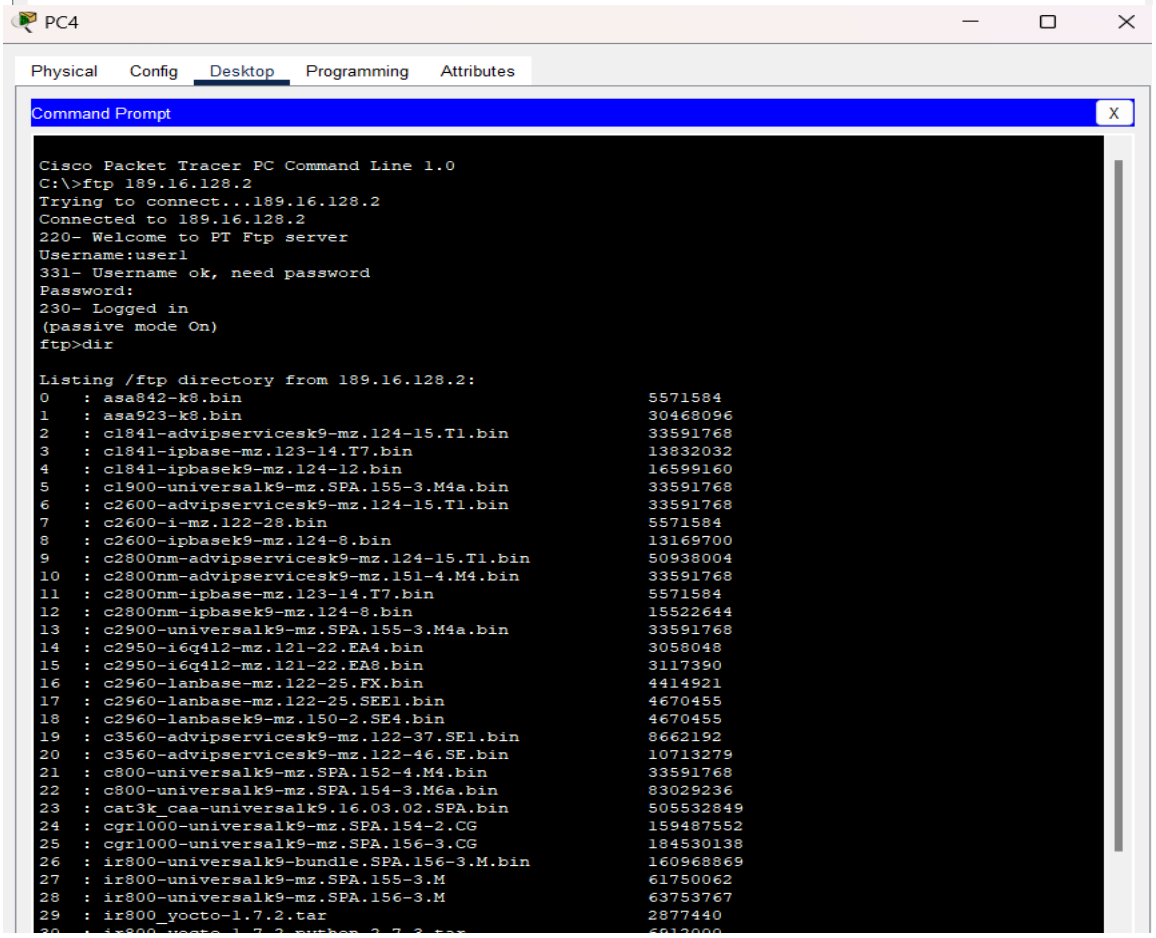

Server3
Physical
Config
Services
Desktop
Programming
Attributes
SERVICES
HTTP
DHCP
DHCPv6
TFTP
DNS
SYSLOG
AAA
NTP
EMAIL
FTP
IoT
VM Management
Radius EAP
EMAIL
SMTP Service
ON
OFF
POP3 Service
ON
OFF
Domain Name:
gmail.com
Set
User Setup
User
Password
u1
u2
u3
u4
u5
u6
u7
u8
u9
u0
u11
+
-
Change
Password


PC22
Physical
Config
Desktop
Programming
Attributes
MAIL BROWSER
X
Mails
Compose
Reply
Receive
Delete
Configure Mail
From
Subject
Received
1
u1@gmail.com
hai
Tue Apr 22 2025 15:29:14

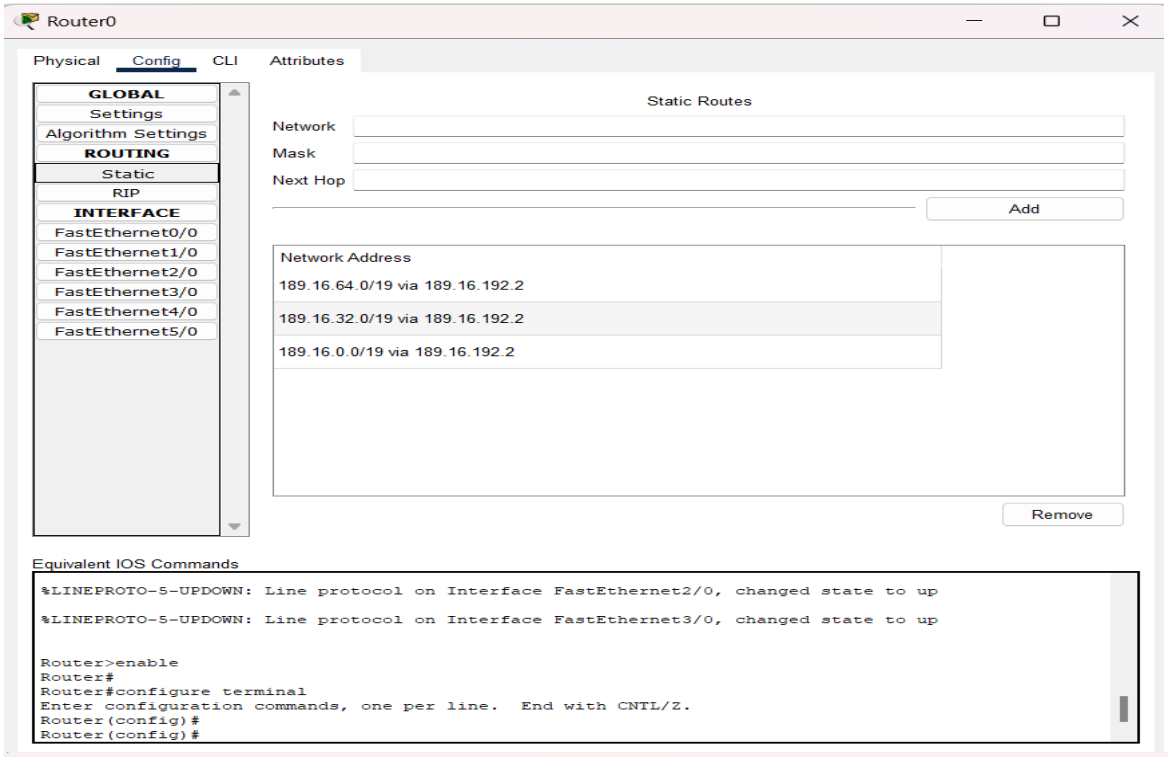

Physical
Config
Desktop
Programming
Attributes
Message
X
Reply
From:
u1@gmail.com
Sent:
Tue Apr 22 2025 15:29:14
To:
u2@gmail.com
Subject:
hai
project complted

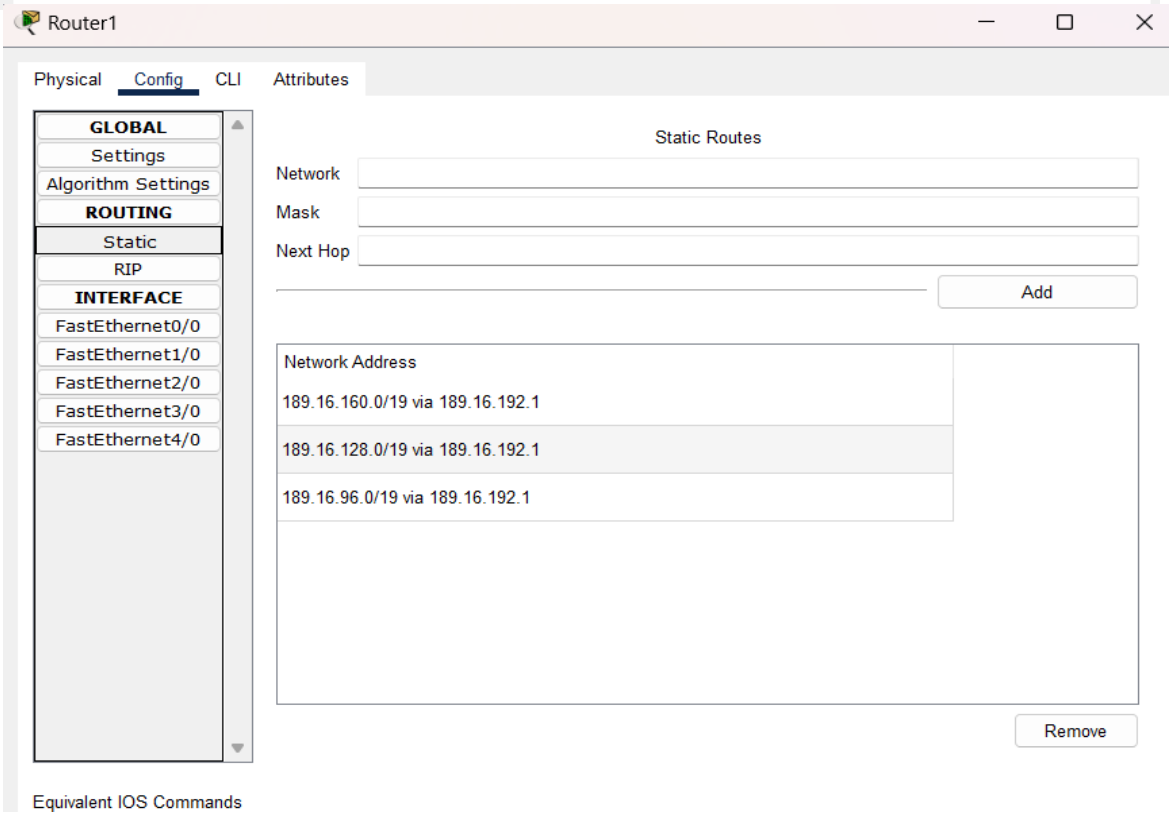
FTP:


Server0
Physical
Config
Services
Desktop
Programming
Attributes
SERVICES
HTTP
DHCP
DHCPv6
TFTP
DNS
SYSLOG
AAA
NTP
EMAIL
FTP
IoT
VM Management
Radius EAP
FTP
Service
On
Off
User Setup
Username
Password
Write
Read
Delete
Rename
List
Username
Password
Permission
1 cisco cisco RWDNL
2 user1 123 RWDNL
3 user2 234 RWDNL
4 user3 345 RWDNL
5 user4 456 RWDNL
Add
Save
Remove
File
1 asa842-k8.bin
2 asa923-k8.bin
3 c1841-advipservicesk9-mz.124-15.T1.bin
4 c1841-ipbase-mz.123-14.T7.bin
5 c1841-ipbasek9-mz.124-12.bin
6 c1900-universalk9-mz.SPA.155-3.M4a.bin
7 c2600-advipservicesk9-mz.124-15.T1.bin
Remove


PC4
Physical
Config
Desktop
Programming
Attributes
Command Prompt
X
Cisco Packet Tracer PC Command Line 1.0
C:\>ftp 189.16.128.2
Trying to connect...189.16.128.2
Connected to 189.16.128.2
220- Welcome to PT Ftp server
Username:user1
331- Username ok, need password
Password:
230- Logged in
(passive mode On)
ftp>dir
Listing /ftp directory from 189.16.128.2:
0 : asa842-k8.bin 5571584
1 : asa923-k8.bin 30468096
2 : c1841-advipservicesk9-mz.124-15.T1.bin 33591768
3 : c1841-ipbase-mz.123-14.T7.bin 13832032
4 : c1841-ipbasek9-mz.124-12.bin 16599160
5 : c1900-universalk9-mz.SPA.155-3.M4a.bin 33591768
6 : c2600-advipservicesk9-mz.124-15.T1.bin 33591768
7 : c2600-i-mz.122-28.bin 5571584
8 : c2600-ipbasek9-mz.124-8.bin 13169700
9 : c2800nm-advipservicesk9-mz.124-15.T1.bin 50938004
10 : c2800nm-advipservicesk9-mz.151-4.M4.bin 33591768
11 : c2800nm-ipbase-mz.123-14.T7.bin 5571584
12 : c2800nm-ipbasek9-mz.124-8.bin 15522644
13 : c2900-universalk9-mz.SPA.155-3.M4a.bin 33591768
14 : c2950-i6q4l2-mz.121-22.EA4.bin 3058048
15 : c2950-i6q4l2-mz.121-22.EA8.bin 3117390
16 : c2960-lanbase-mz.122-25.FX.bin 4414921
17 : c2960-lanbase-mz.122-25.SEE1.bin 4670455
18 : c2960-lanbasek9-mz.150-2.SE4.bin 4670455
19 : c3560-advipservicesk9-mz.122-37.SE1.bin 8662192
20 : c3560-advipservicesk9-mz.122-46.SE.bin 10713279
21 : c800-universalk9-mz.SPA.152-4.M4.bin 33591768
22 : c800-universalk9-mz.SPA.154-3.M6a.bin 83029236
23 : cat3k_caa-universalk9.16.03.02.SPA.bin 505532849
24 : cgr1000-universalk9-mz.SPA.154-2.CG 159487552
25 : cgr1000-universalk9-mz.SPA.156-3.CG 184530138
26 : ir800-universalk9-bundle.SPA.156-3.M.bin 160968869
27 : ir800-universalk9-mz.SPA.155-3.M 61750062
28 : ir800-universalk9-mz.SPA.156-3.M 63753767
29 : ir800_yocto-1.7.2.tar 2877440

3. Routing:





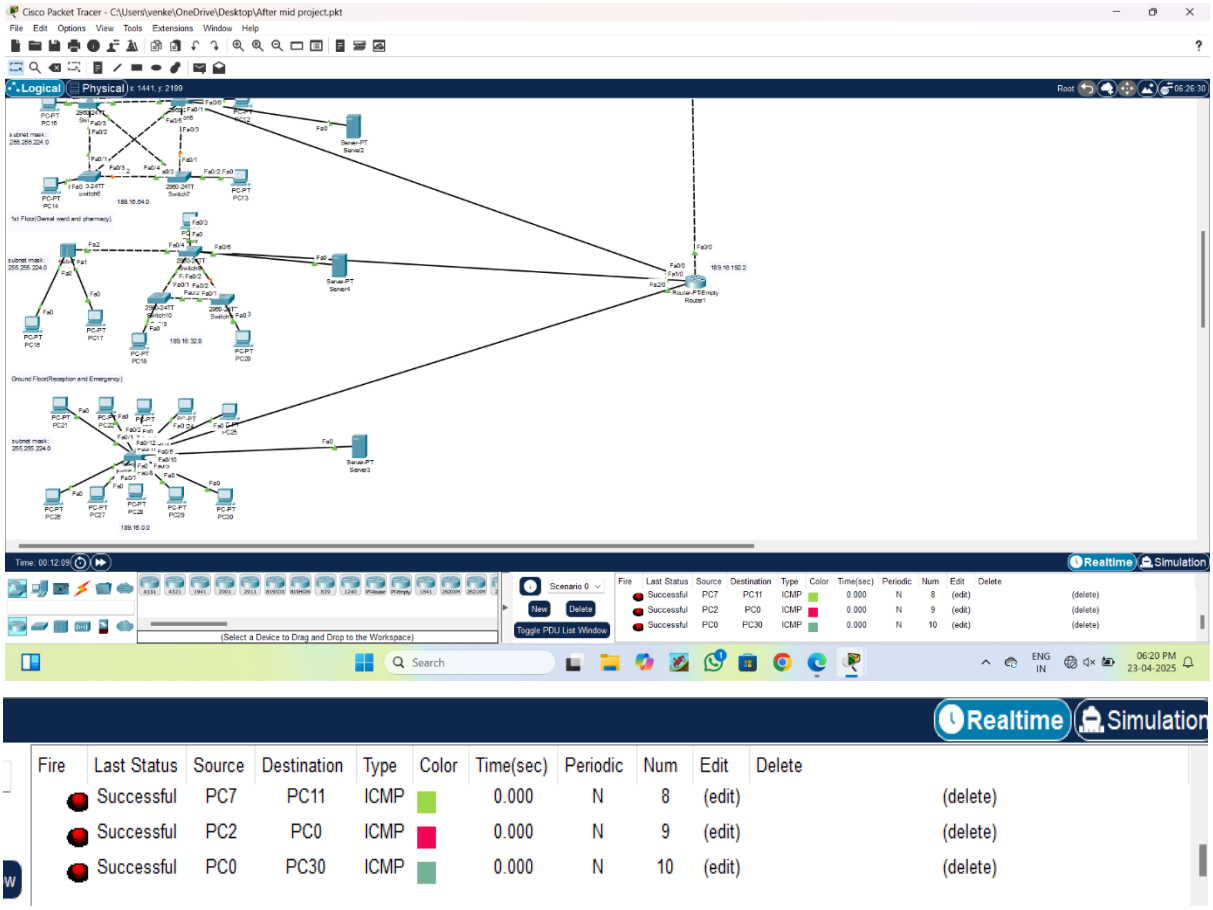
Static Routing was used here:

Commands for static routing : #ip route _unknown network_ _subnet mask_ _net hope_

Example: #ip route 189.16.160.0 255.255.224.0 189.16.191.1

#ip route 189.16.128.0 255.255.224.0 189.16.191.1

4. Communication between pc:



Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
	Successful	PC7	PC11	ICMP		0.000	N	8	(edit)	(delete)
	Successful	PC2	PC0	ICMP		0.000	N	9	(edit)	(delete)
	Successful	PC0	PC30	ICMP		0.000	N	10	(edit)	(delete)

After Routing :

You can see in above pic that all the message sent from one pc to another became successful.

Example: PC0 TO PC30:

(You can clearly see that PC0 is attached to Router 1 and PC30 is attached to Router 0. So you can confirm that message is pass through R0 TO R1)

Finally , we can send message pc to any pc .

GIT-HUB link: https://github.com/VenkeyVemireddy/CSE-307

THANK YOU