National University of Computer and Emerging Sciences
Islamabad Campus

CS1001

Computer Networks

Final Project

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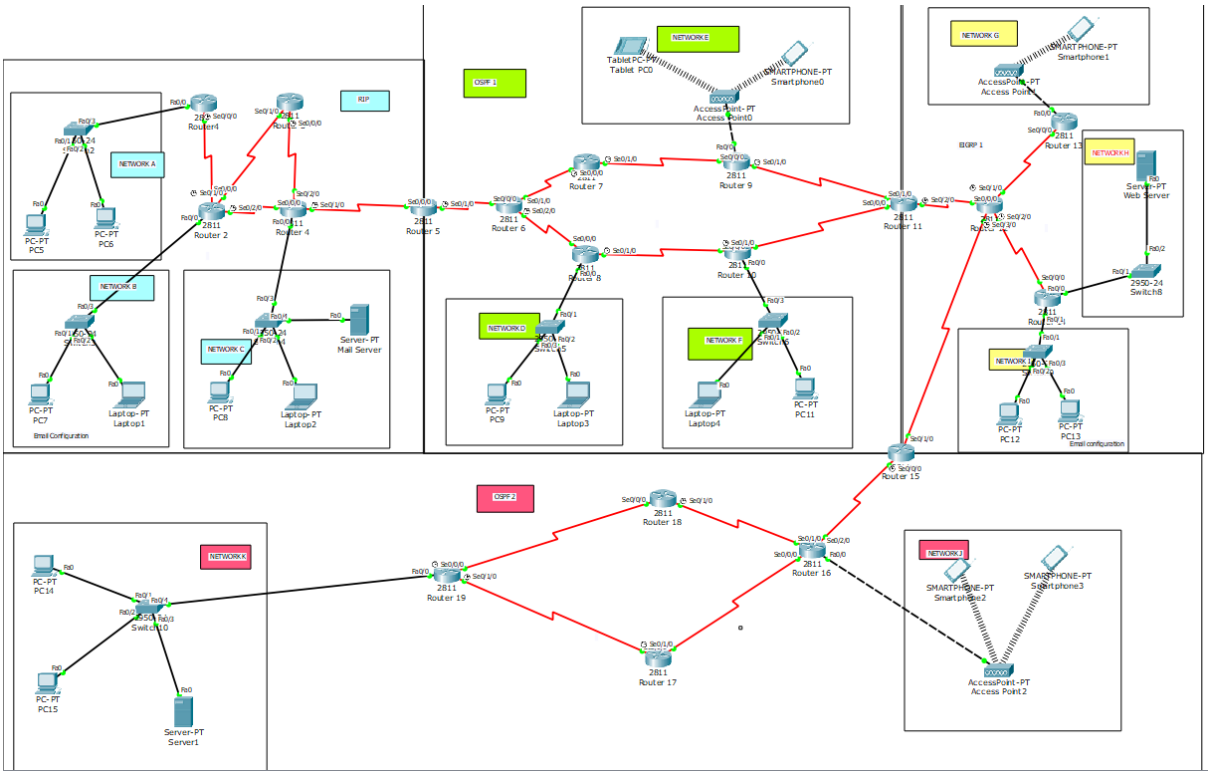
Roll number: I22-1580 Section A
Date: 8th December 2024

TOPOLOGY



VLSM

The network 164.238.0.0/15 has 131070 hosts.
Your subnets need 492455 hosts.

NAME	HOSTS NEEDED	HOSTS AVAILABLE	UNUSED HOSTS	NETWORK ADDRESS	SLASH	MASK	USABLE RANGE	BROADCAST
8	110621	131070	20449	164.238.0.0	/15	255.254.0.0	164.238.0.1 - 164.239.255.254	164.239.255.255
4	101271	131070	29799	164.240.0.0	/15	255.254.0.0	164.240.0.1 - 164.241.255.254	164.241.255.255
6	78093	131070	52977	164.242.0.0	/15	255.254.0.0	164.242.0.1 - 164.243.255.254	164.243.255.255
5	75687	131070	55383	164.244.0.0	/15	255.254.0.0	164.244.0.1 - 164.245.255.254	164.245.255.255
9	43438	65534	22096	164.246.0.0	/16	255.255.0.0	164.246.0.1 - 164.246.255.254	164.246.255.255
3	40385	65534	25149	164.247.0.0	/16	255.255.0.0	164.247.0.1 - 164.247.255.254	164.247.255.255
1	28945	32766	3821	164.248.0.0	/17	255.255.128.0	164.248.0.1 - 164.248.127.254	164.248.127.255
7	11966	16382	4416	164.248.128.0	/18	255.255.192.0	164.248.128.1 - 164.248.191.254	164.248.191.255
2	2049	4094	2045	164.248.192.0	/20	255.255.240.0	164.248.192.1 - 164.248.207.254	164.248.207.255

VLSM between Devices of Network

The network 164.248.208.0/30 has 2 hosts.
Your subnets need 44 hosts.

NAME	HOSTS NEEDED	HOSTS AVAILABLE	UNUSED HOSTS	NETWORK ADDRESS	SLASH	MASK	USABLE RANGE	BROADCAST
1	2	2	0	164.248.208.0	/30	255.255.255.252	164.248.208.1 - 164.248.208.2	164.248.208.3
2	2	2	0	164.248.208.4	/30	255.255.255.252	164.248.208.5 - 164.248.208.6	164.248.208.7
3	2	2	0	164.248.208.8	/30	255.255.255.252	164.248.208.9 - 164.248.208.10	164.248.208.11
4	2	2	0	164.248.208.12	/30	255.255.255.252	164.248.208.13 - 164.248.208.14	164.248.208.15
5	2	2	0	164.248.208.16	/30	255.255.255.252	164.248.208.17 - 164.248.208.18	164.248.208.19
6	2	2	0	164.248.208.20	/30	255.255.255.252	164.248.208.21 - 164.248.208.22	164.248.208.23
7	2	2	0	164.248.208.24	/30	255.255.255.252	164.248.208.25 - 164.248.208.26	164.248.208.27
8	2	2	0	164.248.208.28	/30	255.255.255.252	164.248.208.29 - 164.248.208.30	164.248.208.31
9	2	2	0	164.248.208.32	/30	255.255.255.252	164.248.208.33 - 164.248.208.34	164.248.208.35

VLSM between routers

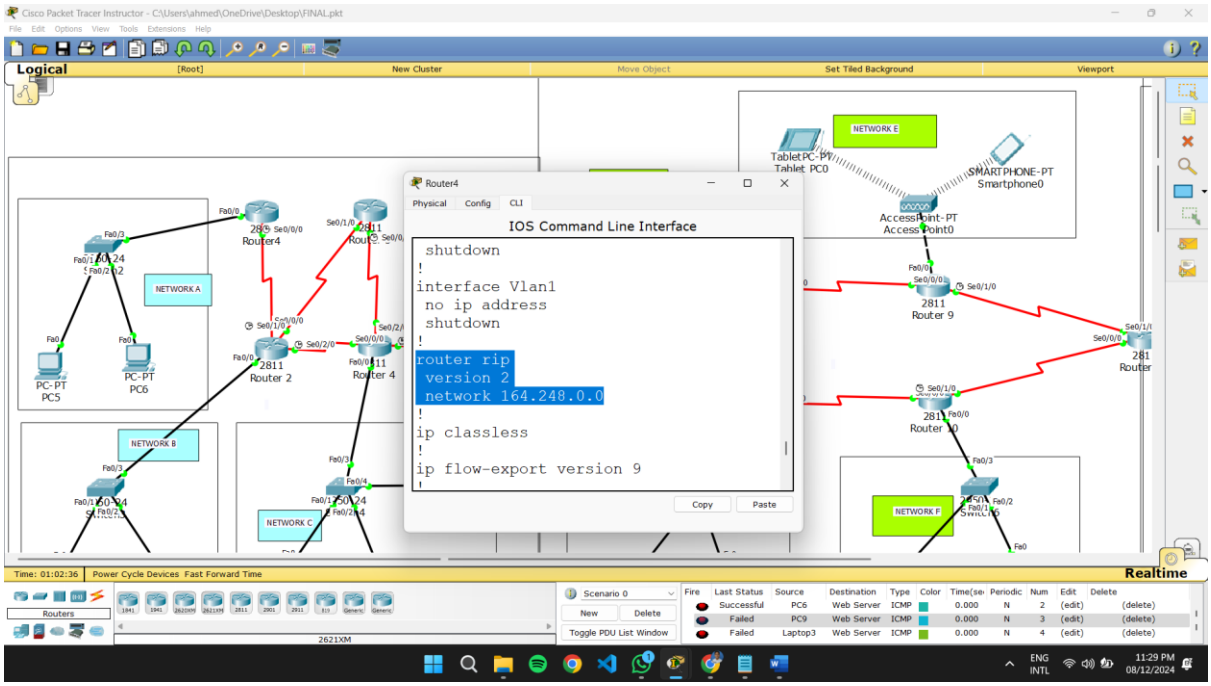
9	2	2	0	164.248.208.32	/30	255.255.255.252	164.248.208.33 - 164.248.208.34	164.248.208.35
10	2	2	0	164.248.208.36	/30	255.255.255.252	164.248.208.37 - 164.248.208.38	164.248.208.39
11	2	2	0	164.248.208.40	/30	255.255.255.252	164.248.208.41 - 164.248.208.42	164.248.208.43
12	2	2	0	164.248.208.44	/30	255.255.255.252	164.248.208.45 - 164.248.208.46	164.248.208.47
13	2	2	0	164.248.208.48	/30	255.255.255.252	164.248.208.49 - 164.248.208.50	164.248.208.51
14	2	2	0	164.248.208.52	/30	255.255.255.252	164.248.208.53 - 164.248.208.54	164.248.208.55
15	2	2	0	164.248.208.56	/30	255.255.255.252	164.248.208.57 - 164.248.208.58	164.248.208.59
16	2	2	0	164.248.208.60	/30	255.255.255.252	164.248.208.61 - 164.248.208.62	164.248.208.63
17	2	2	0	164.248.208.64	/30	255.255.255.252	164.248.208.65 - 164.248.208.66	164.248.208.67
18	2	2	0	164.248.208.68	/30	255.255.255.252	164.248.208.69 - 164.248.208.70	164.248.208.71
19	2	2	0	164.248.208.72	/30	255.255.255.252	164.248.208.73 - 164.248.208.74	164.248.208.75

VLSM between routers (2)

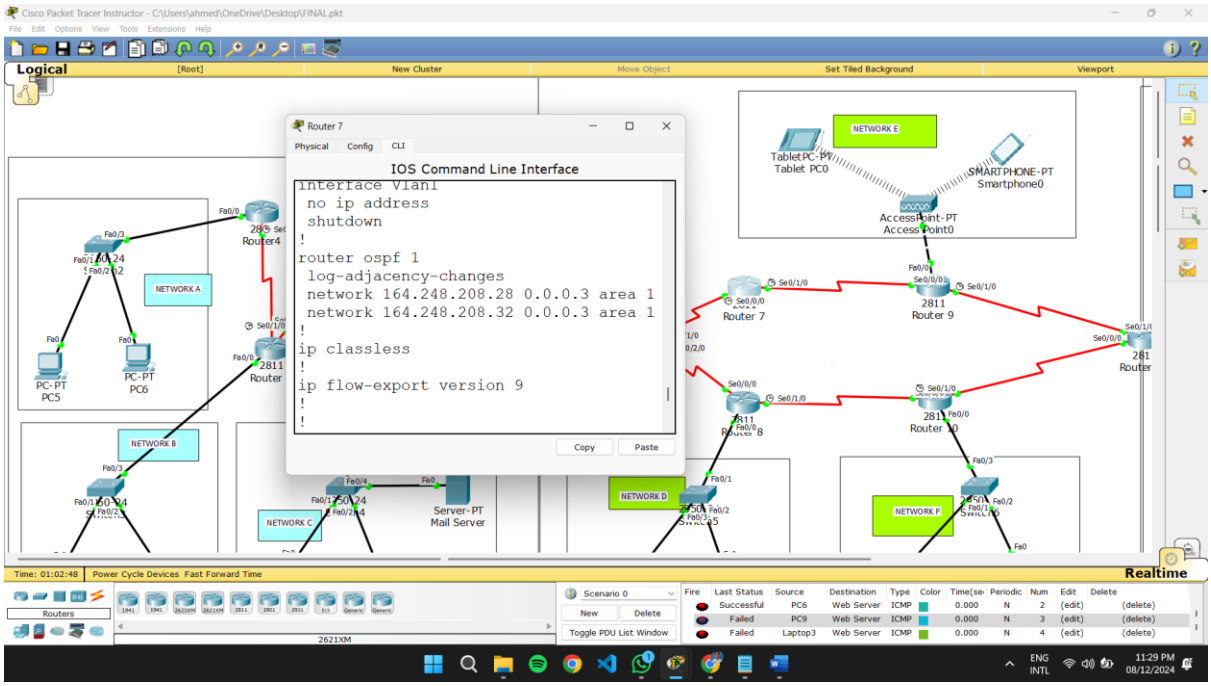
20	2	2	0	164.248.208.76	/30	255.255.255.252	164.248.208.77 - 164.248.208.78	164.248.208.79
21	2	2	0	164.248.208.80	/30	255.255.255.252	164.248.208.81 - 164.248.208.82	164.248.208.83
22	2	2	0	164.248.208.84	/30	255.255.255.252	164.248.208.85 - 164.248.208.86	164.248.208.87

VLSM between routers (3)

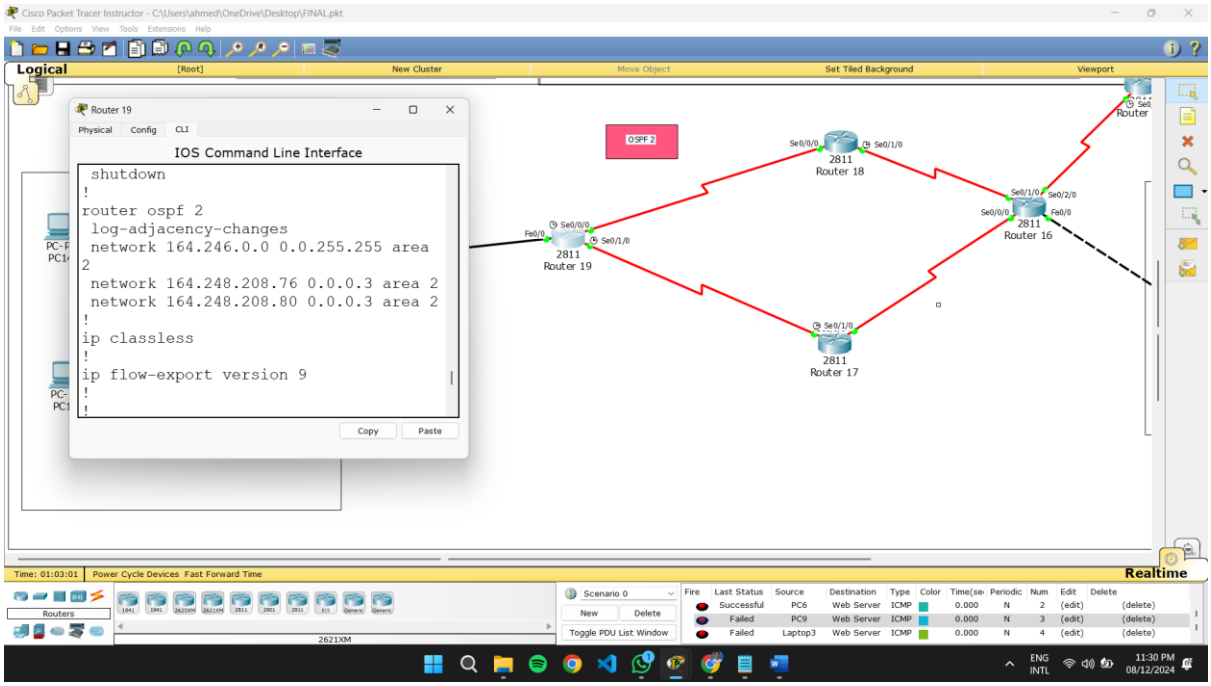
CONFIGURATION OF RIP



CONFIGURATION OF OSPF 1 AND OSPF 2

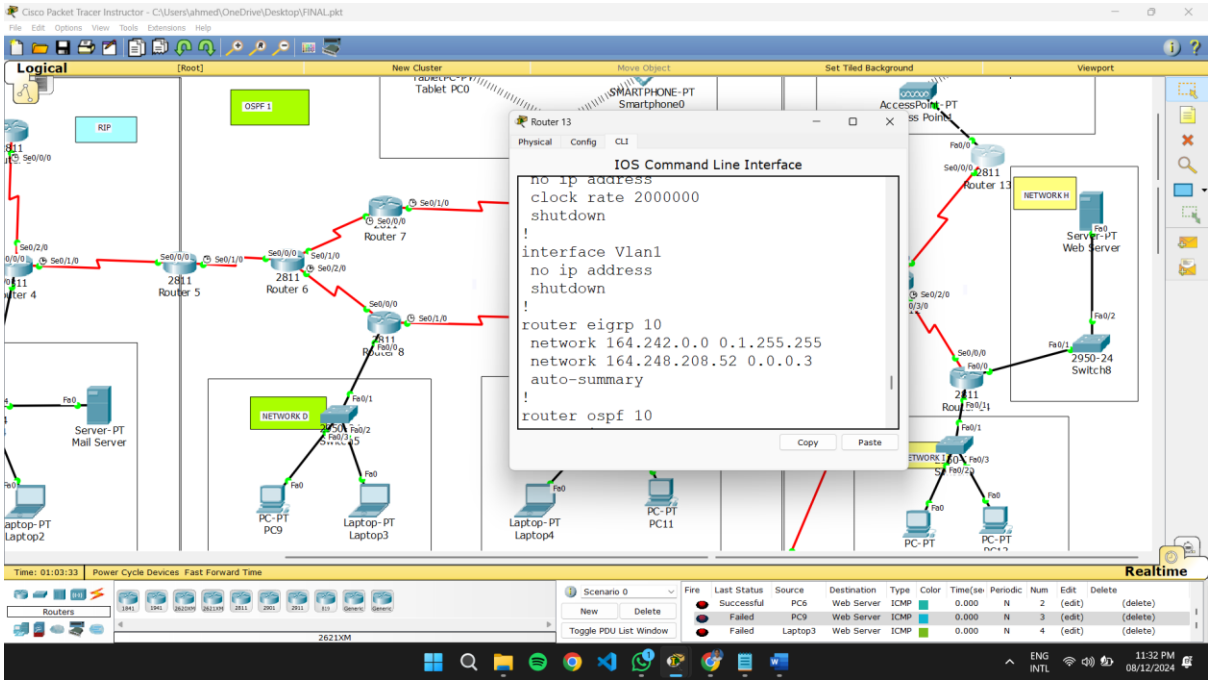


CONFIGURATION OF OSPF 1

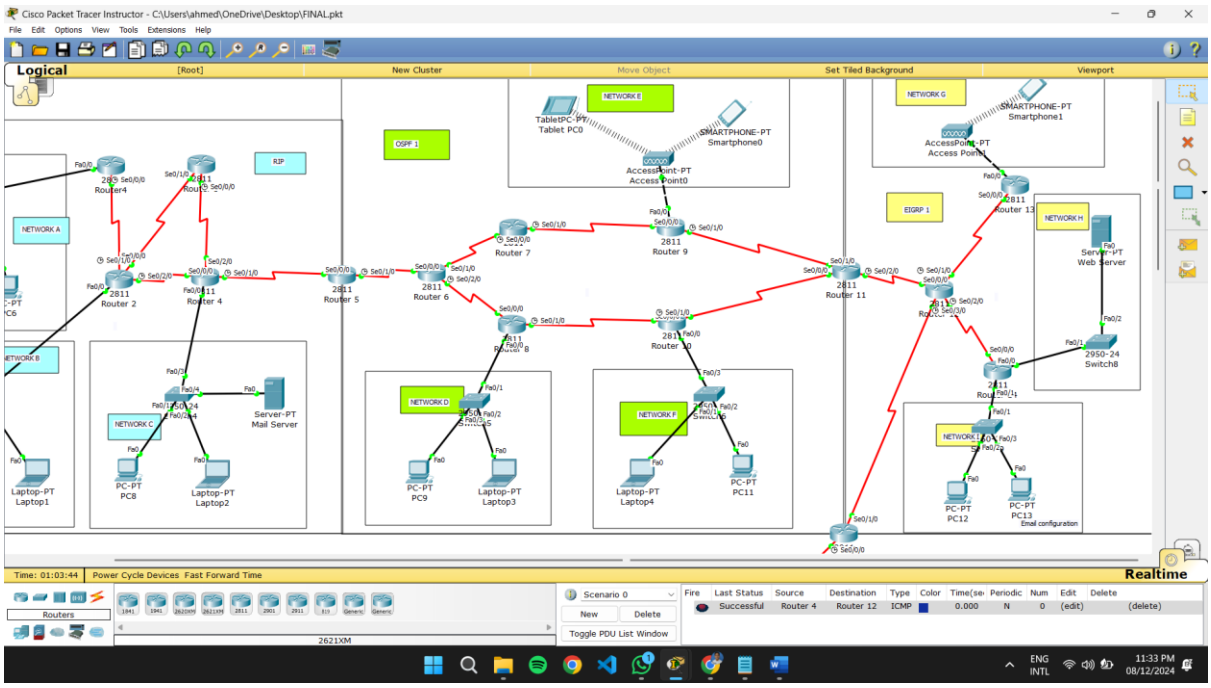


CONFIGURATION OF OSPF 2

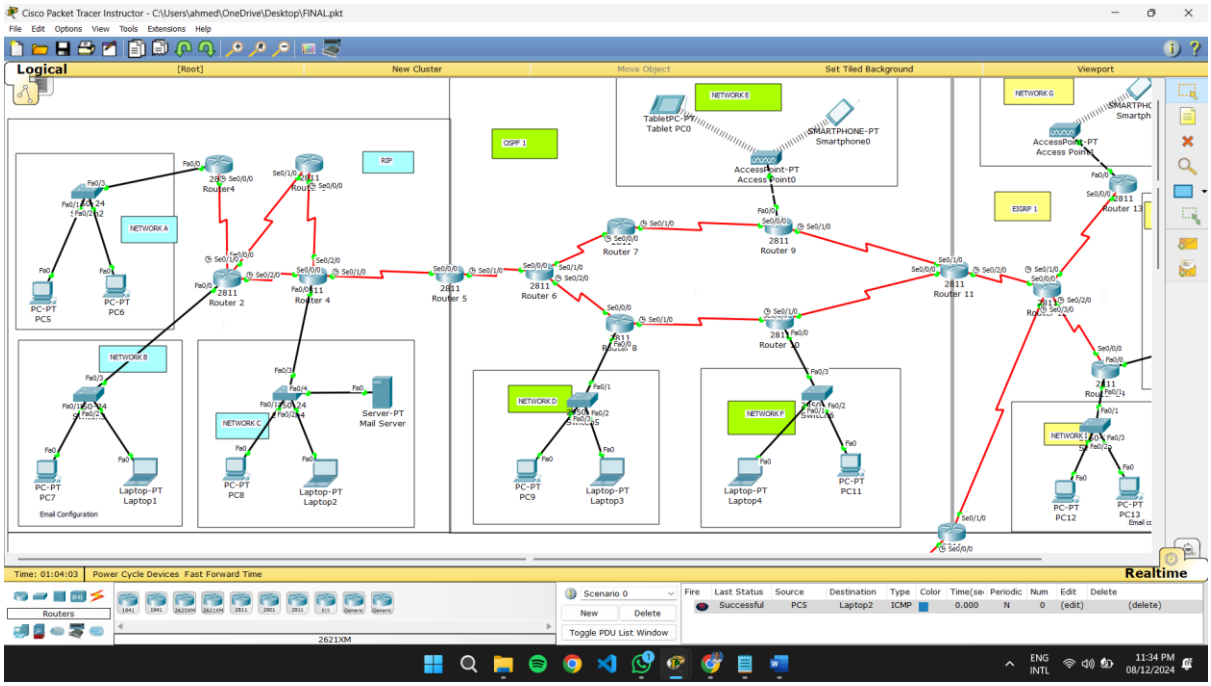
CONFIGURATION OF EIGRP



PROPER ROUTING PROTOCOL REDISTRIBUTION

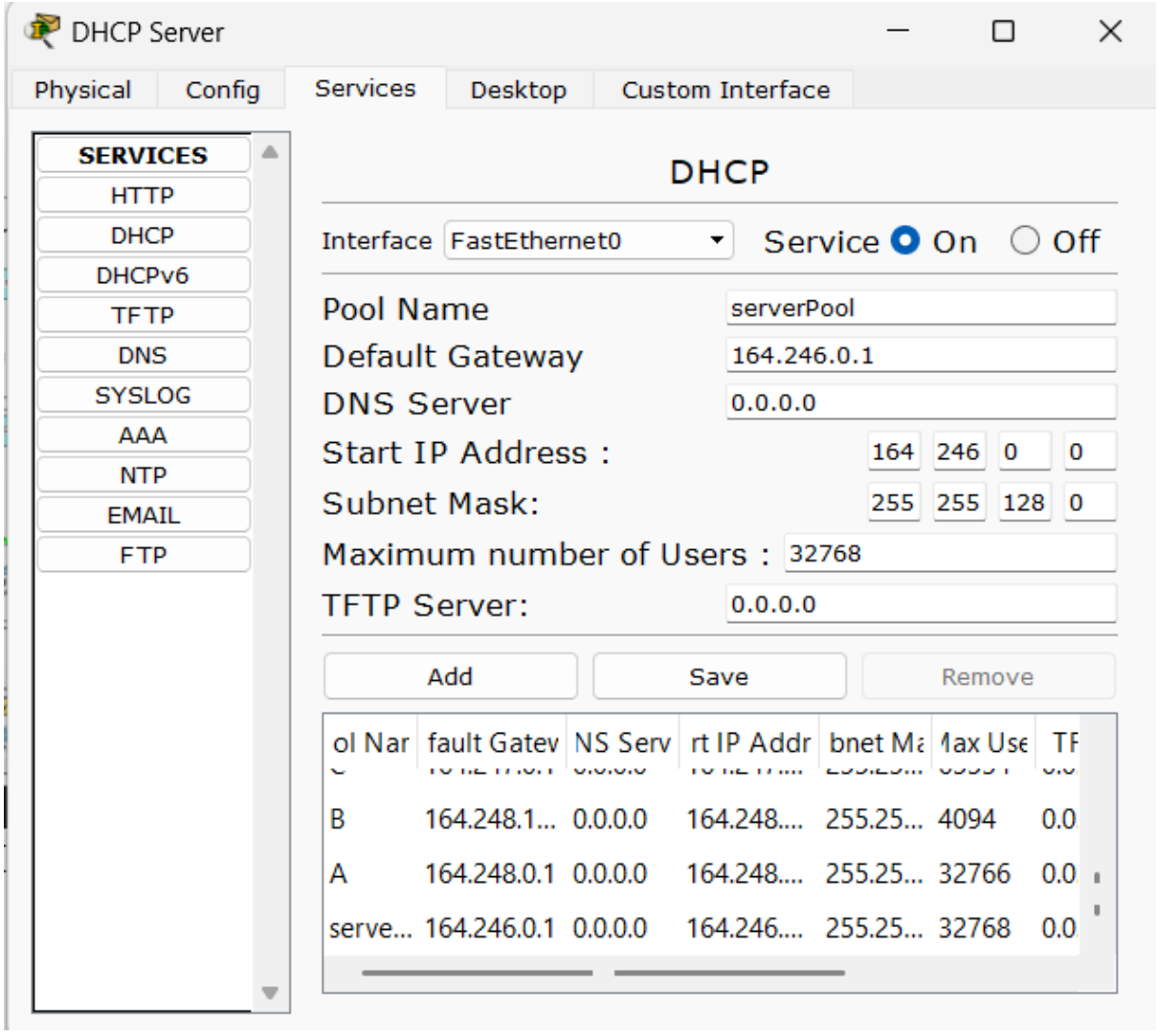


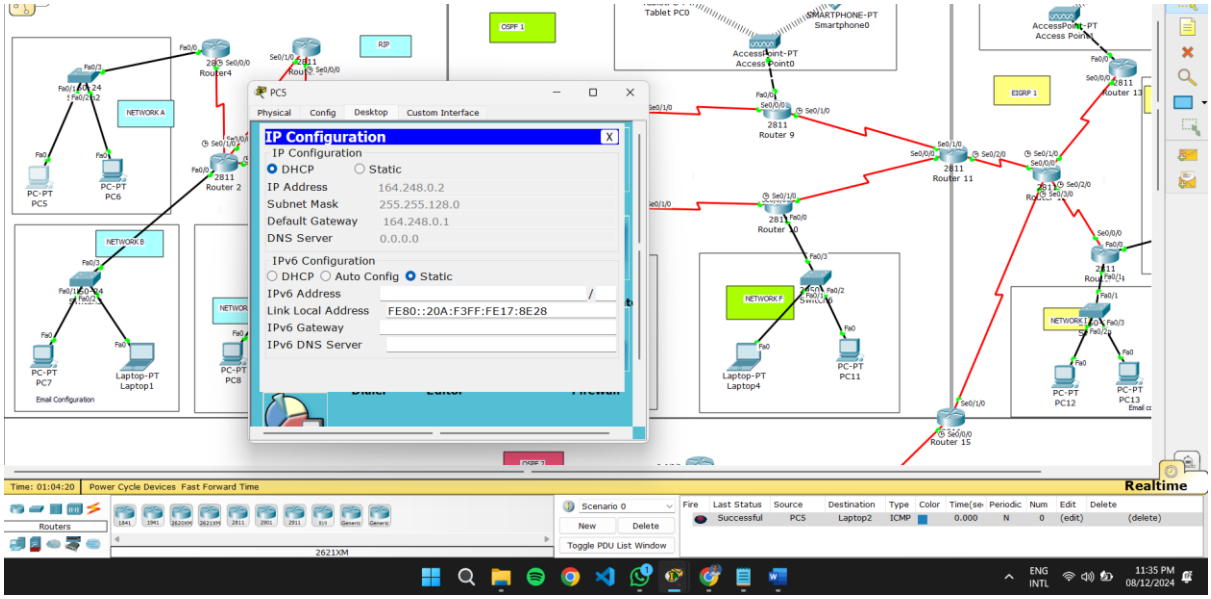
SUCCESSFUL ROUTING BETWEEN NETWORKS



SENDING PACKET FROM NETWORK A TO NETWORK B

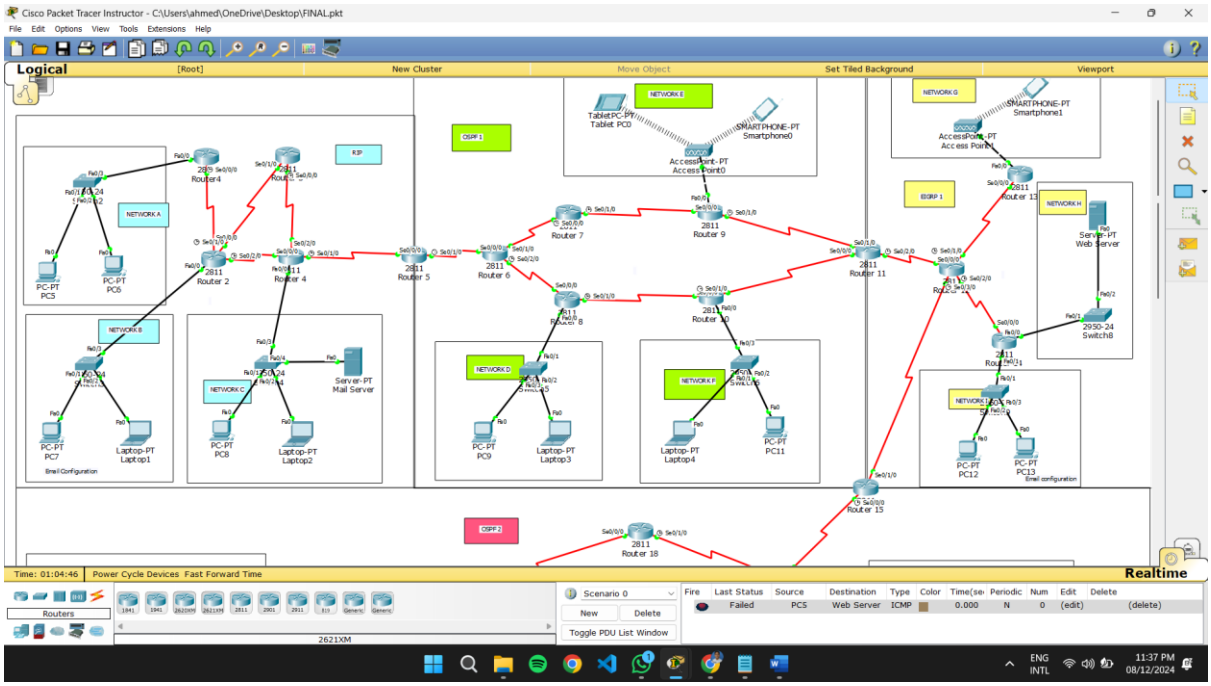
CORRECT CONFIGURATION OF DHCP SERVER





SIMPLE EXAMPLE OF DEVICE DHCP IP FROM NETWORK A

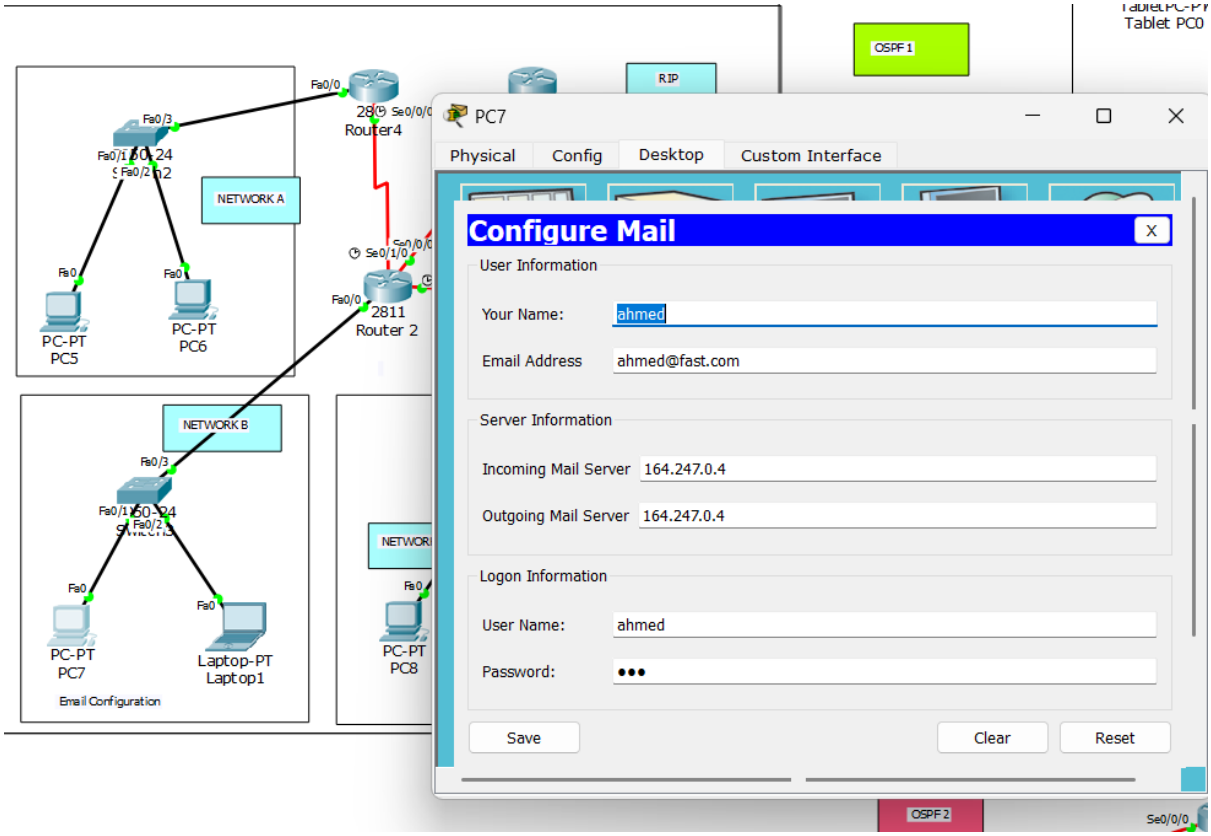
ACL IMPLEMENTATION

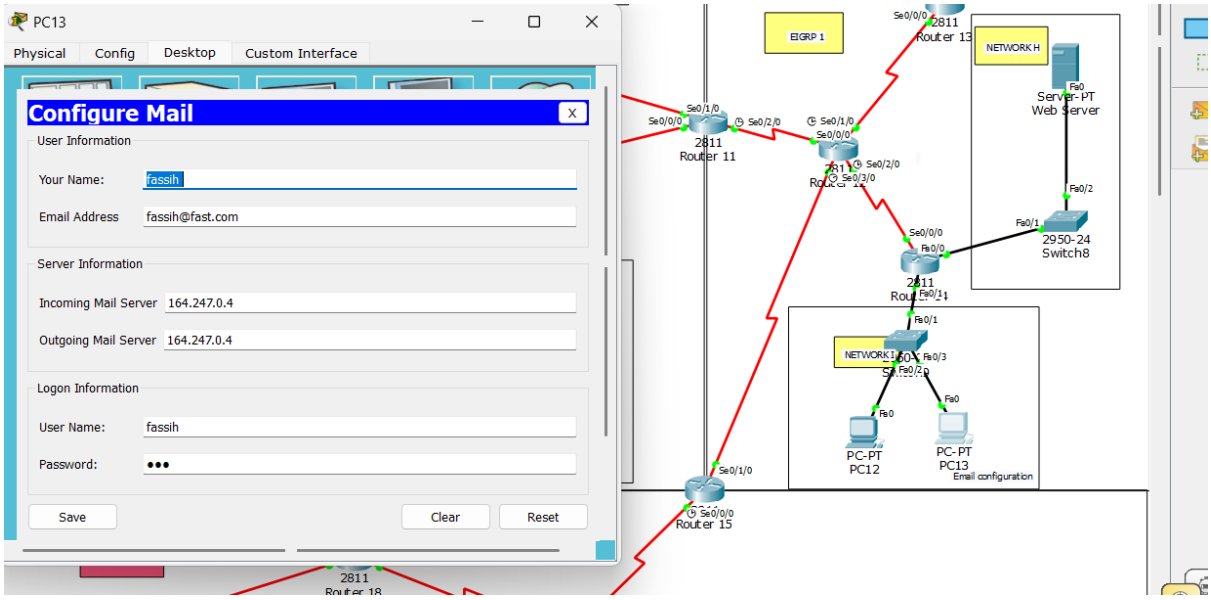


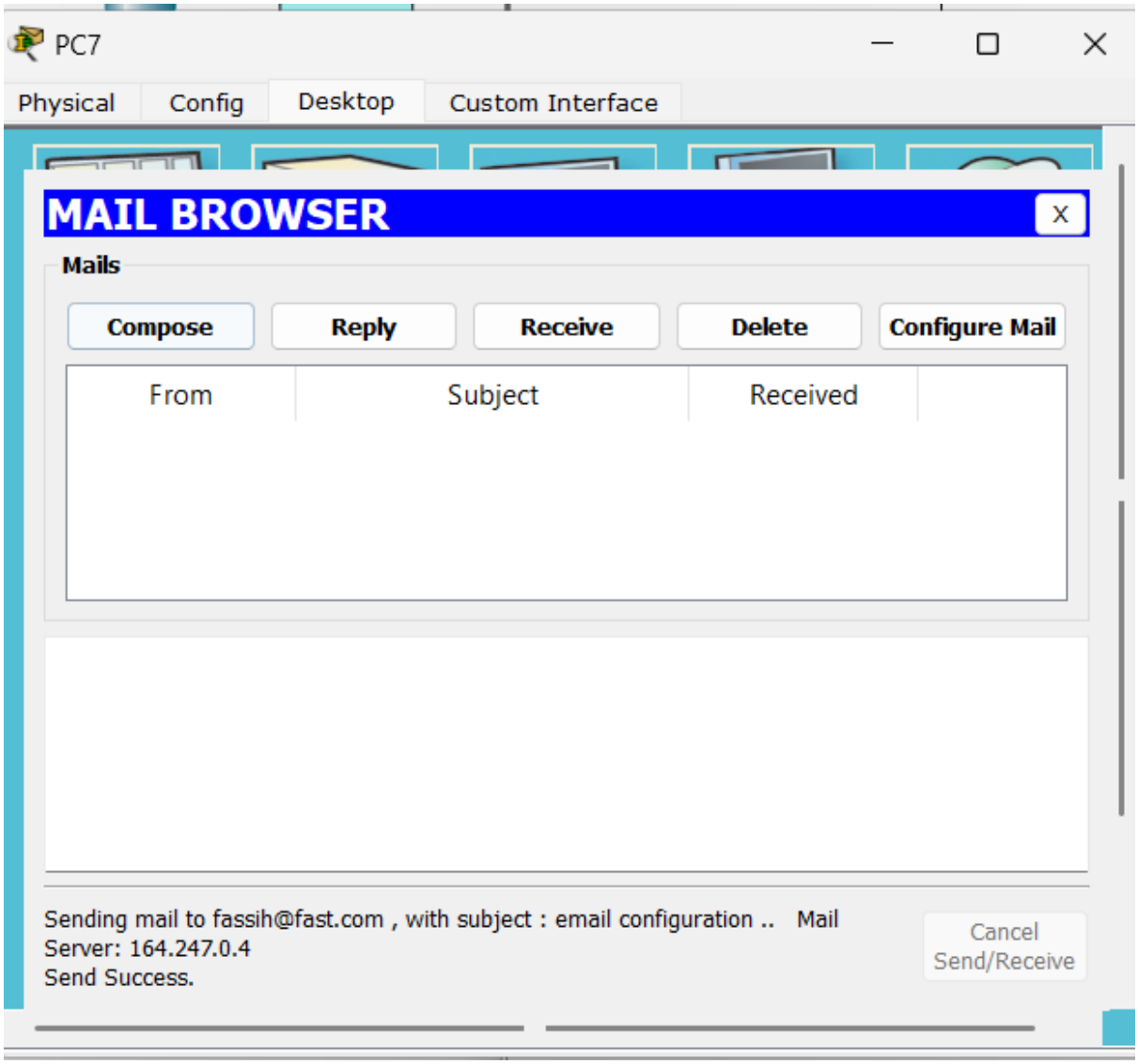
THE PACKET FAILED MEANS THAT ACL IMPLEMENTATION IS SUCCESSFUL

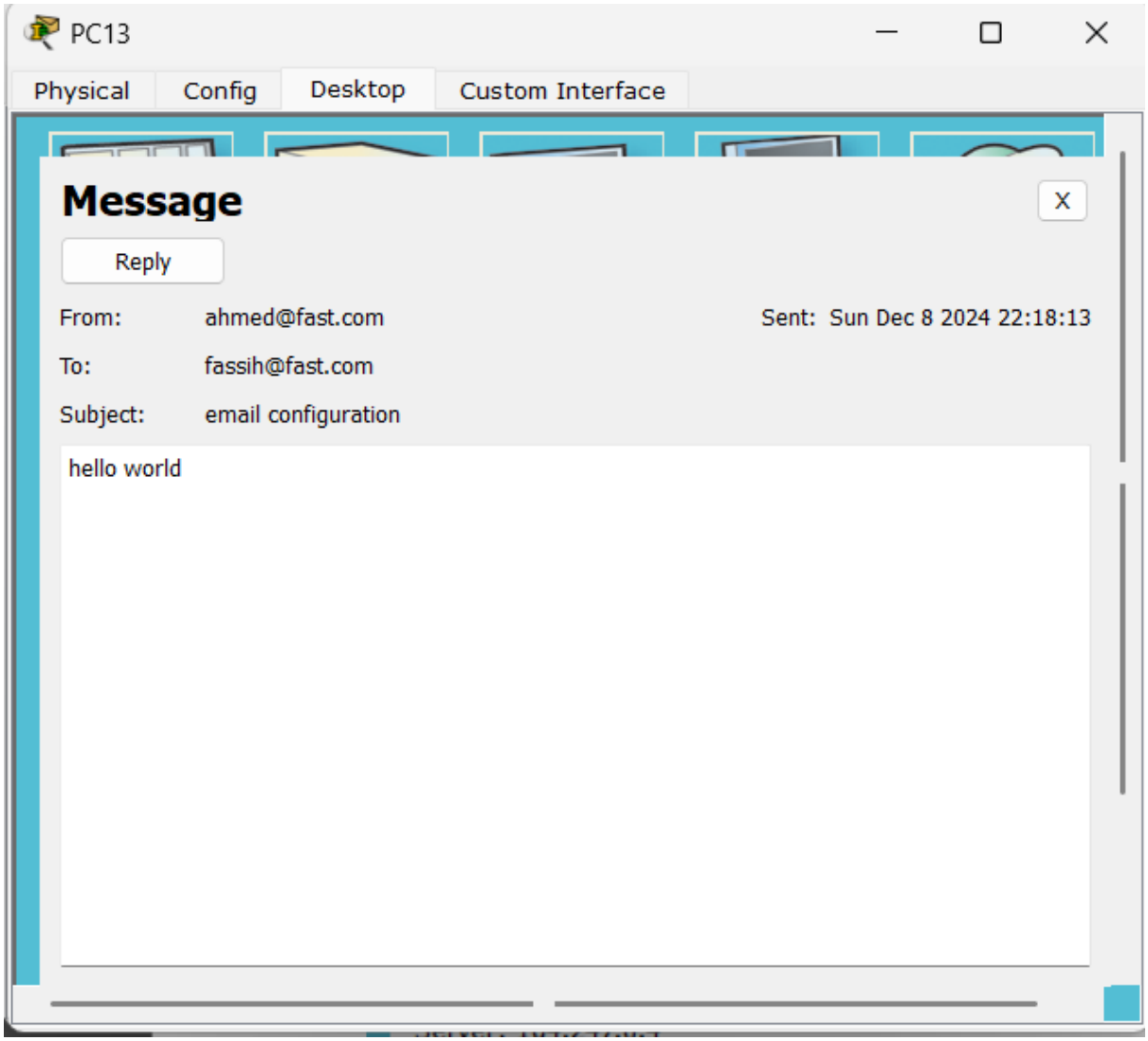
EMAIL CONFIGURATION

In email configuration, I set up Network B and Network I for email communication


PC7
Physical
Config
Desktop
Custom Interface
Configure Mail
User Information
Your Name:
ahmed
Email Address
ahmed@fast.com
Server Information
Incoming Mail Server
164.247.0.4
Outgoing Mail Server
164.247.0.4
Logon Information
User Name:
ahmed
Password:
Save
Clear
Reset
NETWORK A
NETWORK B
PC-PT PC5
PC-PT PC6
PC-PT PC7
Laptop-PT Laptop1
PC-PT PC8
Email Configuration
Router4
2811 Router 2
OSPF 1
RIP
OSPF 2
Tablet PC0


PC13
Physical
Config
Desktop
Custom Interface
Configure Mail
User Information
Your Name:
fassih
Email Address
fassih@fast.com
Server Information
Incoming Mail Server
164.247.0.4
Outgoing Mail Server
164.247.0.4
Logon Information
User Name:
fassih
Password:
Save
Clear
Reset
EIGRP 1
2811 Router 11
2811 Router 13
NETWORK H
Server-PT Web Server
2950-24 Switch8
PC-PT PC12
PC-PT PC13
Email configuration
Router 15


PC7
Physical
Config
Desktop
Custom Interface
MAIL BROWSER
X
Mails
Compose
Reply
Receive
Delete
Configure Mail
From
Subject
Received
Sending mail to fassih@fast.com , with subject : email configuration .. Mail
Server: 164.247.0.4
Send Success.
Cancel
Send/Receive


PC13
Physical
Config
Desktop
Custom Interface
Message
X
Reply
From: ahmed@fast.com
Sent: Sun Dec 8 2024 22:18:13
To: fassih@fast.com
Subject: email configuration
hello world