

# CS 361

# Computer

# Networks Lab

## Assignment 4

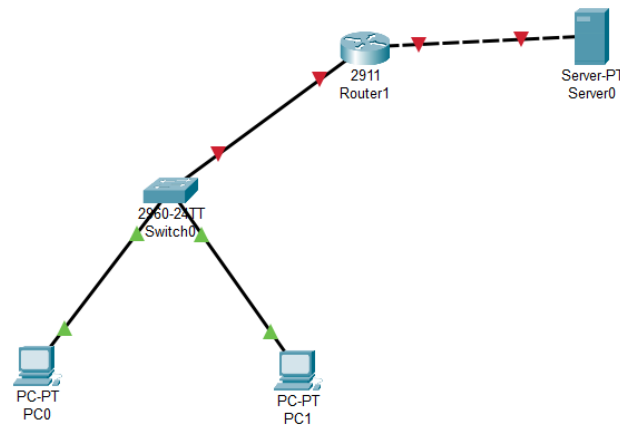
Samanway Maji  
Student ID – 202151136  
Date – 22/10/2023

## Questions:

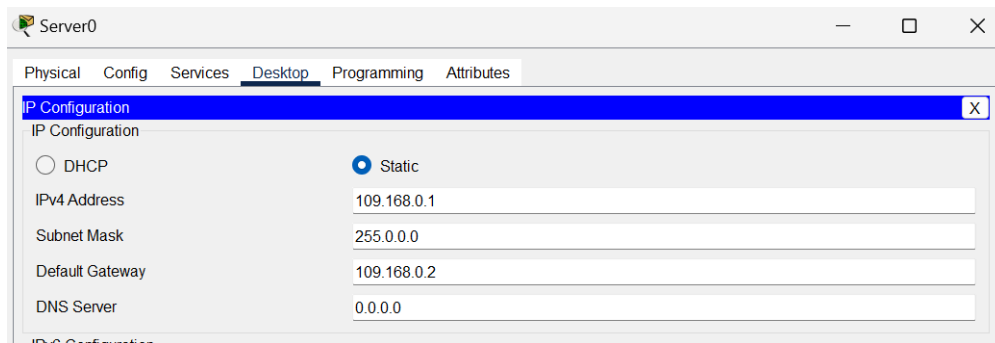
1. Design a small network using a PC, switch, and router; send mail from one PC to another using a server.

Components: End devices (PC), Switch (2960), Router (2911), Server (Server-PT).

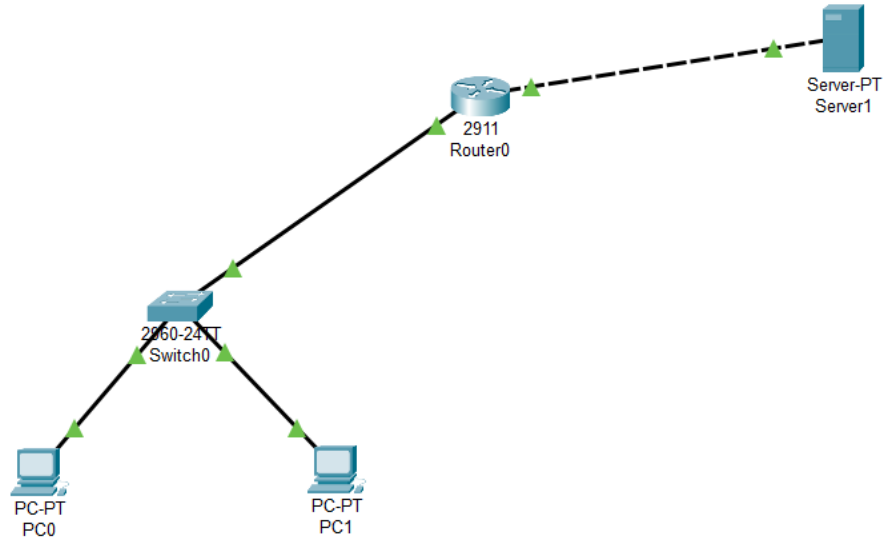
Diagram of the connection:



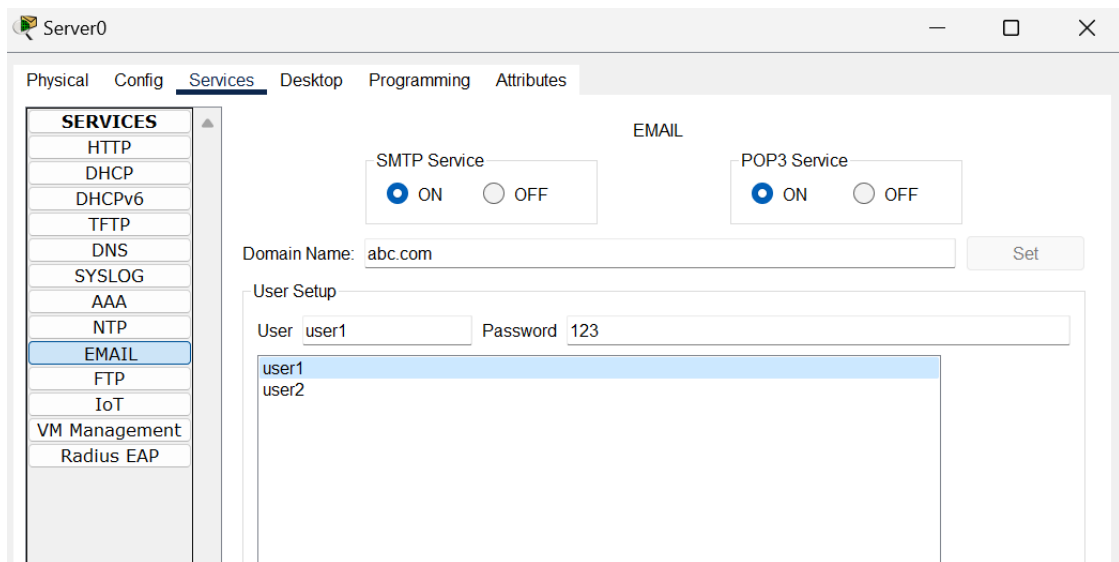
Server Configuration:



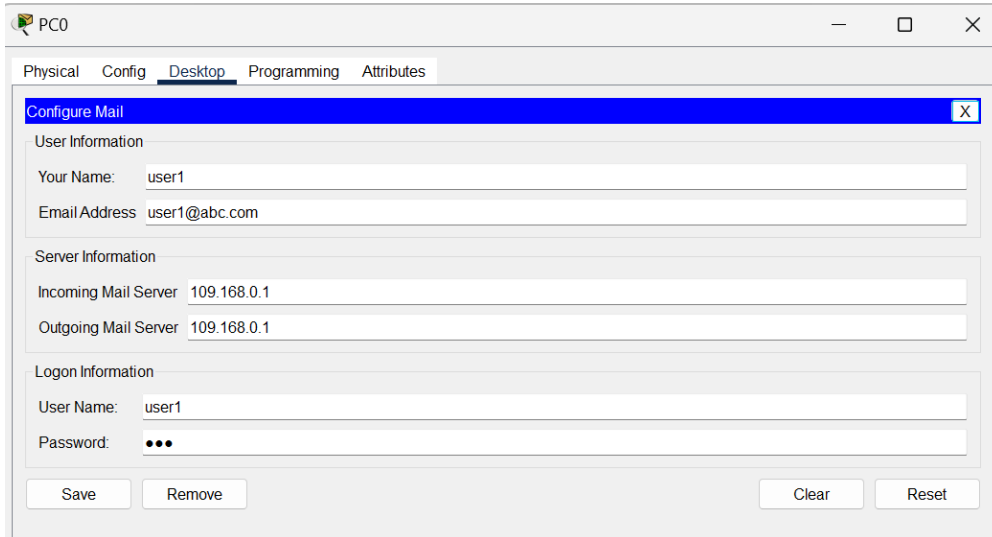
After setting Ips of all end devices and server, the connection is properly done, reflected by the green lines.



Setting up the email domain and the users:



## Configuring Mail on PC0:



The screenshot shows a window titled 'PC0' with a tabbed interface. The 'Desktop' tab is selected. A 'Configure Mail' dialog box is open, featuring a blue title bar with a close button. The dialog is organized into three sections: 'User Information', 'Server Information', and 'Logon Information'. The 'User Information' section contains fields for 'Your Name' (filled with 'user1') and 'Email Address' (filled with 'user1@abc.com'). The 'Server Information' section contains fields for 'Incoming Mail Server' and 'Outgoing Mail Server', both filled with '109.168.0.1'. The 'Logon Information' section contains fields for 'User Name' (filled with 'user1') and 'Password' (filled with three dots). At the bottom of the dialog are four buttons: 'Save', 'Remove', 'Clear', and 'Reset'.

PC0

Physical Config Desktop Programming Attributes

Configure Mail X

User Information

Your Name: user1

Email Address: user1@abc.com

Server Information

Incoming Mail Server: 109.168.0.1

Outgoing Mail Server: 109.168.0.1

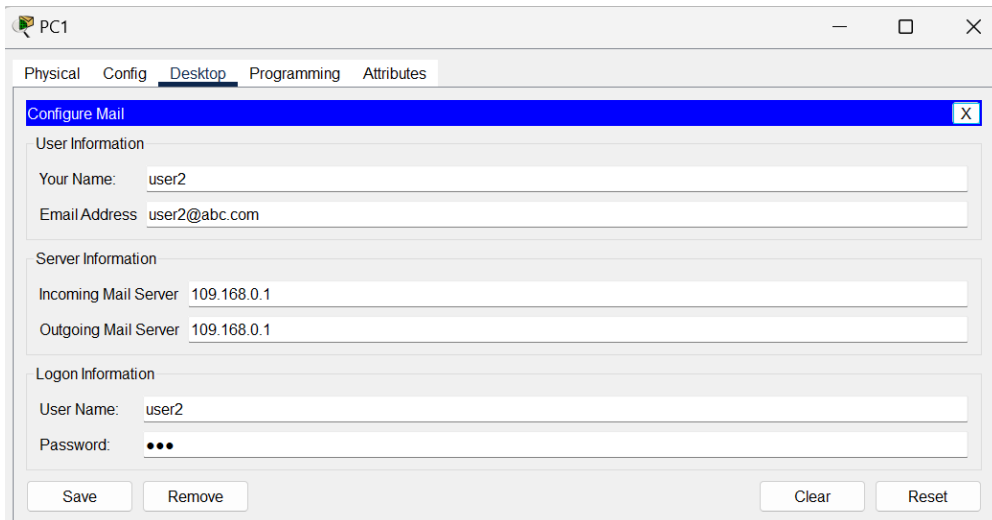
Logon Information

User Name: user1

Password: ●●●

Save Remove Clear Reset

## Configuring mail on PC1:



The screenshot shows a window titled 'PC1' with a tabbed interface. The 'Desktop' tab is selected. A 'Configure Mail' dialog box is open, featuring a blue title bar with a close button. The dialog is organized into three sections: 'User Information', 'Server Information', and 'Logon Information'. The 'User Information' section contains fields for 'Your Name' (filled with 'user2') and 'Email Address' (filled with 'user2@abc.com'). The 'Server Information' section contains fields for 'Incoming Mail Server' and 'Outgoing Mail Server', both filled with '109.168.0.1'. The 'Logon Information' section contains fields for 'User Name' (filled with 'user2') and 'Password' (filled with three dots). At the bottom of the dialog are four buttons: 'Save', 'Remove', 'Clear', and 'Reset'.

PC1

Physical Config Desktop Programming Attributes

Configure Mail X

User Information

Your Name: user2

Email Address: user2@abc.com

Server Information

Incoming Mail Server: 109.168.0.1

Outgoing Mail Server: 109.168.0.1

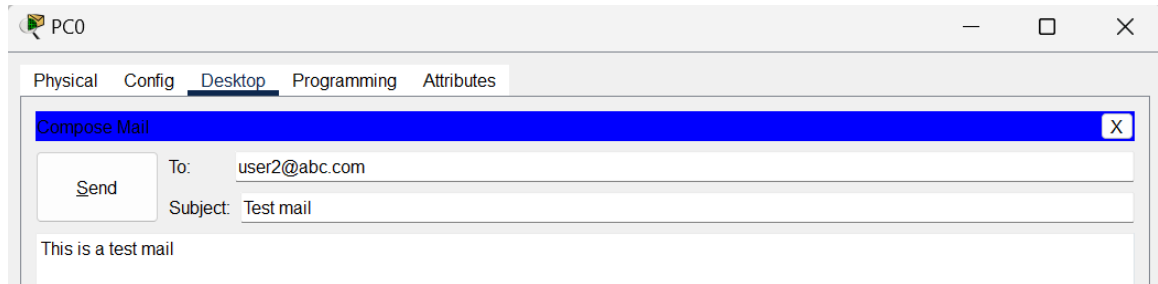
Logon Information

User Name: user2

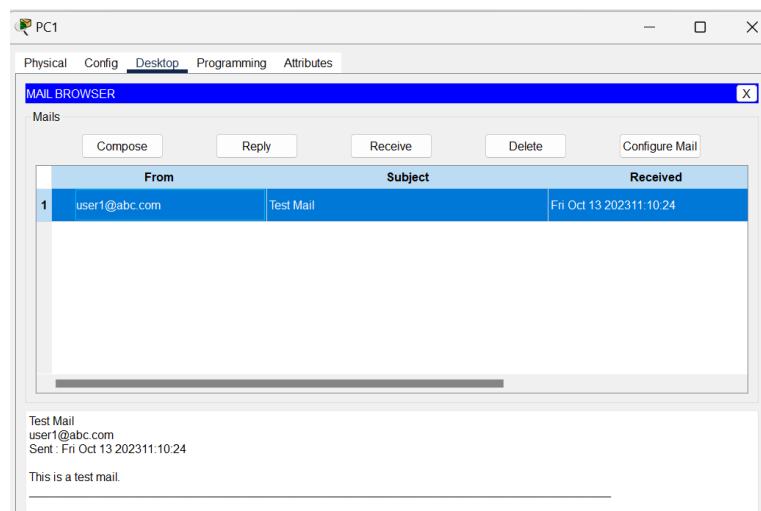
Password: ●●●

Save Remove Clear Reset

Sending mail:



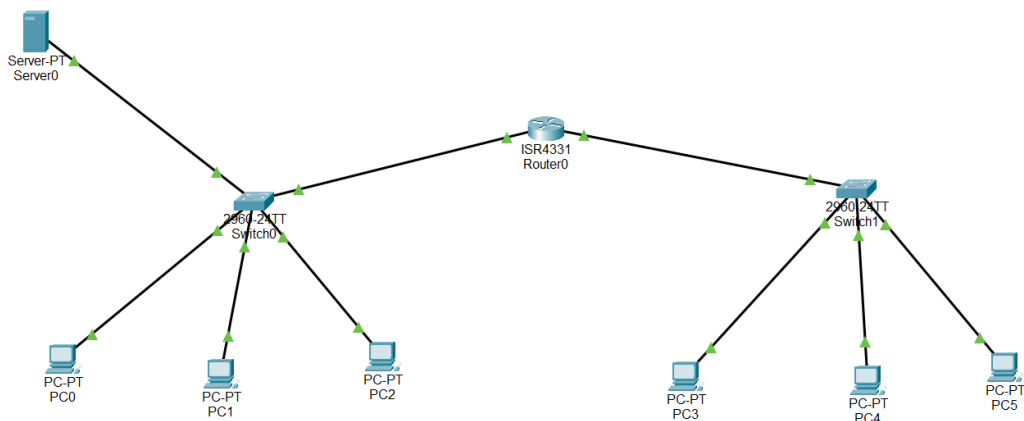
Receiving Mail:



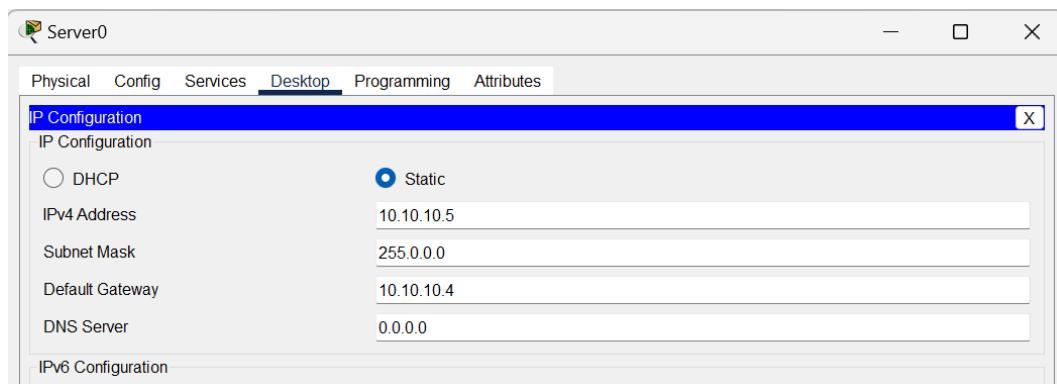
2. Design a complex network with at least two different addresses (the network diagram shown in the laboratory). You can use many PCs, switches, and routers. Note that the PC used for sending and receiving mail should be connected to other network addresses this time. (Try to do it yourself, else in the next lab session router configuration will be taught.)

Components: End devices (PC), Switch (2960), Router (2911), Server (Server-PT).

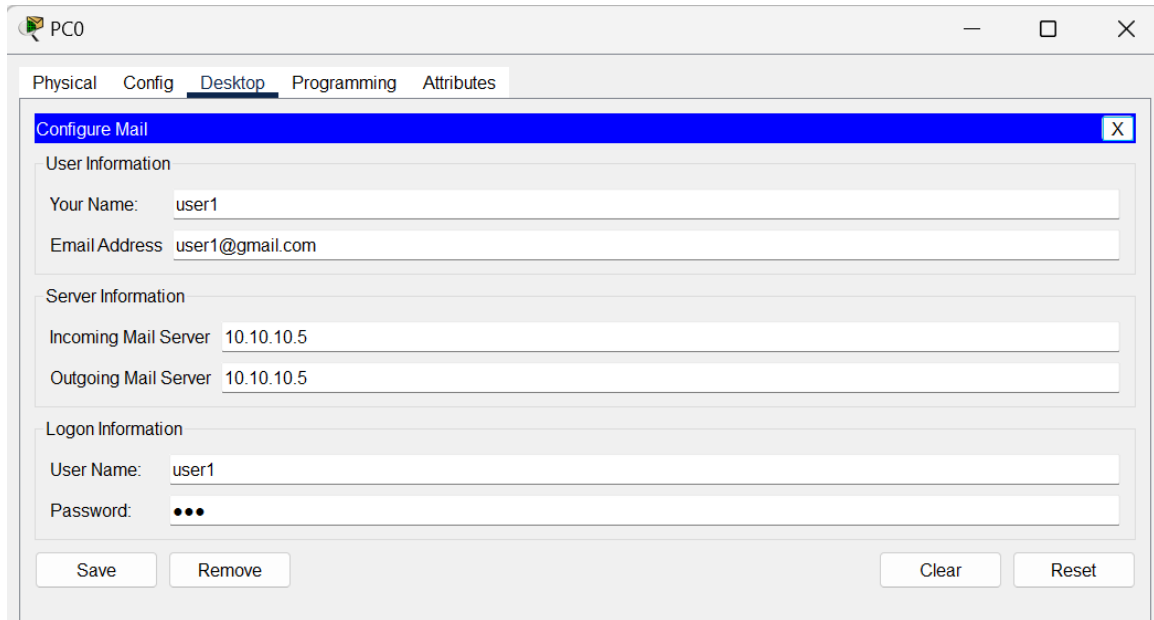
Diagram of the connection:



Server Configuration:



Configuring mail:

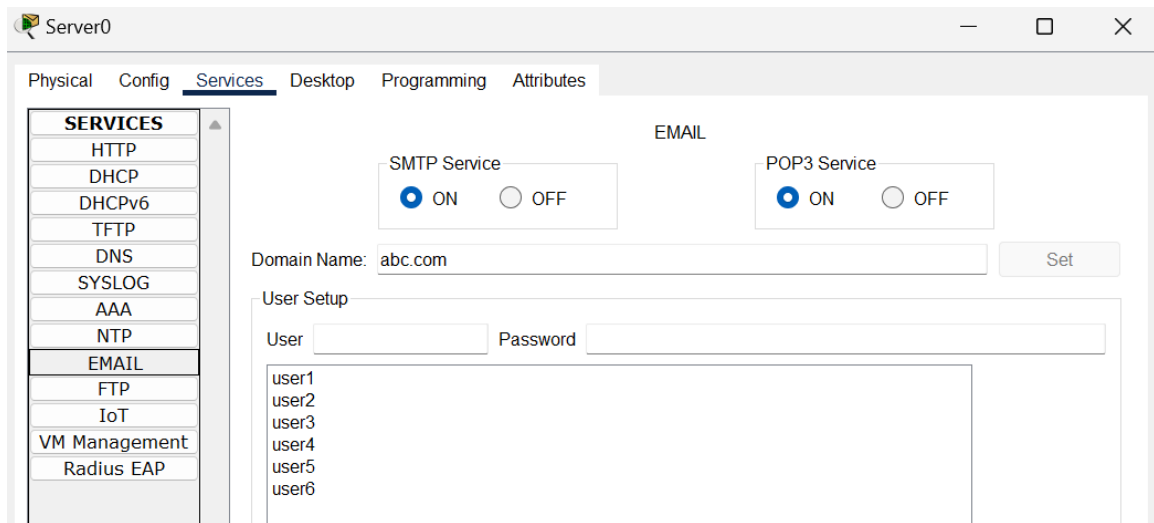


The screenshot shows a configuration window for PC0 with tabs for Physical, Config, Desktop, Programming, and Attributes. The 'Configure Mail' dialog box is open, containing the following fields:

- User Information:**
  - Your Name: user1
  - Email Address: user1@gmail.com
- Server Information:**
  - Incoming Mail Server: 10.10.10.5
  - Outgoing Mail Server: 10.10.10.5
- Logon Information:**
  - User Name: user1
  - Password: (masked with dots)

Buttons at the bottom include Save, Remove, Clear, and Reset.

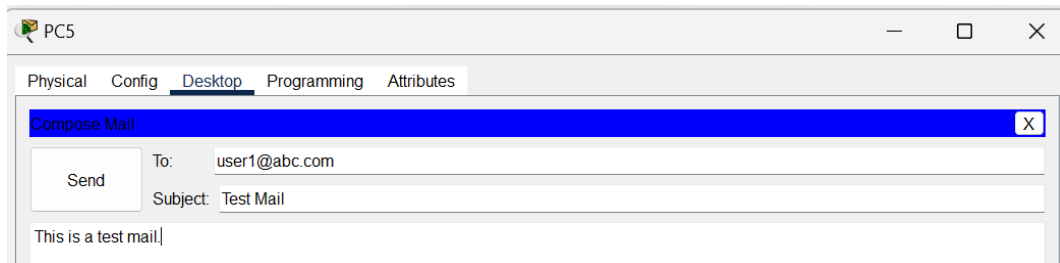
Setting up the email domain and the users:



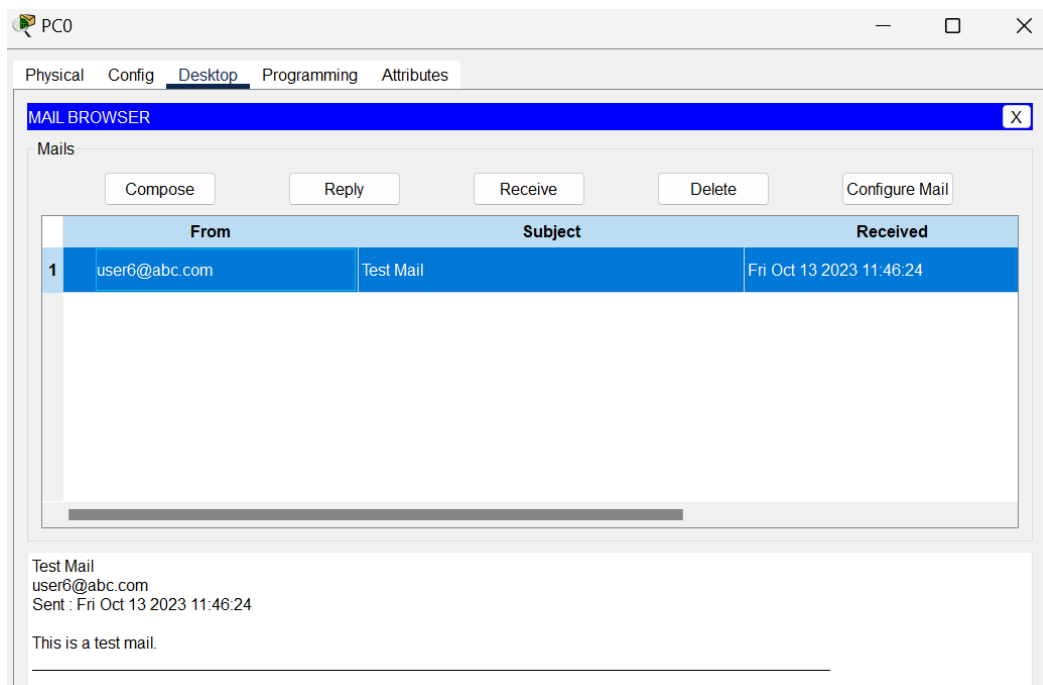
The screenshot shows a configuration window for Server0 with tabs for Physical, Config, Services, Desktop, Programming, and Attributes. The 'Services' tab is active, and the 'EMAIL' service is selected in the left-hand list. The configuration area shows:

- EMAIL Section:**
  - SMTP Service: ☒ ON ☐ OFF
  - POP3 Service: ☒ ON ☐ OFF
- Domain Name:** abc.com (with a Set button)
- User Setup:**
  - User: (input field)
  - Password: (input field)
  - Below these fields is a list of users: user1, user2, user3, user4, user5, user6.

Sending a mail from one network to another:



Receiving a mail from another network:



From the connection diagram, we have noticed that PC0 and PC5 are in different networks, and mail sending was possible between them.



### **3. Why do we use cross-over wire to connect a router and a server/PC?**

Cross-over cables are used to connect two devices of the same type, such as a router to a router, a switch to a switch, or a PC to a PC, without an intermediate device like a switch or hub. They essentially "cross over" the transmit and receive lines to allow the devices to communicate directly. However, connecting a router to a server or PC typically requires a straight-through cable, not a cross-over cable. When both a router and a server/PC have Auto MDI-X (Auto Medium-Dependent Interface Crossover) features, we can use either a cross-over cable or a straight-through cable to connect them. Auto MDI-X ensures that the devices can automatically detect and configure the appropriate cable type, making it more flexible when connecting devices.