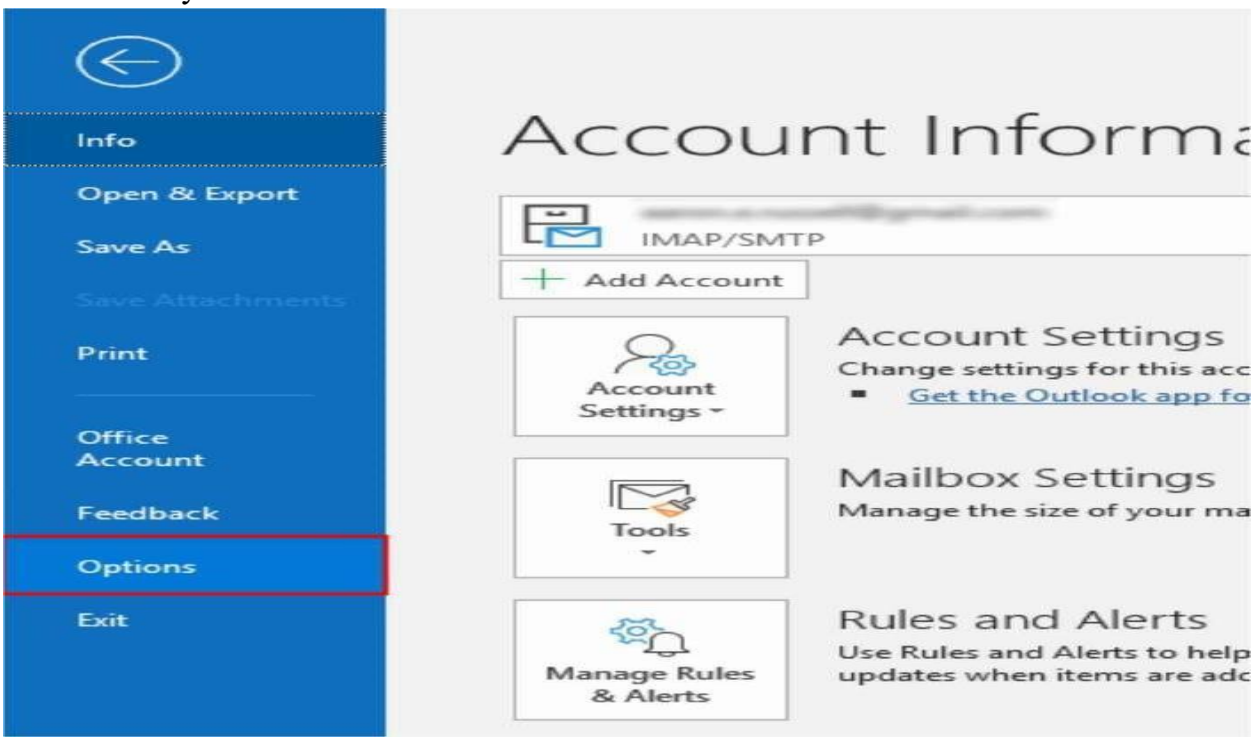
Name: Saish Baviskar
Div: A Roll No: TEAD23155

Practical No. 9

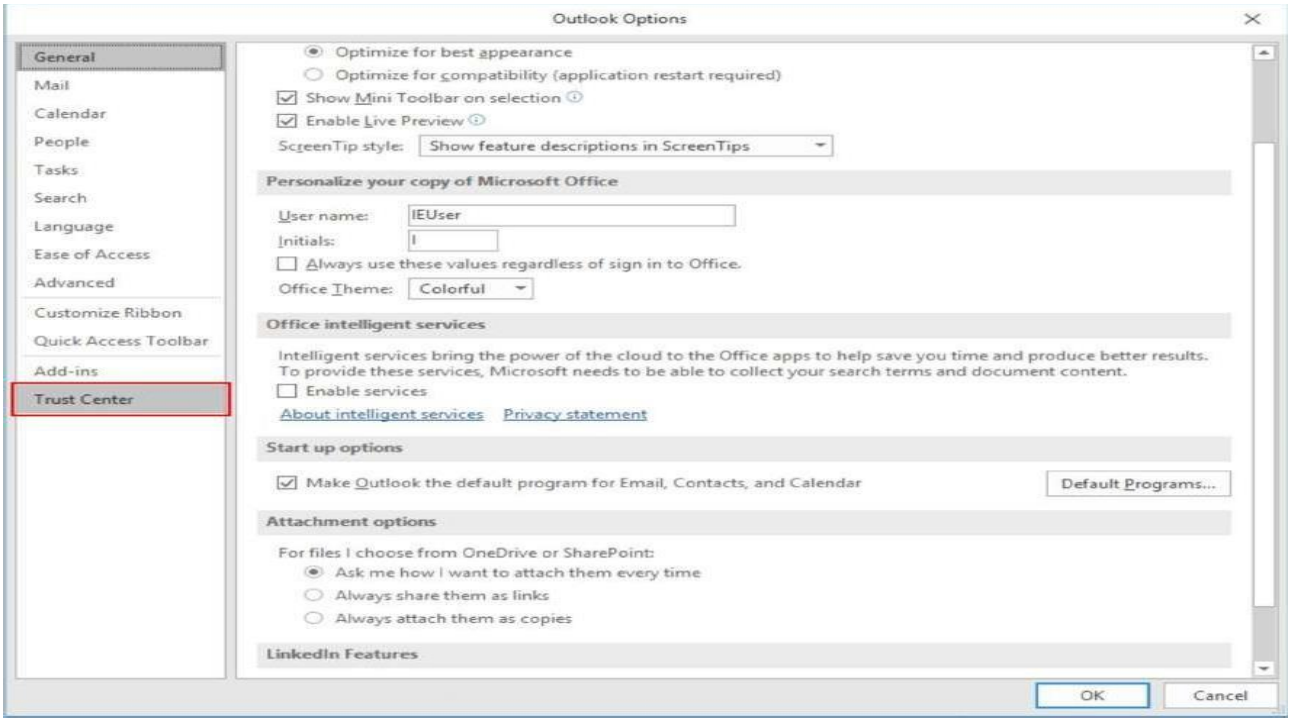
Problem Statement: Illustrate the steps for S/MIME implementation in Microsoft Outlook

1.Download your certificate.

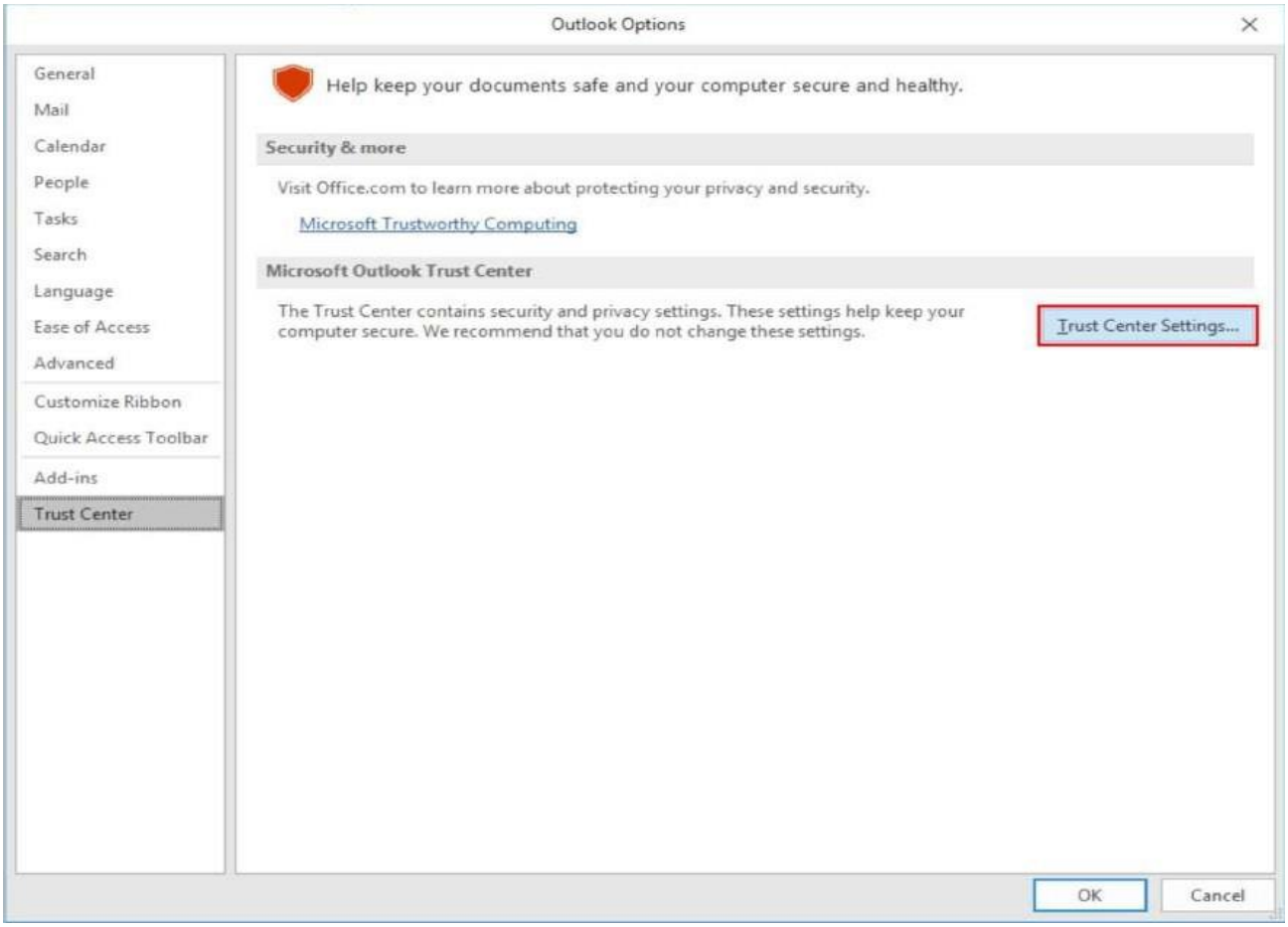


Download a PKCS#12 file with your certificate from your SSL.com account by clicking the link supplied
Open Outlook Options

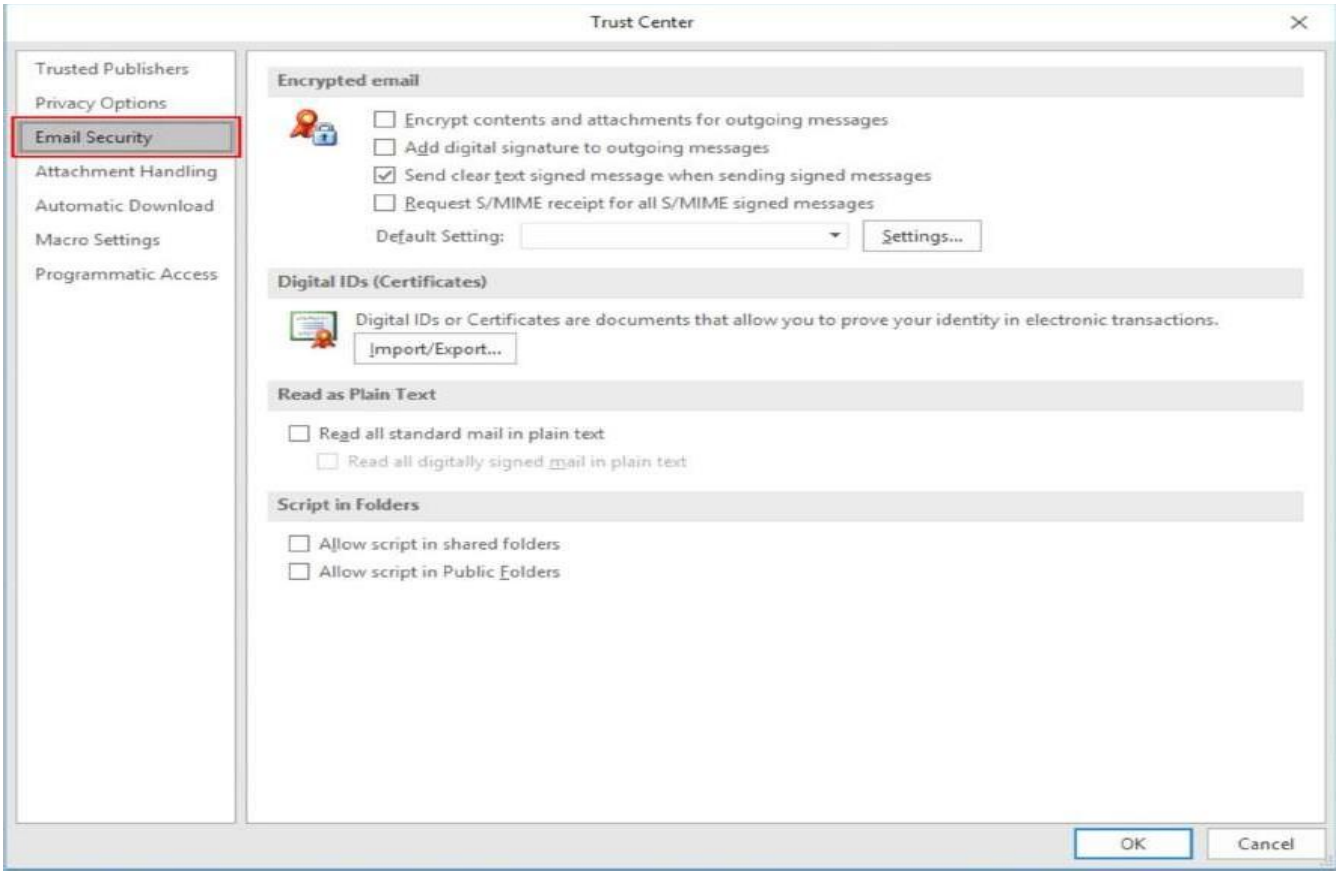
Open Trust Centre.



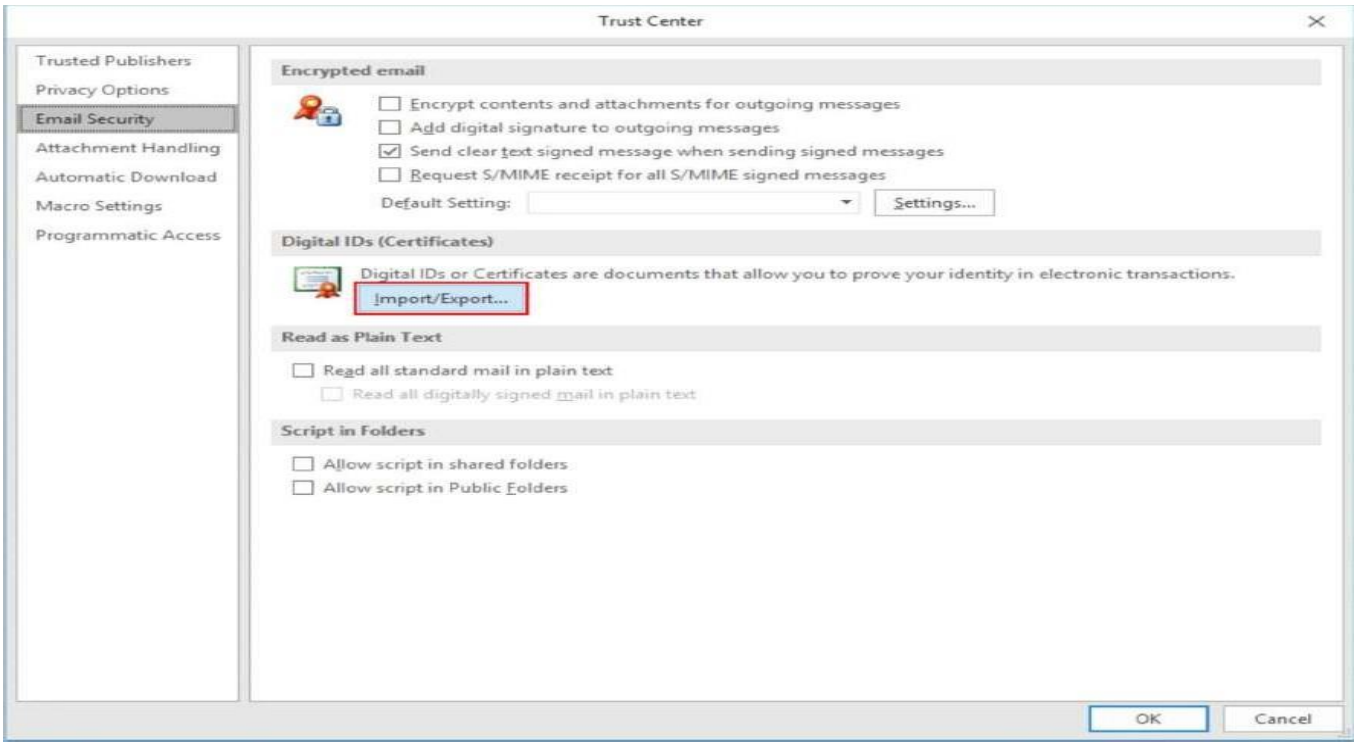
Open Trust Centre Settings.



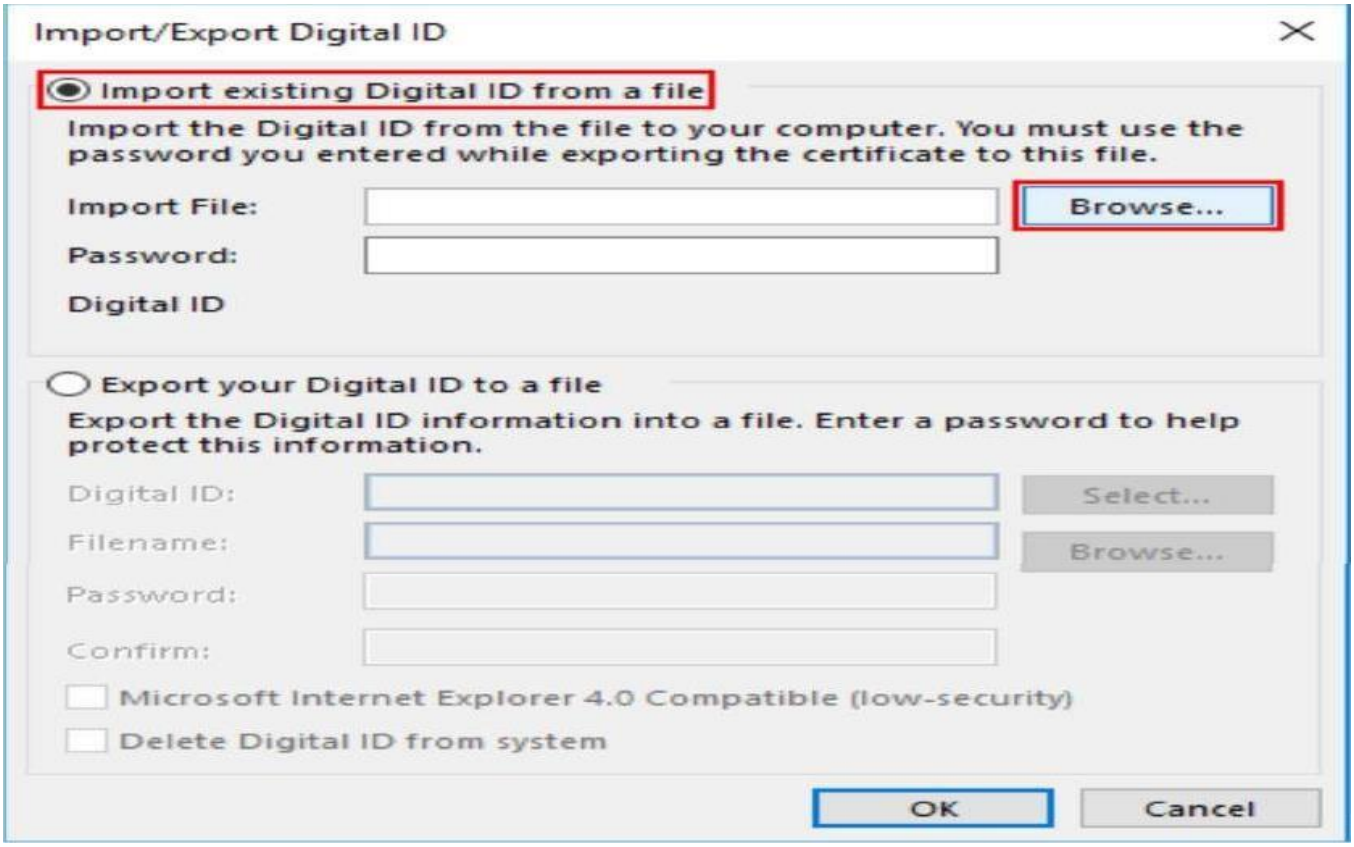
Select Email Security



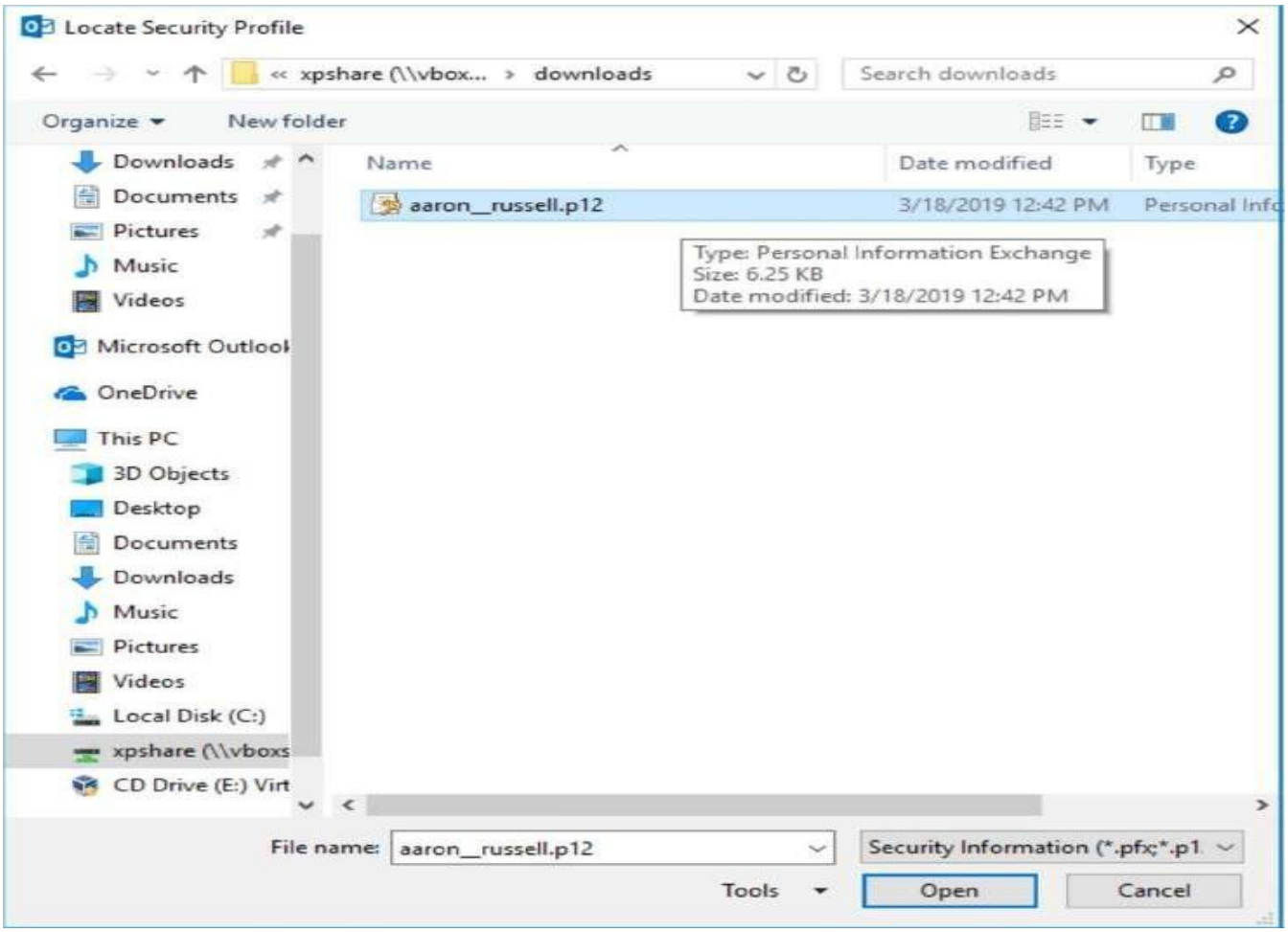
Click Import/Export.



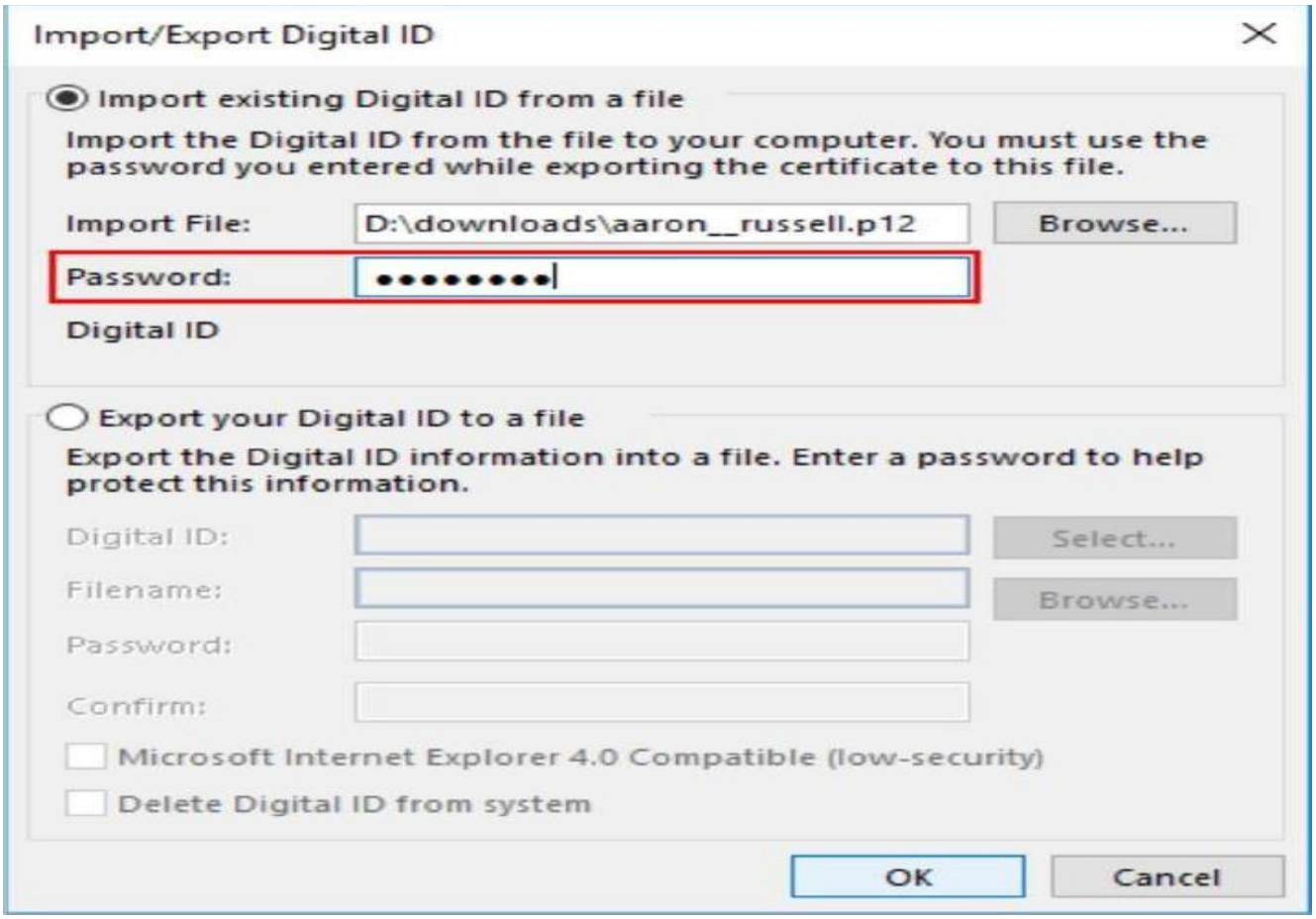
Browse for file



Open File.

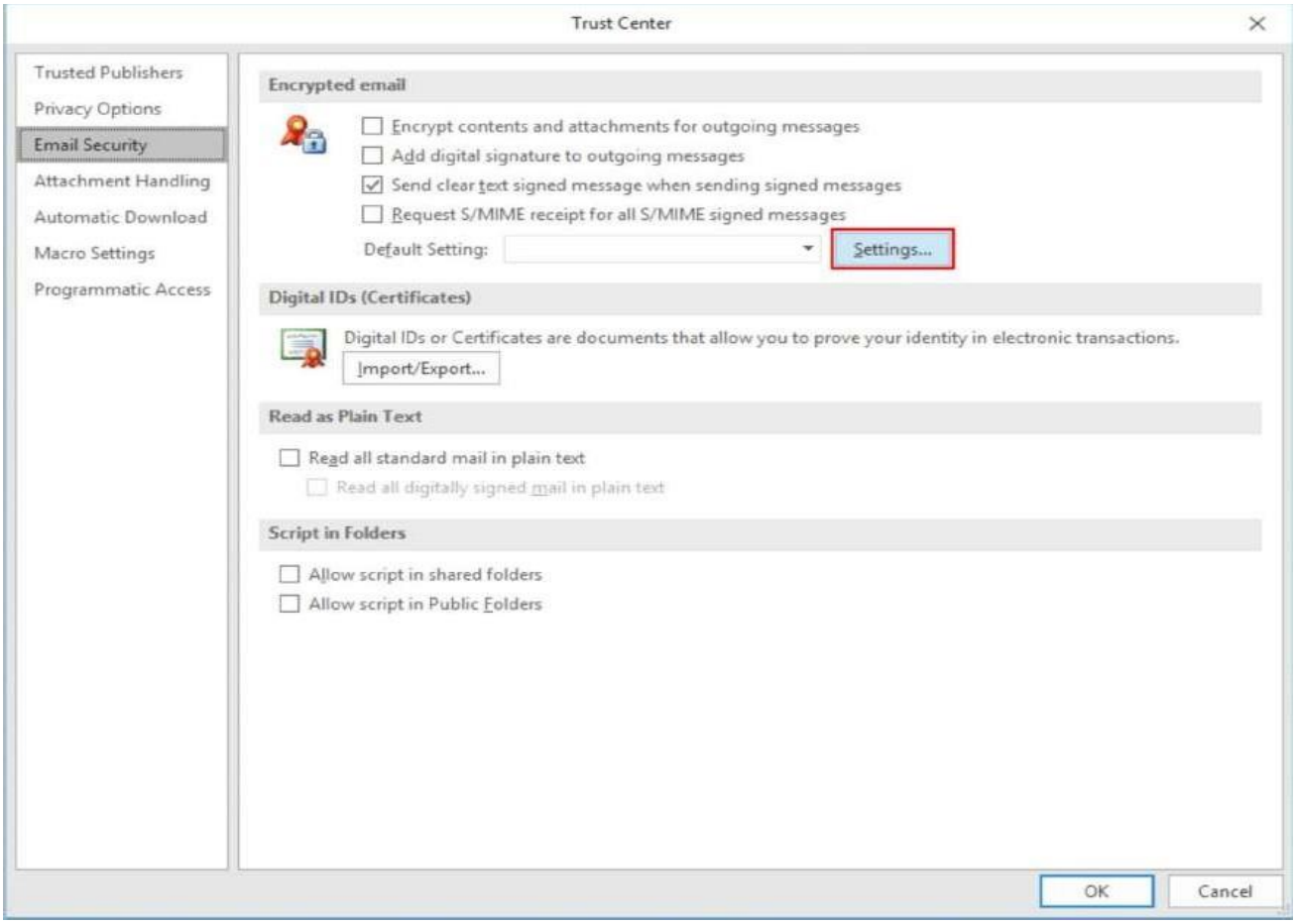


Enter PKCS#12 password.



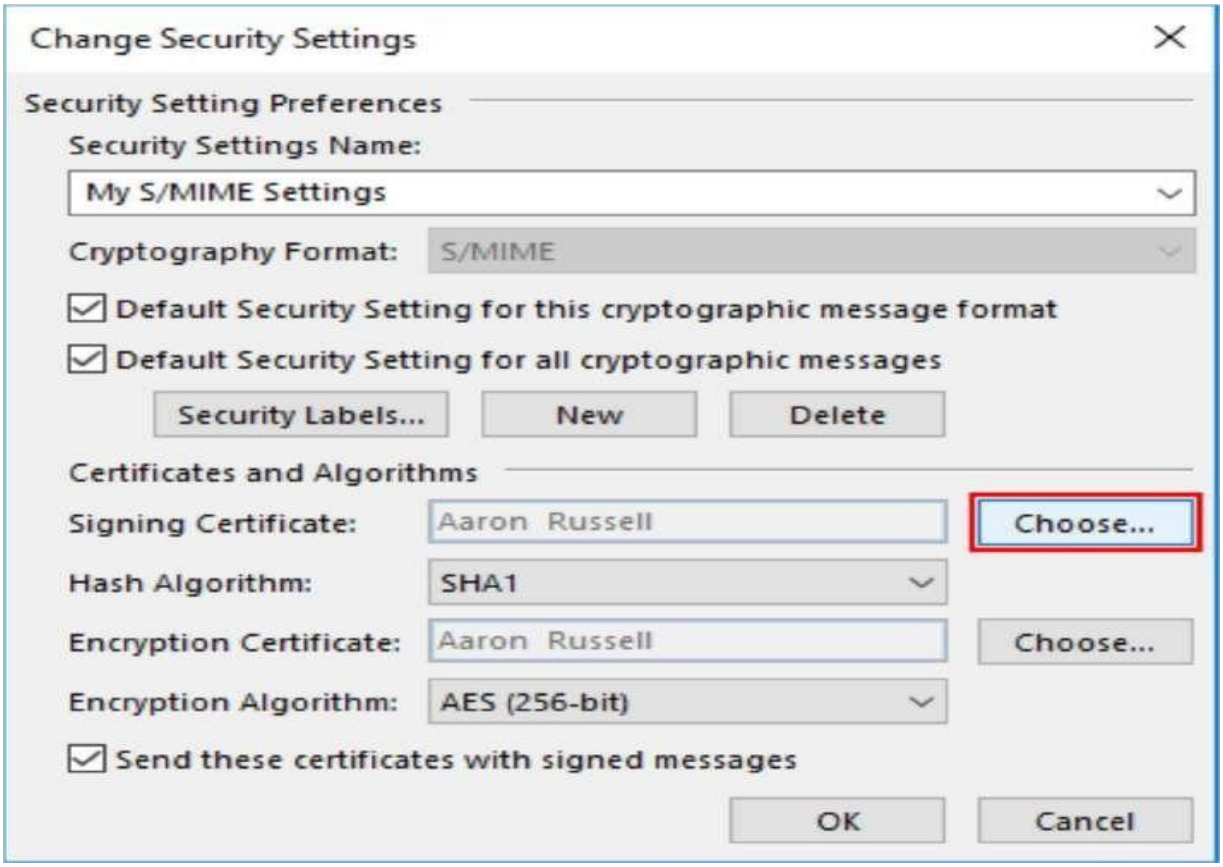
Click OK.

Open encrypted email settings.



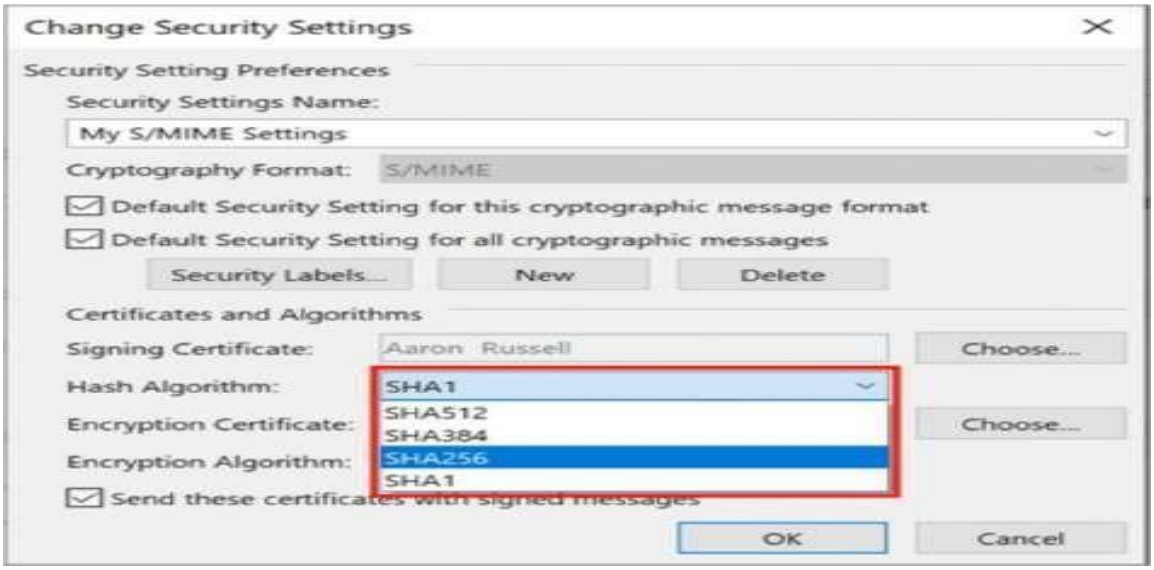
Name security settings.

Choose signing certificate.

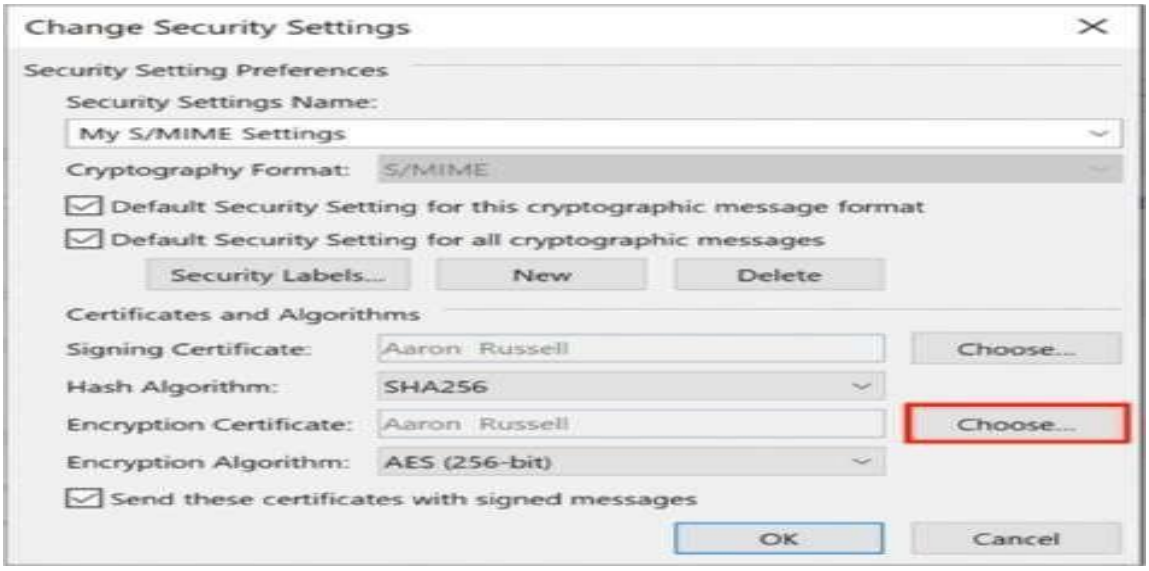


Confirm or select certificate.

Set hash algorithm

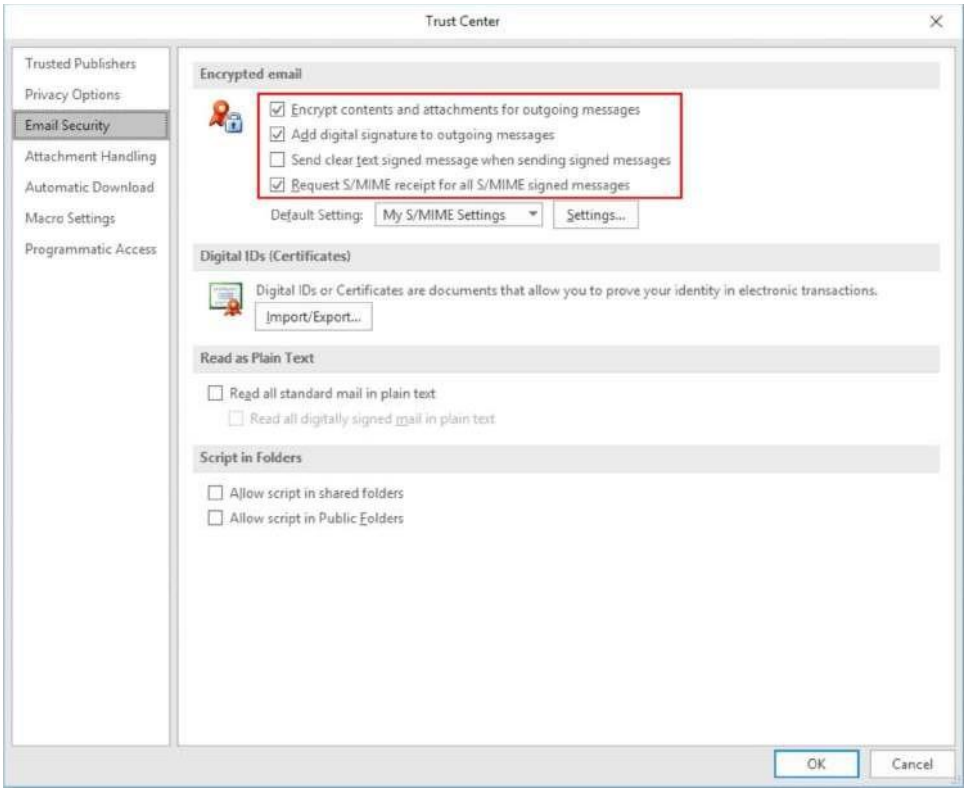


Choose encryption certificate

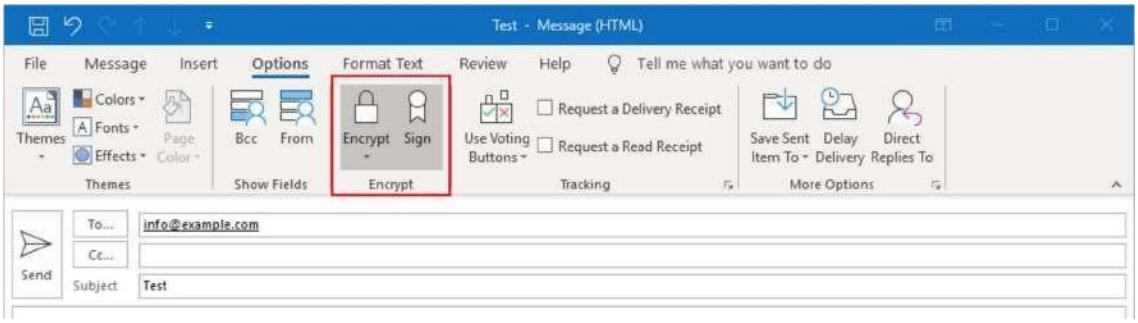


Close window

By using an click OK Button.
Set S/MIME defaults.



Set S/MIME options in a new message.

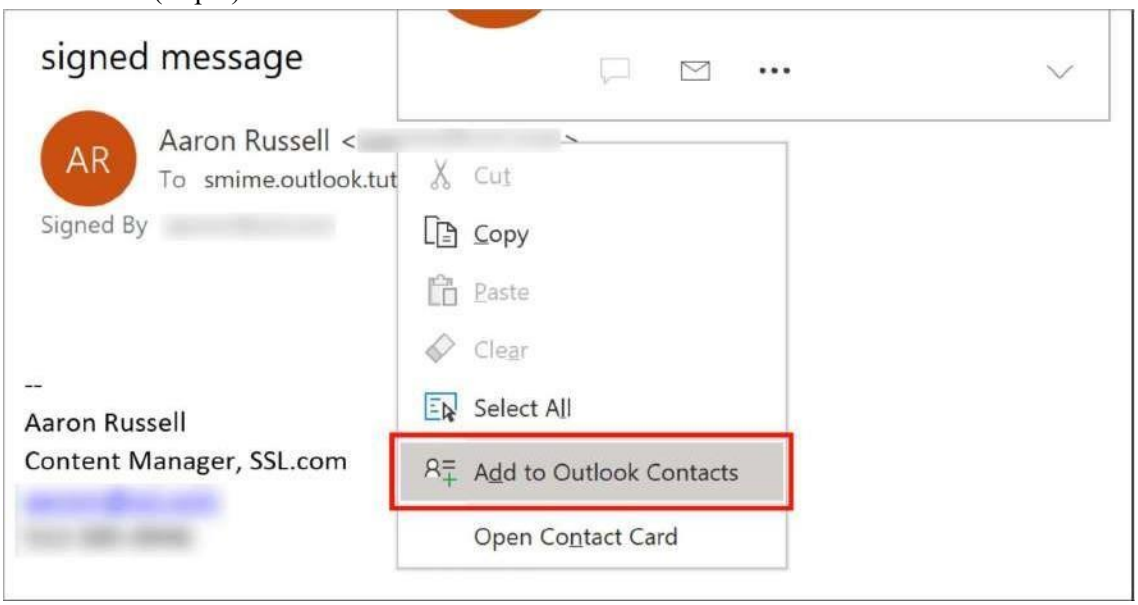


Allow Outlook to use your private key.

Potential problem with encryption.

Confirm signature

Add contact (step 1).

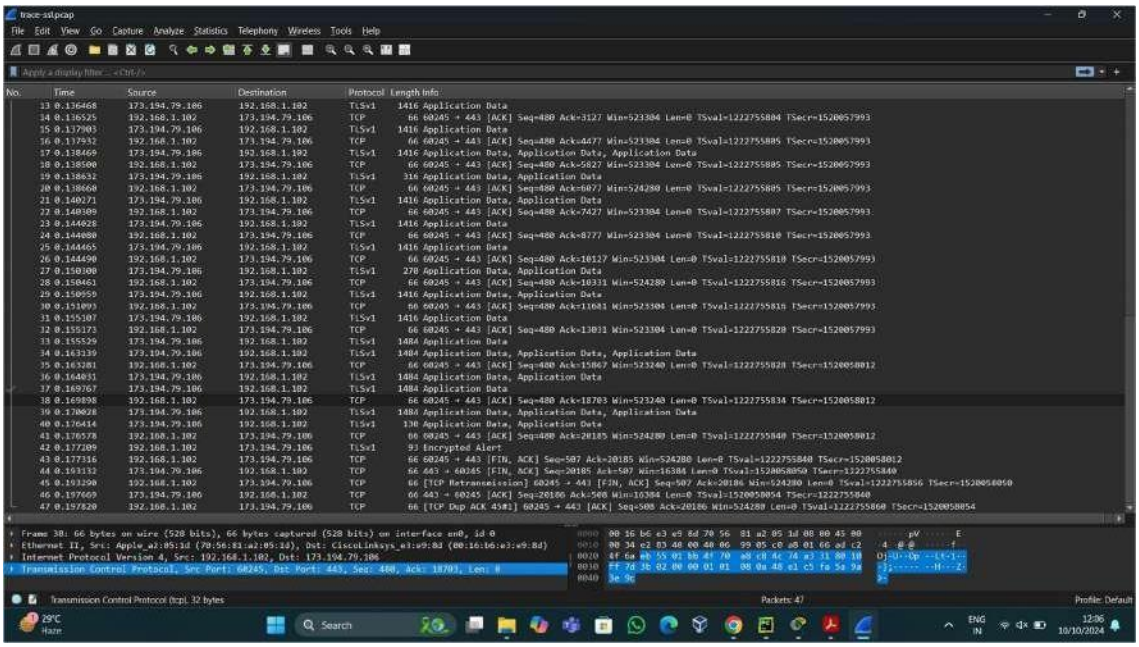


Name:Saish Baviskar
Div:A Roll No: TEAD23155

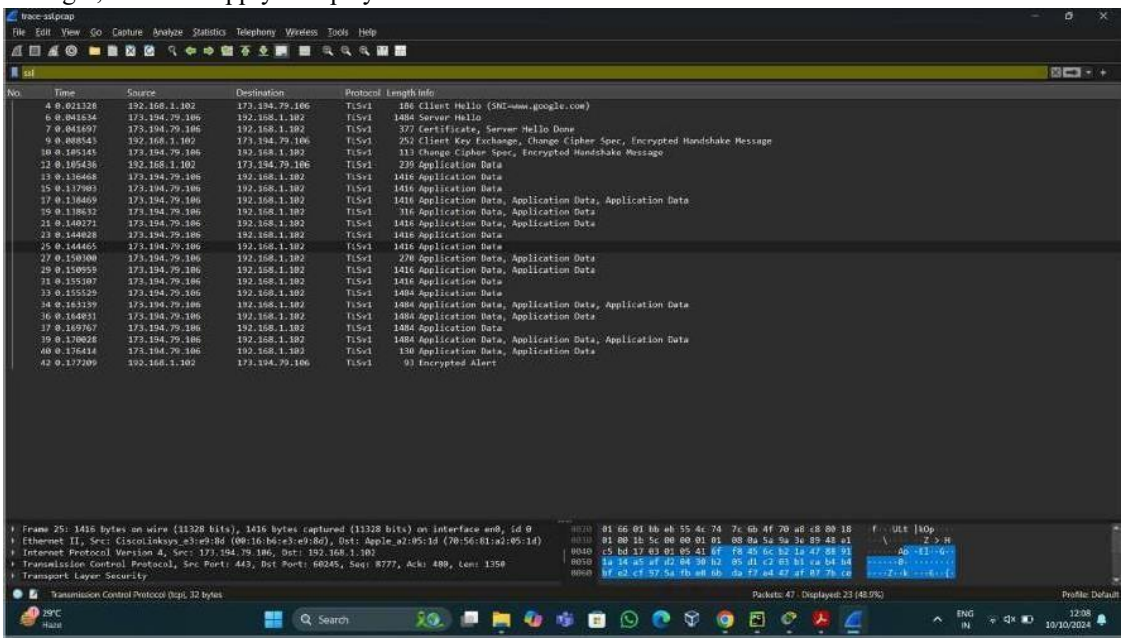
Practical No. 10

Problem Statement: To observe SSL/TLS (Secure Sockets Layer / Transport Layer Security) in action.

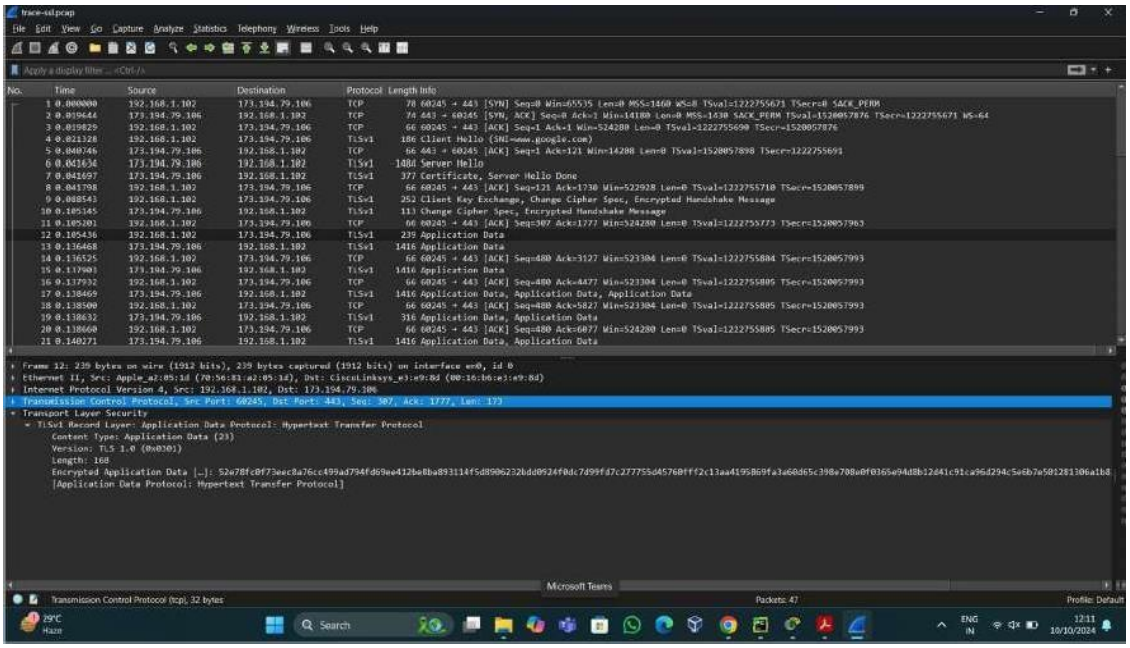
1. Open the Wireshark trace https://kevincurran.org/com320/labs/wireshark/trace-ssl.pcap



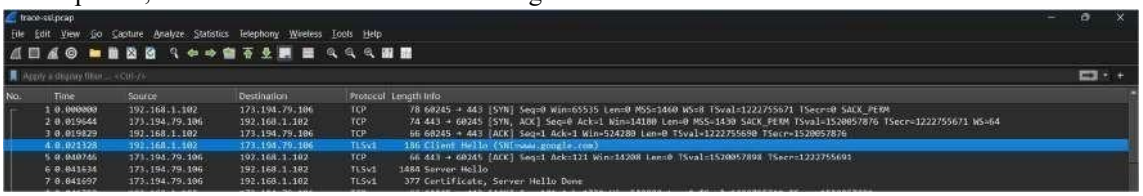
2. To begin, enter and apply a display filter of “ssl”.



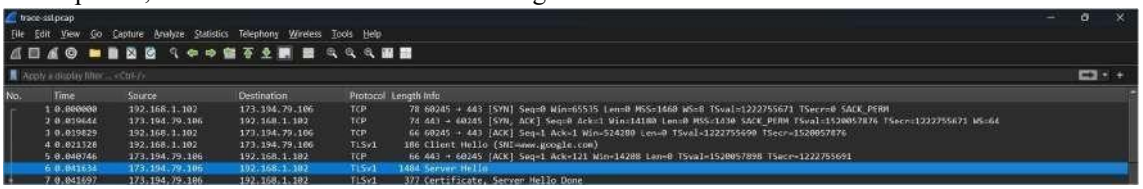
3. Select a TLS message somewhere in the middle of your trace for which the Info reads “Applica-tion Data” & expand its Secure Sockets Layer block



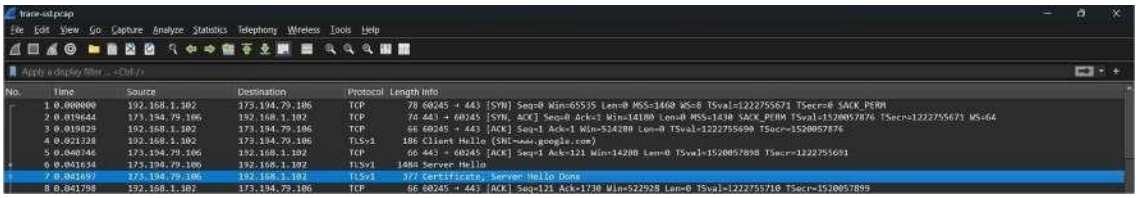
4. Select packet, which is a TLS Client Hello message



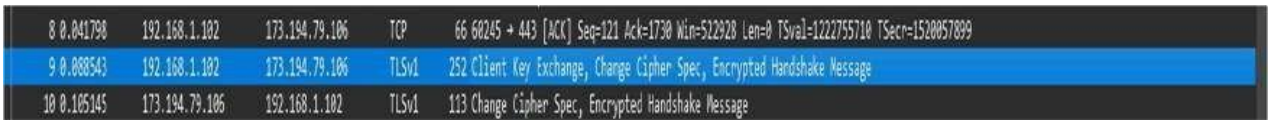
5. Select packet, which is a TLS Server Hello message



6. Next, find and inspect the details of the Certificate message including expanding the Handshake protocol block within the TLS Record.



7. Find and inspect the details of the Client Key Exchange and Change Cipher messages



```
Transport Layer Security
▾ TLSv1 Record Layer: Change Cipher Spec Protocol: Change Cipher Spec
    Content Type: Change Cipher Spec (20)
    Version: TLS 1.0 (0x0301)
    Length: 1
    Change Cipher Spec Message
▾ TLSv1 Record Layer: Handshake Protocol: Encrypted Handshake Message
    Content Type: Handshake (22)
    Version: TLS 1.0 (0x0301)
    Length: 36
    Handshake Protocol: Encrypted Handshake Message
```

8. Finally, find and inspect the details of an Alert message at the end of the trac

```
Transport Layer Security
▾ TLSv1 Record Layer: Encrypted Alert
    Content Type: Alert (21)
    Version: TLS 1.0 (0x0301)
    Length: 22
    Alert Message: Encrypted Alert
```

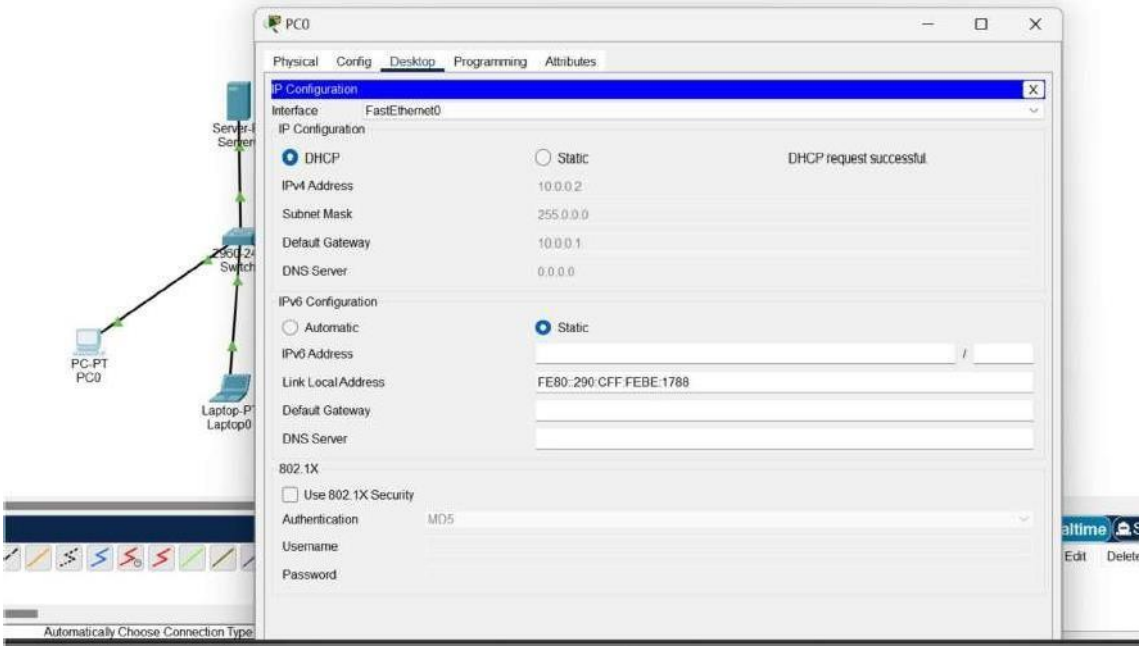
Name: Saish Baviskar
Div: A Roll No: TEAD23155

Practical No.11

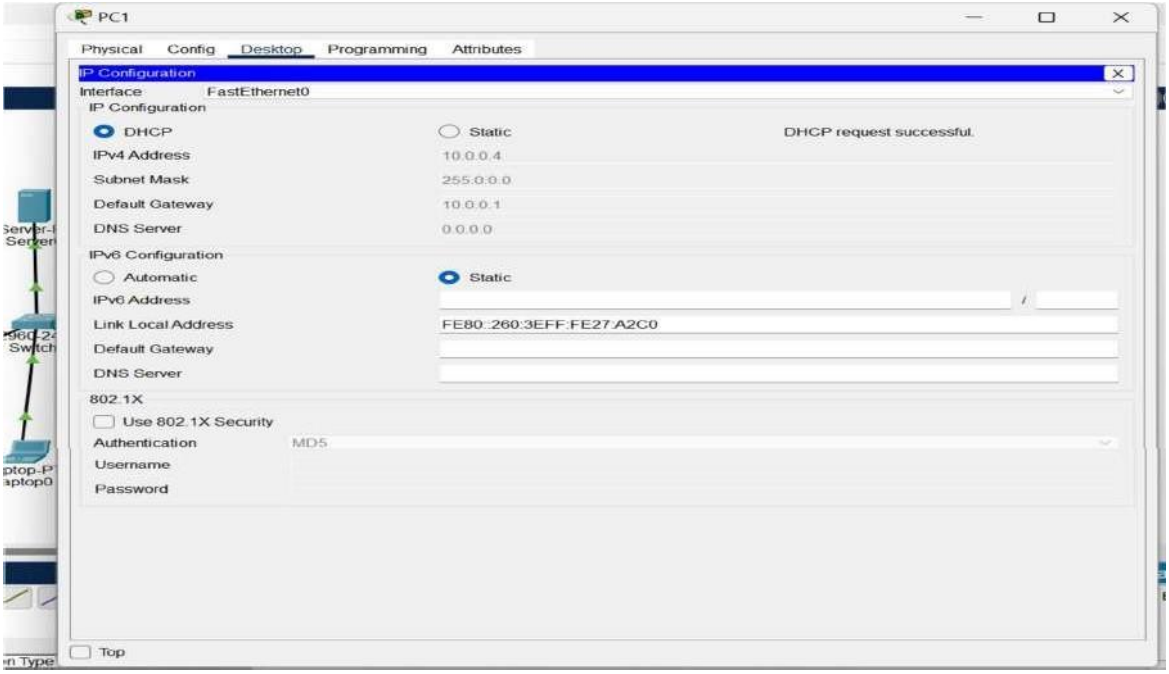
Problem Statement: Installing and configuring DHCP server and assign IP addresses to client machines using DHCP server.

1 Checking The connection Using DHCP Server

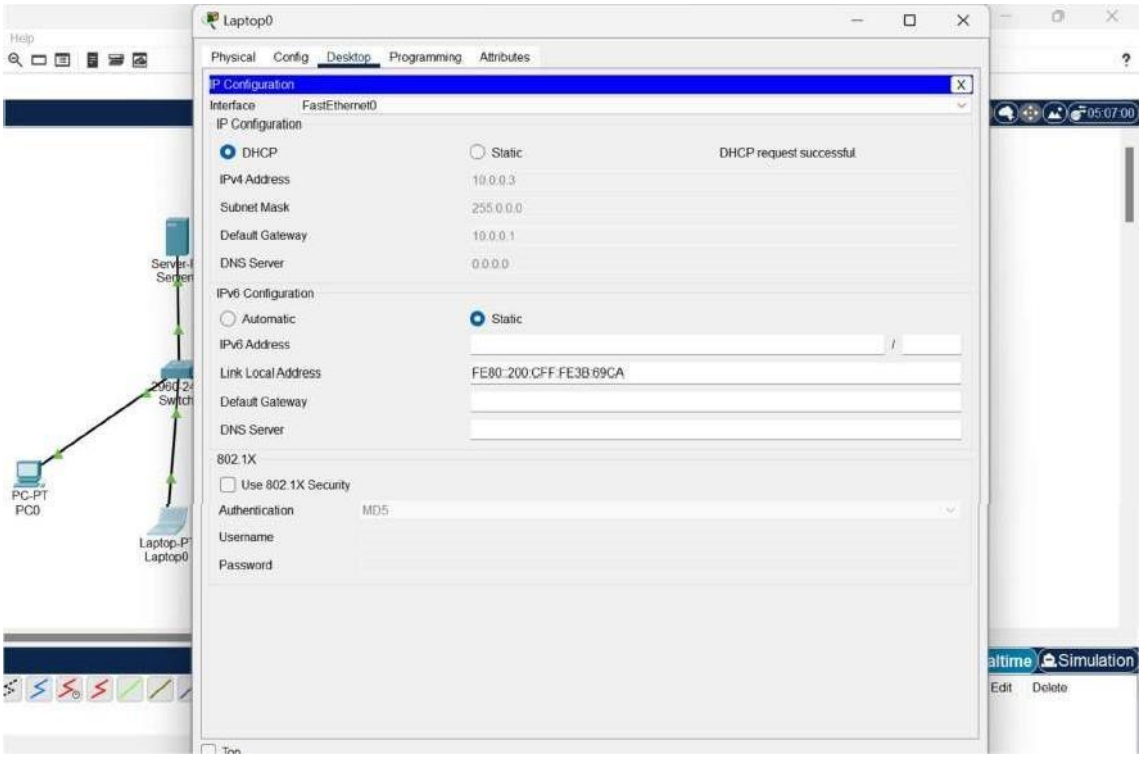
2 PC0



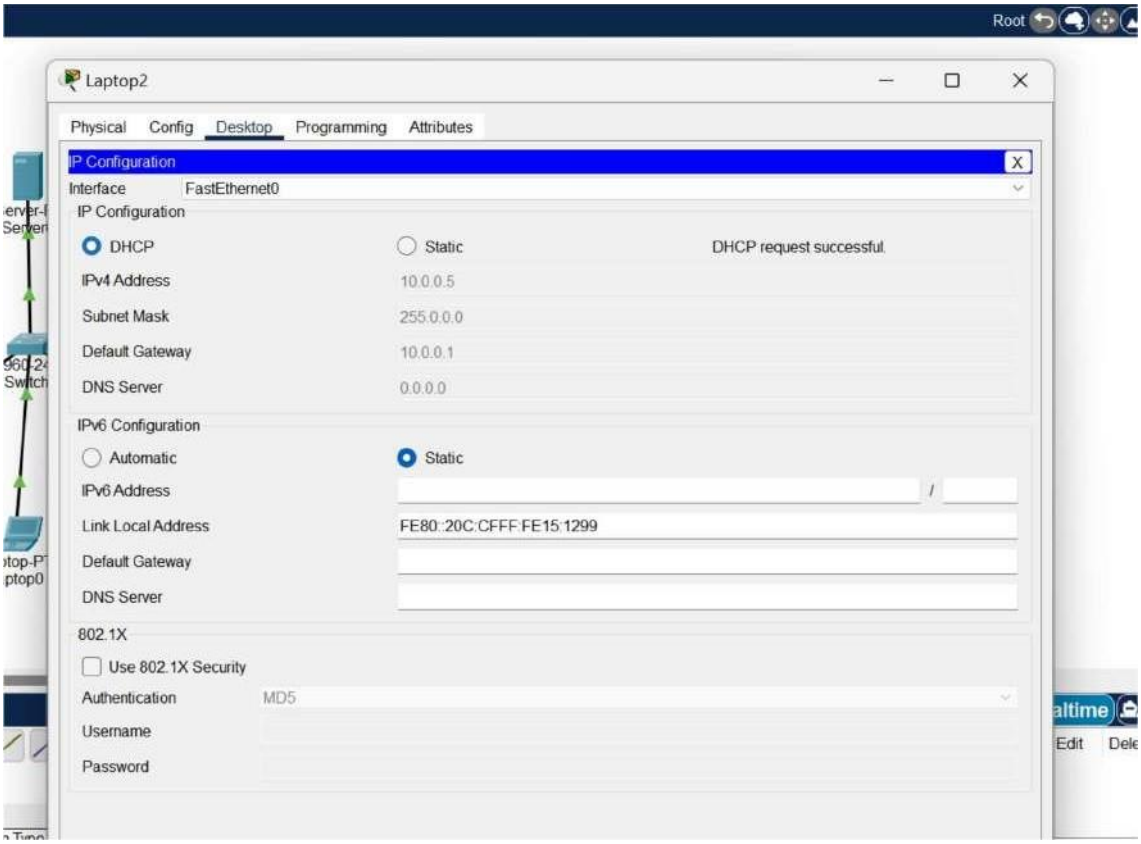
PC1



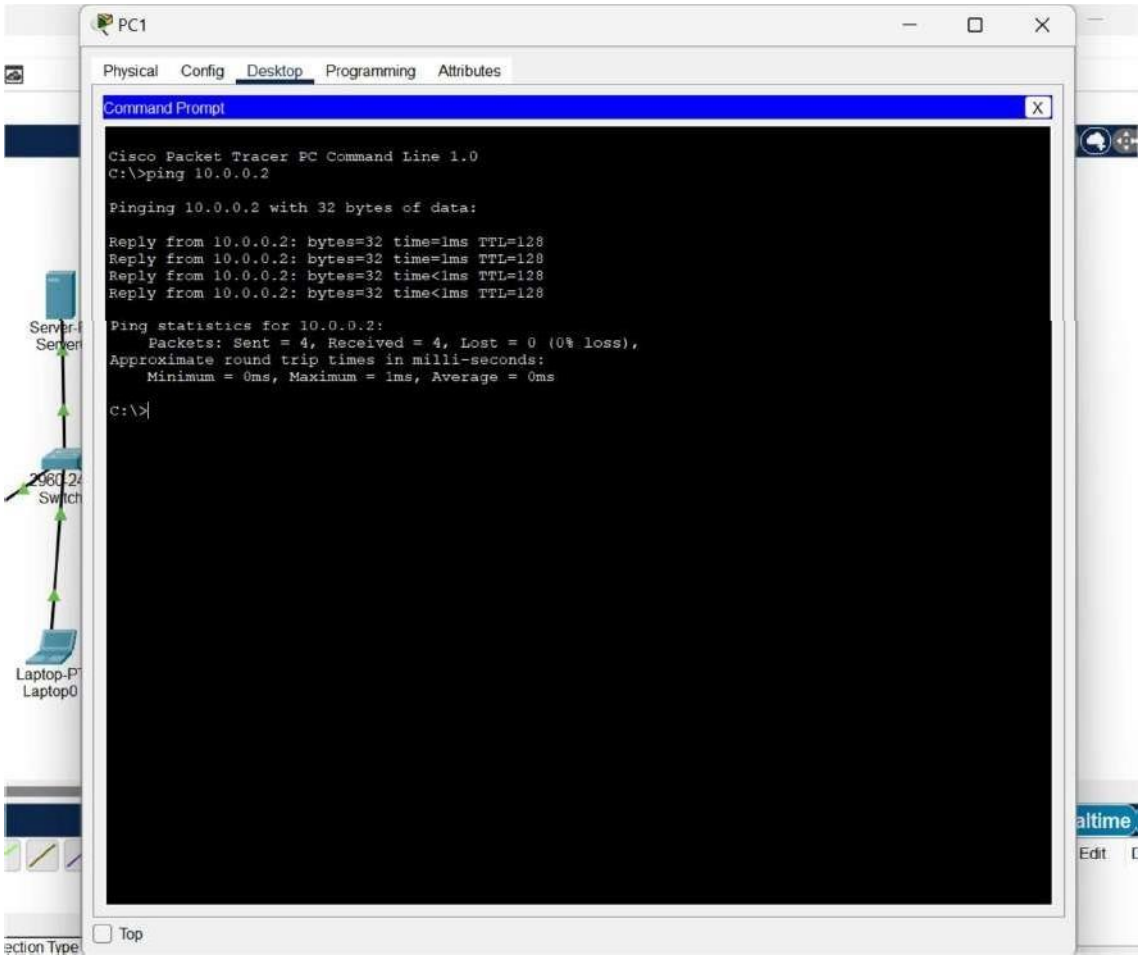
Laptop0



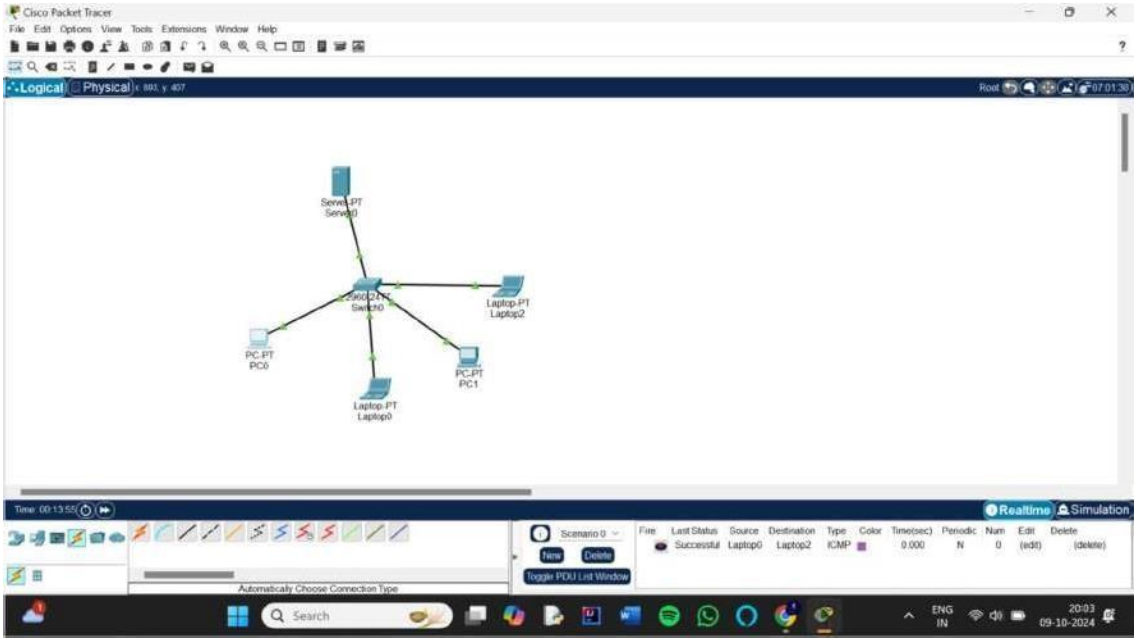
Laptop2



Checking The connection in PC



1. Sending the message Laptop to Laptop



Name: Saish Baviskar
Div: A Roll No: TEAD23155

Practical no.12

Title: Write a program for DNS lookup. Given an IP address input, it should return URL and vice versa.

Program:

```
import java.net.*;
import java.util.Scanner;

public class DNSLookup1 {
   public static void main(String[] args) {
      Scanner scanner = new Scanner(System.in);
      int choice = 0;
      System.out.println("===== DNS Lookup Tool =====");
      do {
         System.out.println("\nMenu:");
         System.out.println("1. Find IP address from URL");
         System.out.println("2. Find URL (hostname) from IP address");
         System.out.println("3. Exit");
         System.out.print("Enter your choice (1-3): ");
         if (scanner.hasNextInt()) {
            choice = scanner.nextInt();
            scanner.nextLine();  // consume newline
         } else {
            System.out.println("Invalid input! Please enter a number between 1 and 3.");
            scanner.nextLine();  // clear invalid input
            continue;
         }
         try {
            switch (choice) {
               case 1:
                  System.out.print("Enter URL (e.g., www.google.com): ");
                  String url = scanner.nextLine().trim();
                  if (url.isEmpty()) {
                     System.out.println("URL cannot be empty.");
                     break;
                  }
                  InetAddress inetAddress = InetAddress.getByName(url);
                  System.out.println("Host Name: " + inetAddress.getHostName());
```

```
                System.out.println("IP Address: " + inetAddress.getHostAddress());
                break;
            case 2:
                System.out.print("Enter IP address (e.g., 142.250.183.132): ");
                String ip = scanner.nextLine().trim();
                if (ip.isEmpty()) {
                    System.out.println("IP address cannot be empty.");
                    break;
                }
                InetAddress inetAddressByIP = InetAddress.getByName(ip);
                String hostName = inetAddressByIP.getHostName();

                if (hostName.equals(ip)) {
                    System.out.println("No hostname found for IP " + ip + ".
                        Reverse DNS lookup failed.");
                } else {
                    System.out.println("Hostname for IP " + ip + " is: " + hostName);
                }
                break;
            case 3:
                System.out.println("Exiting DNS Lookup Tool. Goodbye!");
                break;
            default:
                System.out.println("Invalid choice! Please select between 1 and 3.");
                break;
            }
        } catch (UnknownHostException e) {
            System.out.println("Lookup failed: " + e.getMessage());
        }

    } while (choice != 3);
    scanner.close();
  }
}
```

OUTPUT:

```
ubuntu@ubuntu:~$ javac DNSLookup1.java
ubuntu@ubuntu:~$ java DNSLookup1
===== DNS Lookup Tool =====

Menu:
1. Find IP address from URL
2. Find URL (hostname) from IP address
3. Exit
Enter your choice (1-3): 1
Enter URL (e.g., www.google.com): www.chatgpt.com
Host Name: www.chatgpt.com
IP Address: 172.64.155.209

Menu:
1. Find IP address from URL
2. Find URL (hostname) from IP address
3. Exit
Enter your choice (1-3): 2
Enter IP address (e.g., 142.250.183.132): 142.250.183.138
Hostname for IP 142.250.183.138 is: bom07s31-in-f10.1e100.net

Menu:
1. Find IP address from URL
2. Find URL (hostname) from IP address
3. Exit
Enter your choice (1-3): 3
Exiting DNS Lookup Tool. Goodbye!
ubuntu@ubuntu:~$
```