*Assignment 16*

**Problem Definition:** Illustrate the steps for implementation of S/MIME email

security throughMicrosoft Office Outlook.

*Prerequisite:*

**Learning Objectives**:

1

. Understand the concept and working of Encrypted mails

*Theory*

**MIME (Secure/Multipurpose Internet Mail Extensions)**

S/MIME allows users to send encrypted and digitally signed emails. This protocol

allows recipients of the email to be certain the email they receive is the exact message

that began with the sender. It also helps ensure that a message going to an outbound

recipient is from a specific sender and not someone assuming a false identity.

*How does S/MIME work?*

S/MIME provides cryptographic-based security services like authentication,

message integrity, and digital signatures. All these elements work together to

enhance privacy and security for both the sender and recipient of an email.

S/MIME also works with other technologies such as Transport Layer Security (TLS)

which encrypts the path between two email servers. The protocol is also compatible

with Secure SocketsLayer (SSL) which masks the connection between email

messages and Office 365 (a common email service) servers.

In addition, BitLocker works in conjunction with S/MIME protocol, which encrypts

data on a hard drive in a data center so if a hacker gets access, he or she won’t be

able to interpret the information.

**1**

*Benefits of encrypted email*

**Safeguards sensitive data**

If you’re sending information like your Social Security number over email, it’s

important that it’snot easily stolen by hackers.

**1**

**. Economical**

Instead of purchasing security equipment, you can simply rely on email encryption

that’s integrated directly on the server.

**2**

**. Timesaving**

Instead of wasting time using several programs to make sure a connection is secure,

you can rely on email encryption to do most of the work for you.

**3**

**. Regulation compliance**

If you work in the healthcare industry, for example, and you haven’t taken the right

steps to secure medical data, you could be in violation of HIPAA laws [6].

Encryption helps you avoid those missteps.

*4*

*. Protects againstmalware*

Malicious emails sometimes contain viruses masked as innocent email attachments.

If you or someone else send an attachment using encrypted email, the email has a

digital signature to proveits authenticity.

*How does email encryption work?*

If you don’t want anyone but the receiver to see the contents of a message, [encryption](https://www.hp.com/us-en/shop/tech-takes/what-are-different-types-of-encryption)

is vital. To the outsider, an encrypted email will have a bunch of random letters,

digits, or symbols instead of readable text. The person with the private key to decrypt

it, typically the receiver, will be able to read the email as usual.

*There are generally three* [*encryption types*](https://www.hp.com/us-en/shop/tech-takes/what-are-different-types-of-encryption) *available:*

●

●

●

S/MIME encryption works as long as both the sender and recipient have

mailboxes thatsupport it. Windows Outlook is the most popular version

that works with this method. Gmail uses it as well.

Office 365 Message Encryption is best for users with valid Microsoft

Office licenses who can use this tool to encrypt the information and files

sent via email. It’s also a topchoice for Outlook users

PGP/MIME is a more affordable and popular option that other email

clients may prefer to use. It’s reliable and integrated into many of the

apps we use today

Other email products may have their own brand of encryption, but the science behind

it is the same. Only senders and recipients who have exchanged keys or digital

signatures can communicate within the encrypted network.

*How to send encrypted email in Outlook*

Encrypting email may sound complicated, but it’s not. Microsoft has a reputation for

providing its users with simple ways to encrypt data, from files to folders to emails,

too. It makes sense that they would include built-in tools for Outlook, their

proprietary email system. You don’t need a separate software tool or plug-in to start

sending secure messages. Just follow these steps to begin.

**1**

**.** *Create a digitalcertificate*

For Outlook users, encrypting a single email is simple. First, you must have a digital

signature. To create a digital signature:

1. Start in your Outlook window and click on the File tab

2. Select Options, then Trust Center, then Trust CenterSettings

3. Select Email Security, Get a Digital ID

4. You’ll be asked to choose a certification authority. This is entirely up to

you as most arerated the same

5

6

7

8

. You’ll receive an email with your digital certificate/IDincluded

. Go back into Outlook and select Options and the Security tab

. In the Security Settings Name field, type in a name of your choosing

. Ensure that S/MIME is selected from the Secure Message Format box

and that DefaultSecurity Settings is checked as well

9. Go to Certificates and Algorithms, select Signing Certificate, and clickChoose

1

0. Make sure the box is checked next to Secure Email Certificate, and

check the box nextto “Send These Certificates with SignedMessages”

11.Click OK to save your settings and start usingOutlook

**2**

**.** *Use your digitalsignature*

**Now that you have a digital ID, you need to start using it:**

1

2

3

4

. Open a new message to access the Tools tab

. Click that, then Customize, and finally the Commands tab

. From Categories, select Standard

. From Categories, select Digitally Sign Message

**3**

**.** *Encrypt Outlook messages*

You can now send encrypted messages to a recipient with the next steps.

1

. Open the window to compose a new message and select theOptions

tab, then MoreOptions

2

. Click the dialog box (triangle with arrow pointing down) in the lower-right corner

3

. Choose SecuritySettings and check the box next to Encrypt

message contents andattachments

4

. Write your message as normal and send

After you’ve sent and received a message that you’ve both signed and encrypted,

you don’t haveto sign it again. Outlook will remember your signature.

**4**

**.** *Encrypt all Outlookmessages*

You can encrypt each one, or you can use the steps below to encrypt all

outgoing messages inOutlook:

Open the File tab in Outlook

Select Options, then Trust Center, and Trust

Center SettingsFrom the Email Securitytab,

select Encrypted email

Check the box next to Encrypt content and attachments for

outgoing messagesUse Settings to customize additional

options, including certificates

**How to Send Encrypted Email**

Have you ever wondered about the security of your private email conversations?

Whether at work, school, or home, sending emails comes with a bit of a risk.

There’s one thing you can do to

discourage data breaches and attacks on your sensitive data, however. Use

encrypted email. Learnhow to practice this common-sense method for

communicating in our step-by-step guide. But first, let’s look at why you should

embrace encryption for your email correspondence.

*How to Encrypt Email and Send Secure Messages*

Emails sent over an open network can be intercepted and malicious actors can see

email contents,attachments, or even take over your account.

To drive home the importance of email security, take a look at some alarming

statistics that showthe widespread cybersecurity issues that may have affected

you in the past and still pose a threat today.

**Conclusion:** Thus we have studied the steps for implementation of S/MIME

email securitythrough Microsoft® Office Outlook.

