Computer Engineering Department
Engineering Department

Academic Year: 2021-2022

Class: S.Y.B.Tech   **Sem.:** 4   **Course:** CCN

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Experiment No.	9		

AIM:	To implement the SMTP server to send and receive mails.
THEORY:	**What Is Simple Mail Transfer Protocol (SMTP)?** Almost all of your online activity is made possible through the help of **protocols**—the special networking-software rules and guidelines that allow your computer to link up to networks everywhere so you can shop, read news, send email and more. (Your IP address, which stands for **Internet Protocol**, is just one of many.) ## What is SMTP? SMTP is part of the application layer of the TCP/IP protocol. Using a process called "store and forward," SMTP moves your email on and across networks. It works closely with something called the Mail Transfer Agent (MTA) to send your communication to the right computer and email inbox.

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SMTP spells out and directs how your email moves from your computer's MTA to an MTA on another computer, and even several computers.

SMTP at work.
SMTP provides a set of codes that simplify the communication of email messages between email servers (the network computer that handles email coming to you and going out). It's a kind of shorthand that allows a server to break up different parts of a message into categories the other server can understand. When you send a message out, it's turned into strings of text that are separated by the code words (or numbers) that identify the purpose of each section.

Nothing fancy about it.
SMTP is able to transfer only text—it isn't able to handle fonts, graphics, attachments, etc.—maybe that's why it's called simple. Fortunately, Multipurpose Internet Mail Extensions were created to lend a hand. MIME encodes all the non-text content into plain text. In that transformed format, SMTP is coaxed into transferring the data.

SMTP Protocol
The SMTP model is of two types:
  1. End-to-end method
  2. Store-and- forward method
The end-to-end model is used to communicate between different organizations whereas the store and forward method is used within an organization. An SMTP client who wants to send the mail will contact the destination's host SMTP directly, in order to send the mail to the destination. The SMTP server will keep the mail to itself until it is successfully copied to the receiver's SMTP.
The client SMTP is the one that initiates the session so let us call it client- SMTP and the server SMTP is the one that responds to the session request so let us call it receiver-SMTP. The client- SMTP will start the session and the receiver-SMTP will respond to the request.

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Model of SMTP system

In the SMTP model user deals with the user agent (UA), for example, Microsoft Outlook, Netscape, Mozilla, etc. In order to exchange the mail using TCP, MTA is used. The user sending the mail doesn't have to deal with MTA as it is the responsibility of the system admin to set up a local MTA. The MTA maintains a small queue of mails so that it can schedule repeat delivery of mails in case the receiver is not available. The MTA delivers the mail to the mailboxes and the information can later be downloaded by the user agents.
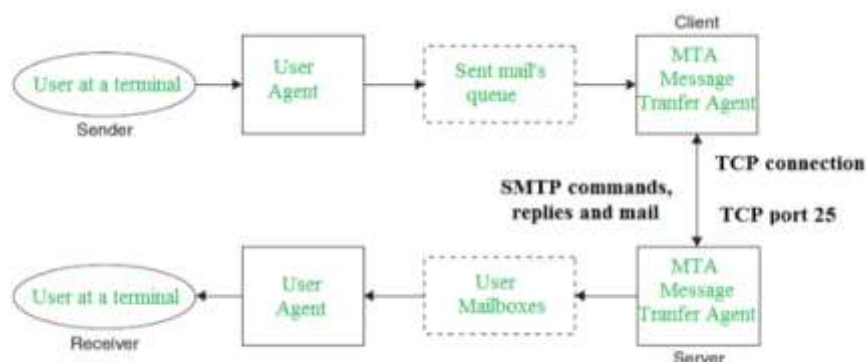
Both the SMTP-client and SMTP-server should have 2 components:
  1. User-agent (UA)
  2. Local MTA

Communication between sender and the receiver :
The sender's user agent prepares the message and sends it to the MTA. The MTA's responsibility is to transfer the mail across the network to the receiver's MTA. To send mails, a system must have a client MTA, and to receive mails, a system must have a server MTA.
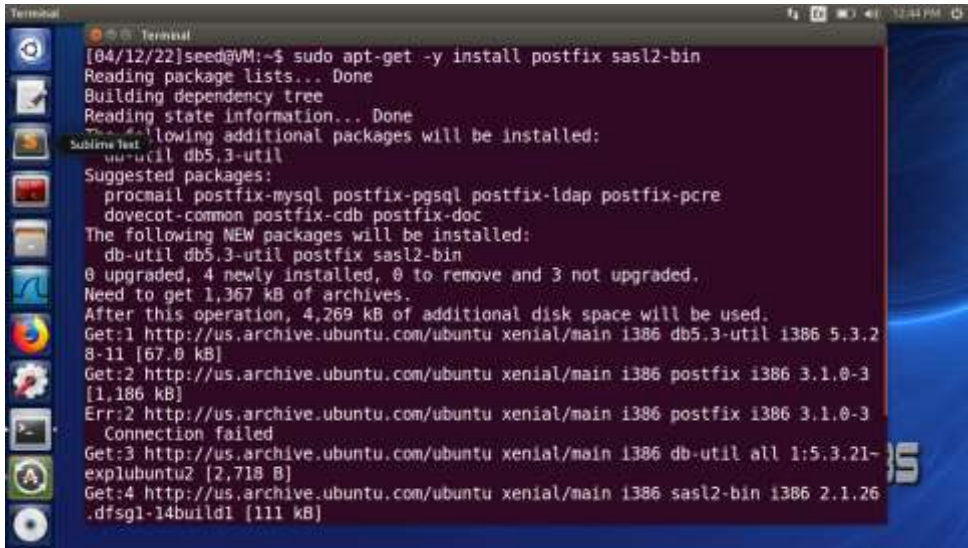
SENDING EMAIL:
Mail is sent by a series of request and response messages between the client and the server. The message which is sent across consists of a header and a body. A null line is used to terminate the mail header and everything after the null line is considered as the body of the message, which is

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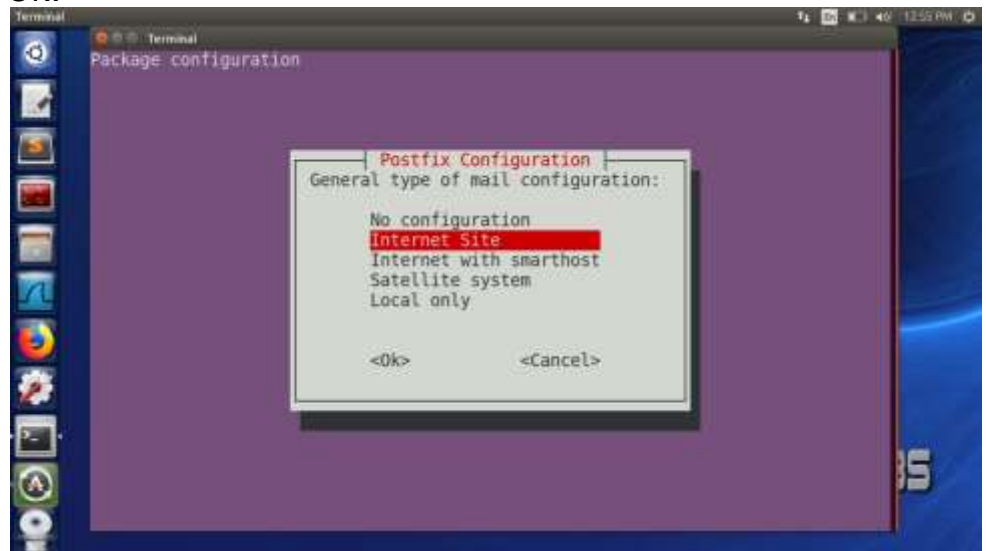|	
	a sequence of ASCII characters. The message body contains the actual information read by the receipt. **RECEIVING EMAIL:** The user agent at the server-side checks the mailboxes at a particular time of intervals. If any information is received, it informs the user about the mail. When the user tries to read the mail it displays a list of emails with a short description of each mail in the mailbox. By selecting any of the mail users can view its contents on the terminal
EXPERIMENT 1	
SCREENSHOTS:	First we download the necessary packages for smtp server Note: Update all the required and installed packages using sudo apt-get update. The postfix screen wont pop up if all the installed packages is not up to date After the mailutils is installed press tab and then enter to setup the configuration of the SMTP server

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Select the option of internet site and press TAB followed by Ok.

Enter the system mail name as example.com in the following screen.

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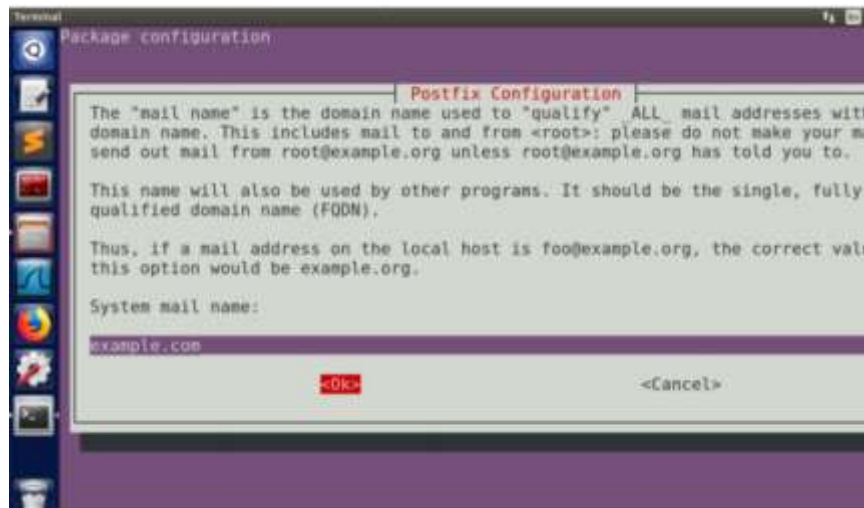
Use the sudo gedit /etc/postfix/main.cf and change relayhost to [smtp.gmail.com]:587. Add the following statements to the end of the file

Before

Added lines

```
readme_directory = no
smtp_sasl_auth_enable = yes
smtp_sasl_security_options = noanonymous
smtp_sasl_password_maps =
hash:/etc/postfix/sasl_passwd smtp_use_tls
= yes
smtp_tls_CAfile = /etc/ssl/certs/ca-certificates.crt |
# TLS parameters
smtpd_tls_cert_file=/etc/ssl/certs/ssl-cert-snakeoil.pem
smtpd_tls_key_file=/etc/ssl/private/ssl-cert-snakeoil.key
smtpd_use_tls=yes
smtpd_tls_session_cache_database = btree:${data_directory}/smtpd_scache
smtp_tls_session_cache_database = btree:${data_directory}/smtp_scache
```
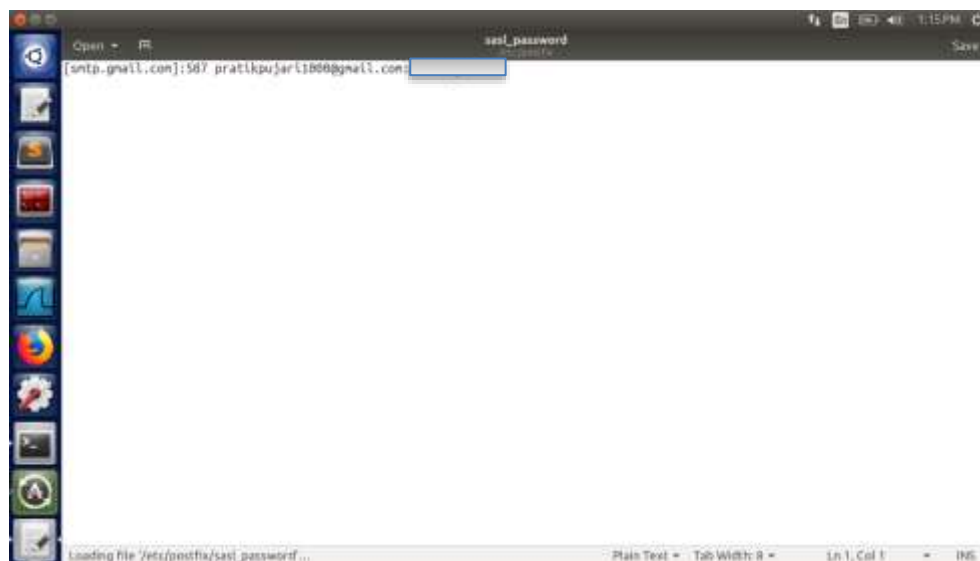
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	Use the sudo gedit etc/postfix/sasl_passwd to create a new file and enter your username and password in the following format. After saving the file and create a hash file for the same by using the command shown in the below screen. After this restart the postfix service and use the mail command to send a mail with a given message and subject to the specified email ID.

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CONCLUSION: In this experiment I learnt how to configure an SMTP Server in virtual machine. Also learn how to send mails using the smpt postfix package. I also learnt about the mail available with the mailutils library in Ubuntu through which I was able to create and send an e-mail using the terminal in Linux.